APPENDIX A – PHASE I ENVIRONMETAL SITE ASSESSMENT REPORT

CONVERSE CONSULTANTS

Phase I Environmental Site Assessment Report

1314 North Angelina Drive
Placentia, California

Converse Project No. 19-42-206-01
January 6, 2020

Prepared For:

National Community Renaissance of CA
9421 Haven Avenue
Rancho Cucamonga, California 91730

Prepared By:

Converse Consultants
717 South Myrtle Avenue
Monrovia, California 91016

Converse Consultants

Geotechnical Engineering, Environmental and Groundwater Science, Inspection and Testing Services

January 6, 2020

Ms. Sarah Walker
National Community Renaissance of CA
9421 Haven Avenue
Rancho Cucamonga, California 91730

Subject: **PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT**
1314 North Angelina Drive
Placentia, California
Converse Project No. 19-42-206-01

Ms. Walker:

Converse Consultants (Converse) is pleased to submit the attached report that summarizes the activities and the results of a Phase I Environmental Site Assessment (Phase I ESA) that was conducted at the referenced property.

A summary of the assessment is presented in the Executive Summary, as well as in Sections 8.0, 9.0, and 10.0 of the report. No Recognized Environmental Conditions were identified during this assessment. The identification of the Property in an oil field is considered an environmental concern and requires compliance with Orange County Fire Authority (OCFA) per Guideline C-03 for assessment and mitigation of combustible soil gas. Converse recommends consultation with OCFA and then completion of a soil gas survey.

We appreciate the opportunity to be of service. Should you have any questions or comments regarding this report, please contact Spencer Wagner at 626-930-1200 or Norman S. Eke at (626) 930-1261 .

CONVERSE CONSULTANTS

Spencer Wagner
Senior Staff Environmental Scientist

Norman S. Eke
Senior Vice President/Managing Officer

Executive Summary

The following is an Executive Summary of the Phase I Environmental Site Assessment (Phase I ESA) that was conducted by Converse Consultants (Converse). Please refer to the appropriate sections of the report for a complete discussion of these issues. In the event of a conflict between this Executive Summary and the report, or an omission in the Executive Summary, the report shall prevail.

This report presents the results of the Converse Phase I ESA performed at 1314 North Angelina Drive in the City of Placentia, Orange County, California, referred to as the Property in this report. Converse was retained by National Community Renaissance of CA to conduct this Phase I ESA. Our study has been conducted in order to identify, to the extent practical within the scope of an ESA, Recognized Environmental Conditions (RECs) in connection with the Property.

Converse has compiled and reviewed information that was obtained from interviews, document research, and on-site and area reconnaissance to identify potential environmental conditions at the Property, in conformance with the ASTM Standard E: 1527-13 Environmental Site Assessment Standard Practice (ASTM Standard: E1527- 13). This Phase I ESA was conducted during the period of October 3, 2019 to January 6, 2020.

No Recognized Environmental Conditions were identified during this assessment.

The following environmental concern was noted:

- The Property is located within an oil field

The identification of the Property in an oil field is considered an environmental concern and requires compliance with OCFA per Guideline C-03 for assessment and mitigation of combustible soil gas. Converse recommends consultation with OCFA and then completion of a soil gas survey.

Report Section		**No Further Action**	**REC**	**CREC**	**HREC**	**Other Environmental Considerations**	**Recommended Action / Comments**
3.0	USER PROVIDED INFORMATION & RESPONSIBILITIES	✓					
5.2.5	Summary of Historical Property Use	✓					

Report Section		No Further Action	REC	CREC	HREC	Other Environmental Considerations	Recommended Action / Comments
5.2.6	Summary of Past Uses of Adjoining Properties	✔					
5.2.7	Summary of Past Uses of the Surrounding Area	✔					
5.3.1	Property Listings	✔					
5.3.2	Adjoining Properties	✔					The identification of a former unauthorized release at the non-contiguous western adjoining property (1400 N. Kraemer Boulevard) is not considered a REC as the release was limited to soil only and the site was issued a closure designation in 2002. The identification of the non-contiguous northwestern adjoining property as a former dry cleaner with a cleanup incident is not considered a

Report Section		No Further Action	REC	CREC	HREC	Other Environmental Considerations	Recommended Action / Comments
							REC as the site was issued a case closure designation in 2001.
5.3.3	Other Off-site Locations of Concern	✔					
5.4	Additional Environmental Record Sources					✔	The Property is located within the Richfield Oil Field which meets the OCFA criterion for properties that are required to follow the Combustible Soil Gas Hazard Mitigation Guideline C-03. Converse recommends consultation with OCFA and then completion of a soil gas survey.
6.3	Interior Observations of Property	✔					
6.4	Exterior Observations of Property	✔					

Report Section		No Further Action	REC	CREC	HREC	Other Environmental Considerations	Recommended Action / Comments
6.5	Current Uses of Adjoining Properties	✔					
6.6	Current Uses of Surrounding Area	✔					
7.0	INTERVIEWS	✔					

TABLE OF CONTENTS

TABLE OF APPENDICES

Appendix F - OCFA Guide-C03-Combustible Gas

1.0 INTRODUCTION

1.1 Purpose and Scope of Services

This report presents the results of the Converse Consultants (Converse) Phase I Environmental Site Assessment (ESA) performed at 1314 North Angelina Drive in the City of Placentia, Orange County, California, referred to as the Property in this report. Converse was retained by National Community Renaissance of CA to conduct this Phase I ESA. Our study has been conducted in order to identify, to the extent practical, Recognized Environmental Conditions (RECs) in connection with the Property. The term Recognized Environmental Conditions is defined in Section 1.1.1 of the American Society of Testing and Materials (ASTM) Standard Practice as the presence or likely presence of any hazardous substances or petroleum products in, at or on a property due to any release to the environment; under conditions indicative of a release to the environment; under conditions that pose a material threat of a future release to the environment.

This Phase I ESA was completed in accordance with our proposal dated October 3, 2019. Our work consisted of the following and was completed in general conformance with the scope and limitations of the ASTM Practice E1527-13 and complies with standards and practices set forth in 40 Code of Federal Regulations (CFR) Part 312 for AAI.

- Interviews with the Property owner representatives
- Property and vicinity reconnaissance
- Review of regulatory agency records
- Description of physical setting
- Historical review
- Interviews with public agency personnel
- Preparation of this report

1.2 Non-Scope Considerations

There are a number of non-scope issues which are sometimes assessed concurrently with a Phase I ESA. Unless specifically agreed in the contract proposal documents, these non-scope considerations are not included as part of the Phase I ESA. Examples of non-scope issues include:

- Asbestos-containing Building Materials
- Biological Agents
- Cultural & Historic Resources
- Diffuse Anthropogenic Pollution
- Ecological Resources
- Endangered Species
- Health & Safety
- Indoor Air Quality
- Industrial Hygiene
- Lead-base Paints
- Lead in Drinking Water
- Mold
- Non-liquid Polychlorinated Biphenyls
- Radon
- Regulatory Compliance
- Wetlands

No Non-Scope issues were addressed in this report.

1.3 Significant Assumptions

No assumptions were made for this assessment that need to be noted as significant.

1.4 Limitations and Exceptions

There are no limitations and exceptions.

1.5 Special Terms and Conditions

No special terms or conditions.

1.6 Reliance

This report is for the sole benefit and exclusive use of National Community Renaissance of CA in accordance with the terms and conditions attached to our proposal under which these services have been provided. Its preparation has been in accordance with generally accepted environmental practices. No other warranty, either express or implied, is made. The Scope of Services associated with the report was designed solely in accordance with the objectives, schedule, budget, and risk-management preferences of National Community Renaissance of CA.

This report should not be regarded as a guarantee that no further contamination, beyond that which could be detected within the scope of this assessment, is present at the Property. Converse makes no warranties or guarantees as to the accuracy or completeness of information provided or compiled by others. It is possible that information exists beyond the scope of this assessment. It is not possible to absolutely confirm that no hazardous materials and/or substances exist at the Property. If none are identified as part of a limited scope of work, such a conclusion should not be construed as a guaranteed absence of such materials, but merely the results of the evaluation of the property at the time of the assessment. Also, events may occur after the Property visit, which may result in contamination of the Property. Additional information, which was not found or available to Converse at the time of report preparation, may result in a modification of the conclusions and recommendations presented.

Any reliance on this report by Third Parties shall be at the Third Party's sole risk. Should National Community Renaissance of CA wish to identify any additional relying parties not previously identified, a completed Application of Authorization to Use (see Appendix A of this report) must be submitted to Converse Consultants.

2.0 PROPERTY DESCRIPTION

Item	Comment
Current Use(s) of the Property	The Property is owned by the Archdiocese of Los Angeles, and is occupied byBlessed Sacrament Church, which utilizes the Property as a church and kindergarten. A Property location map and a field generated Property plan are provided in Appendix B. Pertinent Property photographs are provided in Appendix C.
Location and Legal Description	The Property is located at 1314 North Angelina Drive, Placentia, California. The Property is located on the northeast corner of the intersection of Morse Avenue and N. Angelina Drive. The Property is located approximately 1.05-mile east of the Orange (57) Freeway. The Property consists of one (1) parcel and is approximately 3.6-acres. The Orange County Assessor's Parcel Number for the Property is 340-273-25.
Zoning Information	According to the City of Placentia, Planning Department, the zoning for the Property is R1 for residential use.
Property Characteristics	The Property is rectangular shaped parcel containing approximately 3.6-acres square feet. The Property is generally level and the Property is developed with a church building, Parrish building, and kindergarten building. The remainder of the Property is covered with asphalt-paved parking and landscaped areas. The Property fronts onto North Angelina Drive to the west and Morse Avenue to the south.
Description of Property Structure(s)	There are three (3), single-story buildings located on the Property. The church building is a concrete masonry unit (CMU) and wood-framed building. The Parrish and kindergarten

Item	Comment
	buildings are wood-framed construction. Interior building materials consist of laminate flooring, painted drywall interior walls, and painted interior ceilings and/or drop-tile ceilings.
The following services were present at the Property at the time of the assessment.	
Electricity:	Southern California Edison (SCE)
Gas:	Southern California Gas (SCG)
Potable Water:	Golden State Water Company
Sanitary Sewer:	City of Placentia Public Works
Heating, Ventilation, Air Conditioning (HVAC):	Window-mounted HVAC, and pad-mounted HVAC units
Solid Waste:	Republic Services

3.0 USER PROVIDED INFORMATION & RESPONSIBILITIES

3.1 Requested Documents and Information

The ASTM E1527-13 specifies that the User, National Community Renaissance of CA provide any helpful documents that may be available, as listed below.

- Environmental site assessment or environmental compliance audit reports
- Environmental permits or hazardous waste generator notices/reports
- Registrations for aboveground and underground storage tanks
- Septic systems, oil wells, or water wells
- Registrations for underground injection systems
- Material Safety Data Sheets; Community Right to Know Plans; or Safety, Preparedness and prevention Plans; Spill Protection Countermeasures and Control Plans
- Reports regarding hydrologic conditions on the Property or surrounding area
- Notices or other correspondence form any government agency relating to past or current violations of environmental laws with respect to the Property or relating to environmental liens encumbering the Property.
- Hazardous waste generator notices or reports
- Geotechnical studies
- Risk assessments
- Recorded Activity Use Limitations (AULs)
- Proceedings regarding hazardous substances and petroleum products including any pending, threatened or past: litigation; administrative proceedings; or notices from any governmental entity regarding possible violations of environmental laws or other possible liability related to hazardous substances or petroleum products.

National Community Renaissance of CA provided Converse with a copy of a site map depicting the proposed future development of the Property. No items of environmental concern were noted.

3.2 User Provided Information

Section 6 of ASTM E1527-13 outlines specific User's responsibilities. This information will help identify the possibility of RECs in connection with the Property. The ASTM Standard provides a questionnaire to help the User to comply with the statutory requirements to perform tasks which would help identify RECs. Converse included the questionnaire as Attachment A to our proposal. In general, any Users should make Converse aware of information they have regarding the following:

- Environmental Cleanup Liens filed or recorded against the Property
- Activity and land use limitations that are in place on the Property or have been filed or recorded in a registry.
- Specialized knowledge or experience of the person seeking to qualify for the Legal Liability Protections (LLP)
- Relationship of the purchase price to fair market value of the Property if it were not contaminated
- Commonly known or reasonably ascertainable information about the Property
- The degree or obviousness of the presence or likely presence of contamination at the Property, and the ability to detect this contamination by appropriate investigation.

The following information was requested from the User, National Core of California.

3.2.1 Environmental Cleanup Liens

The User had no information regarding environmental cleanup liens or title records.

3.2.2 Activity and Use Limitations

The User did not have any information indicating they were aware of any AULs.

3.2.3 Specialized Knowledge or Experience

The User did not have any information indicating they had specialized knowledge or experience related to the Property or nearby property.

3.2.4 Reason for Significantly Lower Purchase Price

Converse has no information regarding the purchase price of the Property or comparable properties. The User has not indicated to Converse that there is any conclusion that there was a lower purchase price because of known or suspected contamination at the Property.

3.2.5 Commonly Known or Reasonably Ascertainable Information

The User did not have any information about past uses, specific chemicals at the Property, past spills, environmental cleanup or other reasonably ascertainable information regarding the Property.

3.2.6 Obviousness of Contamination

The User did not have any information based on their knowledge or experience that would be obvious indicators of contamination on the Property.

Unless specifically stated otherwise in the Scope of Services, the purpose of this Phase I ESA was to qualify for the landowner liability protections to CERCLA Liability as described in ASTM E1527-13.

Business risk unrelated to the CERCLA innocent landowners defense are only assessed as specifically agreed in the Scope of Services and discussed in Section 12.0, Additional Non-Scope Services, of this report.

3.3 Continuing Obligations

In order to assert a LLP, the User must satisfy a number of statutory requirements that are generally referred to as Continuing Obligations, which are outside the Scope of Services of the Phase I ESA. Examples of Continuing Obligations include providing legally required notices, stopping continuing releases and complying with land use restrictions. Failure to comply with these and other statutory post-acquisition requirements will jeopardize liability protection.

It is the responsibility of the User to comply with the Continuing Obligations requirements of ASTM E1527-13 and AAI. Anyone seeking LLP protections should take independent action beyond this Phase I ESA to perfect their position.

4.0 OWNER PROVIDED INFORMATION

The ASTM E1527-13 specifies that the Property owner and the Key Site Manager provide any helpful documents that may be available as listed below.

- Environmental site assessment or environmental compliance audit reports
- Environmental permits or hazardous waste generator notices/reports

- Registrations for aboveground and underground storage tanks
- Septic systems, oil wells, or water wells
- Registrations for underground injection systems
- Material Safety Data Sheets; Community Right to Know Plans; or Safety, Preparedness and Prevention Plans; Spill Protection Countermeasures and Control Plans
- Reports regarding hydrologic conditions on the Property or surrounding area
- Notices or other correspondence from any government agency relating to past or current violations of environmental laws with respect to the Property or relating to environmental liens encumbering the Property.
- Hazardous waste generator notices or reports
- Geotechnical studies
- Risk assessments
- Recorded AULs
- Proceedings regarding hazardous substances and petroleum products including any pending, threatened or past: litigation; administrative proceedings; or notices from any governmental entity regarding possible violations of environmental laws or other possible liability related to hazardous substances or petroleum products.

As of the date of this report, the Property owner representative, Father Barrett, hasn't returned our interview questionnaire.

5.0 RECORDS REVIEW

5.1 Physical Setting

Item	Comments
Physical Setting:	The Property is located approximately 300 feet above mean sea level with surface topography sloping towards the east/southeast (United States Geological Survey [USGS] Topographic Map, Yorba Linda, California, 2015).
Geology:	The Property is underlain by unconsolidated and semi-consolidated alluvium, lake, playa, and terrace deposits (Division of Mines and Geology, Geologic Map of California, 2010).
Groundwater:	The Property is not covered by currently published groundwater contour maps. The direction of regional groundwater flow is assumed to follow surface topography towards the east/ southeast.
Potable Water Supply:	Potable water is supplied by the Golden State Water Company.

5.2 Historical Review

5.2.1 Aerial Photograph and Map Review

Available historical aerial photographs and historical maps, which were provided by Environmental Risk Information Services (ERIS), were reviewed.

According to ERIS, there is no Fire Insurance Map coverage for the Property.

A summary of the review is provided in the following table. Copies of the aerial photographs and maps are provided in an appendix to this report.

Table 1 – Historical Resource Review

Property	Adjoining Properties	General Vicinity
1896, 1898, and 1901 Topographic Map		
Undeveloped	Undeveloped	Undeveloped
1928 and 1938 Aerial Photograph, 1942 Topographic Map, 1947 Aerial Photograph, 1949 and 1950 Topographic Maps, 1953 Aerial Photograph		
The Property is developed for agricultural use.	The adjoining properties are typically developed for agricultural and/or residential uses.	Agricultural and residential
1963 Aerial Photograph, 1964 Topographic Map		
The Property is developed with the main church building.	The adjoining properties to the north, northeast, and east have been developed with the existing residential neighborhood. The remaining adjoining properties are developed for residential and/or agricultural use.	Agricultural and residential
1972 Aerial Photograph and Topographic Map		
There are no significant identifiable changes to the Property.	The adjoining properties to the northwest, west, and southwest appear to be fallow agricultural land. The properties to the north, northeast, east, southeast, south, and	Residential and commercial

Property	Adjoining Properties	General Vicinity
	southwest appear developed for residential use.	
1975 Aerial Photograph		
There are no significant identifiable changes to the Property.	The northernmost western adjoining property has been developed with the existing commercial building. There are no significant identifiable changes in uses on the adjoining properties.	Residential and commercial
1980 Aerial Photograph, 1981 Topographic Map, 1988 Aerial Photograph		
The Parrish building has been constructed north of the main church building.	The remaining western and northwestern adjoining properties have been developed with the existing commercial buildings. The north, northeast, east, southeast and south adjoining properties are developed for residential use. The southwestern adjoining property is vacant.	Residential and commercial
1995 and 2002 Aerial Photographs		
There are no significant identifiable changes to the Property.	There are no significant identifiable changes on the adjoining properties	Residential and commercial

Property	Adjoining Properties	General Vicinity
	with the exception of the southwestern adjoining property which is developed with the existing commercial building.	
2005, 2009, 2010, 2012, and 2014 Aerial Photographs, 2015 Topographic Map, 2016 and 2018 Aerial Photographs		
The third building (school building) has been developed along the eastern boundary of the Property.	There are no significant identifiable changes to the adjoining properties.	Residential and commercial

5.2.2 Building Permit Review

Available building permits were reviewed from the City of Placentia, Department of Building & Safety. A chronological summary is provided below.

2003 - A building permit is issued to construct the existing kindergarten building on the Property.

Additional building permits for a patio cover, and storage shed, as well as various correspondences between the City and Church between 1990 and 2003 were also reviewed. No environmental concerns were noted.

5.2.3 City Directories

A city directory search was completed on the Property. The complete city directory is provided in the historical research appendix to this report.

The Property was identified as being occupied by Blessed Sacrament Episcopal Church from as early as 1970 through the present.

The adjacent properties were typically identified under residential listings.

5.2.4 Data Failure

Historical information regarding the Property indicated the Property was undeveloped land as early as 1894. Therefore, no historical data failure occurred during this assessment.

5.2.5 Summary of Historical Property Use

The Property was undeveloped as early as 1894. The Property appeared developed for agricultural use from as early as 1928 to 1953. The Property was developed with the existing church building by 1963. The existing Parrish building was developed by 1980. The existing kindergarten building was developed by 2005.

5.2.6 Summary of Past Uses of Adjoining Properties

The adjoining properties were typically undeveloped as early as 1894. The properties were further developed for agricultural uses with sporadic residential uses as early as 1928. The adjoining properties were further developed with residential neighborhoods in the 1960s through 1970s. The adjoining properties to the northwest, west, and southwest were developed with the existing commercial uses between 1975 and 1995. The adjoining properties have remained in residential and commercial uses.

5.2.7 Summary of Past Uses of the Surrounding Area

The surrounding area was typically undeveloped with sporadic residential uses as early as 1894. The area was further developed for agricultural uses beginning in the 1920s. Residential neighborhood and commercial developments continued from the 1960s through the 1980s.

5.3 Results of Environmental Records Sources Review

An ERIS Database Report prepared specifically for the Property, adjoining properties and other off-site locations of concern. The search included queries to the following databases for cases within specified ASTM search distances. A copy of the database report is provided in an appendix to this report.

5.3.1 Property Listings

The Property was not identified on the databases in the ERIS report.

5.3.2 Adjoining Properties

The following adjoining properties were identified in the report:

- 1402 N. Angelina Drive - The site is located north of the Property and is listed in the Hazardous Waste Manifest Data (HAZNET) database for the generation of asbestos containing waste in 2012. The waste was identified as being disposed of at a landfill.
- 1407 N. Angelina Drive - The site is located northwest of the Property and is listed in the Resource Conservation and Recovery Act (RCRA) Non Generator (NON GEN) database. No additional pertinent information was provided.
- 1454 N. Kraemer Boulevard - The site is located in a retail center northwest of the Property, across N. Angelina Drive, and is listed in the Toxic Pollutant Emissions Facilities (EMISSIONS) and Department of Toxic Substances Control (DTSC) ENVIROSTOR database for the former operation of a drycleaners. According to the ENVIROSTOR listing, a Remedial Action Agreement Notification letter was sent to the Property. A hand-written note on the letter states "per R. Senga no RCRA site". The site is listed in the RCRA Small Quantity Generator (SQG) and Federal Drycleaners database but no additional pertinent information was provided. The site is listed in the Orange County Industrial Cleanup Program Cases (ORANGE ICP) database for a cleanup of "perchloroethylene". According to the listing, the site was issued case closure in 2001.
- 1320 N. Kraemer Boulevard - The site is located west of the Property and is identified in the RCRA NON GEN database. No additional pertinent information was provided.

- 1400 N. Kraemer Boulevard - The site is located west of the Property. The site is listed as the Placentia Post Office in the Historical Hazardous Substances Storage Information (HHSS) and Historical Tank (HIST TANK) databases for the former of operation of a 10,000-gallon motor vehicle fuel underground storage tank (UST). The site is listed in the County of Orange (ORANGE) Local Oversight Program (LOP) and Leaking Underground Storage Tank (LUST) databases as a facility that was issued closure certification in 2002. The site is listed in the RCRA SQG, RCRA NON GEN, and Delisted Tank databases. No additional pertinent information is provided.

Surrounding Properties Summary

Database	Site Name	Address	Dist. (mi) / Dir.	Elev. diff. (ft)	Comments
HAZNET	fatima jadallah	1402 n angelina dr, PLACENTIA, CA, 92870	0.01/ NNW	0.0	North - See above.
RCRA NON GEN	TOM DEMARTI	1407 ANNAJEANNE DRIVE, PLACENTIA, CA, 92870	0.03/ NNE	2.0	Northwest - See above.
EMISSIONS	NORTON'S PALM CLEANERS	1454 NKRAEMER BL., PLACENTIA, CA, 92670	0.05/ NNW	2	Northwest - See above.
ENVIROSTOR	NORTON CLEANERS	1454 NORTH KRAEMER	0.05/ NNW	2.0	Northwest - See above.

Database	Site Name	Address	Dist. (mi) / Dir.	Elev. diff. (ft)	Comments
		BOULEVARD, PLACENTIA, CA, 92870			
RCRA NON GEN	REES M OLSON DDS PROFESSIONAL CORPORATION	1320 N KRAEMER BLVD, PLACENTIA, CA, 92870-3401	0.06/W	-6.0	West - See above.
HHSS	PLACENTIA POST OFFICE	1400 N. KRAEMER, PLACENTIA, CA, 92670	0.07/ WNW	-6.0	West - See above.
HIST TANK	PLACENTIA POST OFFICE	1400 N. KRAEMER, PLACENTIA, CA,	0.07/ WNW	-6.0	West - See above.
ORANGE LOP	PLACENTIA POST OFFICE	1400 N KRAEMER BLVD, PLACENTIA, CA, 92871	0.07/ WNW	-6.0	West - See above.
RCRA SQG	USPS PLACENTIA POST OFFICE	1400 N KRAEMER BLVD, PLACENTIA, CA, 92870	0.07/ WNW	-6.0	West - See above.

Database	Site Name	Address	Dist. (mi) / Dir.	Elev. diff. (ft)	Comments
DELISTED TNK	PLACENTIA POST OFFICE	1400 N KRAEMER BLVD, PLACENTIA, CA, 92871	0.09/N	7.0	West - See above.
LUST	PLACENTIA POST OFFICE	1400 KRAEMER, PLACENTIA, CA, 92871	0.10/ NW	-1.0	West - See above.
DRYCLEANERS	NORTON CLEANERS INC	1454 KRAEMER, PLACENTIA, CA, 926860000	0.15/ NW	3.0	Northwest - See above.
EMISSIONS	NORTON'S PALM CLEANERS	1454 N. KRAEMER BL., PLACENTIA, CA, 92670	0.15/ NW	3.0	Northwest - See above.
EMISSIONS	NORTON'S PALM CLEANERS	1454 N KRAEMER BLVD, PLACENTIA, CA, 92670	0.15/ NW	3.0	Northwest - See above.
FED DRYCLEANERS	NORTON PALM CLEANERS	1454 KRAEMER BLVD, PLACENTIA, CA, 92870	0.15/ NW	3.0	Northwest - See above.

Database	Site Name	Address	Dist. (mi) / Dir.	Elev. diff. (ft)	Comments
ORANGE ICP	NORTONS PALM CLEANERS	1454 N KRAEMER BLVD, PLACENTIA, CA, 92870	0.15/ NW	3.0	Northwest - See above.
RCRA SQG	NORTON PALM CLEANERS	1454 KRAEMER BLVD, PLACENTIA, CA, 92870	0.15/ NW	3.0	Northwest - See above.

5.3.3 Other Off-site Locations of Concern

Other off-site locations of concern identified by ERIS within a maximum one-mile radius from the Property included registered UST sites, LUST sites, hazardous waste generators, permitted hazardous materials handlers, and school sites.

The potential for environmental concern to the Property from these off-site locations of concern appear to be low due to one or more of the following: type of regulatory listing; type of resource (soil) affected; distance from the Property; status of the case; remedial efforts being directed by a regulatory agency; and/or potential responsible parties have been identified.

5.3.4 Orphan Listings

No orphan listings were identified in the report.

5.4 Additional Environmental Record Sources

Federal Agencies

Federal Agencies	
Source	**Comments**
U.S. Department of Transportation, Pipeline and Hazardous Material Safety Administration (PHMSA)	PHMSA online mapping system for gas transmission pipelines and hazardous liquid pipelines on the Property or adjacent properties was reviewed (https://www.npms.phmsa.dot.gov/PublicViewer/). No pipelines were identified on the Property or adjacent properties.

State Agencies

State Agencies	
Source	**Comments**
California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC)	No information regarding the Property was on file with DTSC. The Envirostor website (http://www.envirostor.dtsc.ca.gov/public/) was reviewed for information, and the Property was not listed in the database.
Cal/EPA, Regional Water Quality Control Board (RWQCB)	The RWQCB had no records on file regarding underground storage tank (UST) or well investigation program (WIP) issues involving the Property. The Geotracker website (http://geotracker.waterboards.ca.gov/) was reviewed for information, and the Property was not listed in the database.

State Agencies	
Source	**Comments**
California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR)	According the DOGGR Online Database (http://maps.conservation. ca.gov/doms/ doms-app.html), there are no oil or gas wells located on the Property or adjacent properties. The database indicated that the Property is located within the Richfield Oil Field. A plugged oil and gas well is located approximately 0.1-miles southwest of the Property in a residential neighborhood (approximately 460 feet). See Figure 3. The site location within the Richfield Oil Field is an environmental concern because there are development requirements by the Orange County Fire Authority that require assessment and mitigation of combustible soil gas.

Local Agencies

Source	Comments
South Coast Air Quality Management District (SCAQMD)	According to the SCAQMD, a permit to remove damaged building materials containing asbestos was issued at the Property in 2010.
Orange County Fire Authority (OCFA)	OCFA had no records regarding storage tanks, leaks, spills, cleanups, hazardous waste or hazardous materials. The OCFA Combustible Soil Gas Hazard Mitigation Guideline C-03 provides guidelines for "scientific investigation, remediation, and/or mitigation of potentially hazardous concentrations of combustible soil gases associated with the construction and occupancy of a building or structure" in areas that meet any of six (6)

Source	Comments
	criteria. Based on the guidance document, the Property meets the first criterion of "Any location within an administrative boundary or a distance less than or equal to 100 feet beyond the administrative boundary of any oil/gas field that has been defined by the Division of Oil, Gas, and Geothermal Resources (D.O.G.G.R.)." Consultation with OCFA and a soil gas survey will required. See Appendix F.
Orange County Health Care Agency (OCHCA)	There were no agency records pertaining to the Property on file with this agency.
Methane	The Property is located in the Richfield Oil Field and will require compliance with OCFA Guideline C-03 for assessment in and mitigation of combustible soil gas.

6.0 PROPERTY RECONNAISSANCE

6.1 Methodology

On December 19, 2019, Converse visited the Property to evaluate present use and to identify observable environmental conditions at the Property. Our methodology involved walking the perimeters, center lines, and accessible interior areas of the buildings while noting observed evidence of present and potential environmental concerns.

A field-generated map is provided in Appendix B. Pertinent Property photographs are provided in Appendix C.

6.2 Limiting Conditions

Converse's findings are based on the Property conditions observed on Thursday, December 19, 2019.

6.3 Interior Observations of Property

During our Property visit, Converse made the following observations of the interior of the Property's building(s):

Table 3 – Interior Observations of Property

Item or Condition	Observed Evidence	No Evidence Observed	Comments
Hazardous Substances & Petroleum Products:	✔		Household quantities of paints, cleaners, and fuel were observed in the maintenance shed on the east side of the church building. No leaking or staining was observed.

Item or Condition	Observed Evidence	No Evidence Observed	Comments
Storage Tanks & Related Equipment:		✓	
Odors:		✓	
Standing Surface Water or Other Pools of Liquid:		✓	
Drums & Other Containers of Hazardous Substances, Petroleum Products, or Other Unidentified Contents:		✓	
Transformers or Equipment containing Polychlorinated Biphenyls (PCBs):		✓	
Heating/Cooling System:	✓		HVAC vents and window-mounted HVAC units were observed in the Property buildings.
Stains or Corrosion on Floors, Walls or Ceilings:		✓	

Item or Condition	Observed Evidence	No Evidence Observed	Comments
Drains and Sumps		✔	

6.4 Exterior Observations of Property

During our Property visit, Converse made the following observations of the exterior of the Property:

Table 4 – Exterior Observations of Property

Item or Condition	Observed Evidence	No Evidence Observed	Comments
Hazardous Substances & Petroleum Products:		✔	
Storage Tanks & Related Equipment:		✔	
Odors:		✔	
Standing Surface Water or Other Pools of Liquid:		✔	
Drums & Other Containers of Hazardous		✔	

Item or Condition	Observed Evidence	No Evidence Observed	Comments
Substances, Petroleum Products, or Other Unidentified Contents:			
Transformers or Equipment containing Polychlorinated Biphenyls (PCBs):		✔	
Pits, Ponds, or Lagoons:		✔	
Stained Soil or Pavement:		✔	
Stressed Vegetation (other than from insufficient water):		✔	
Evidence of Mounds, Depressions or Filled or Graded Areas Suggesting Trash or Other Solid Waste Disposal:		✔	
Waste Water or any discharge (including storm		✔	

Item or Condition	Observed Evidence	No Evidence Observed	Comments
water) into a Drain, Ditch, or Stream on or Adjacent to the Property:			
Wells (active, inactive, or abandoned):		✔	
Septic Systems or Cesspools:		✔	
Prior Structures:		✔	
Roads, Tracks, Railroad Tracks or Spurs:	✔		The Property fronts onto N. Angelina Drive to the west, and Morse Avenue to the south.

Additional Comments

6.5 Current Uses of Adjoining Properties

Based on our research and observations during our Property visit, the Property is bordered by the following:

Table 5 – Adjoining Property Use

Direction	Current Development
North:	Residential

Direction	Current Development
Northeast:	Residential
Northwest:	N. Angelina Drive followed by retail building (1404-1454 N. Kraemer Blvd).
South:	Morse Avenue followed by residential.
Southeast:	Morse Avenue followed by residential.
Southwest:	Intersection of N. Angelina Drive and Morse Avenue followed by multi-unit residential (1290 N. Kraemer Blvd).
East:	Residential
West:	N. Angeline Drive followed by Citibank (1300 N. Kraemer Blvd.), Multi-unit commercial (1310-1390 N. Kraemer Blvd.), and Placentia Post Office (1400 N. Kraemer Blvd.).

6.6 Current Uses of Surrounding Area

Based on our research and observations during our Property visit, the surrounding area of the Property consists of residential and commercial.

7.0 INTERVIEWS

Interview:	Comments:
Property Owner:	Father Barrett Van Buren completed the questionnaire as a representative of the Los Angeles Archdiocese. Father Van Buren stated that there were no hazardous materials used or stored at the Property, and that there have been no cleanups of the Property. Father Van Buren also stated that, to the best of his knowledge, there were no environmental liens recorded at the Property.
Tenant/ Occupant:	Patty, Office Manager for the church, was interviewed during the Property reconnaissance. Patty stated that the Property was developed with a church, Parrish building, and kindergarten building. Patty stated that there were no hazardous materials used or stored on the Property, and she was unaware of any environmental concerns pertaining to the Property or adjoining properties.
State or Local Government Officials:	Other than the information in Section 5.4, no additional information could be provided.
Owners and Occupants of Neighboring Sites:	No interviews of owners or occupants of neighboring sites were conducted.

8.0 FINDINGS

A cursory summary of findings is provided below. However, details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein.

The Property is owned by the Archdiocese of Los Angeles, and is occupied by Blessed Sacrament Church, which utilizes the Property as a church and kindergarten.

The Property was undeveloped as early as 1894. The Property appeared developed for agricultural use from as early as 1928 to 1953. The Property was developed with the existing church building by 1963. The existing Parrish building was developed by 1980. The existing kindergarten building was developed by 2005.

Minor quantities of paints, cleaners, and fuel were observed in the storage shed on the east side of the church building. No leaking or staining was observed.

The Property is located within the Richfield Oil Field which meets the OCFA criterion for properties that are required to follow the Combustible Soil Gas Hazard Mitigation Guideline C-03. A plugged oil and gas well is located approximately 0.1-mile southwest of the Property (approximately 460 feet).

In 2010, asbestos containing building materials were removed from the Property.

The Property is not listed in the regulatory database report.

The northwestern adjoining property (1454 N. Kraemer Blvd.) was identified as having formerly been occupied by a drycleaner. A cleanup occurred at the site and the site was issued closure in 2001.

The western adjoining US Post Office (1400 N. Kraemer Blvd.) was identified as having formerly operated a 10,000-gallon fuel UST. An unauthorized release related to the UST occurred. The site was issued closure in 2002.

9.0 OPINION

The historical agricultural use a the site is not a REC as the site has been redeveloped.

The identification of minor quantities of hazardous materials at the Property is not a REC as there was no indication of leaking or staining.

The site location within the Richfield Oil Field is an environmental concern because there are development requirements by the OCFA that require assessment and mitigation of combustible soil gas. A soil gas survey will be needed upon consultation with OCFA.

The identification of cleanups at the western and northwestern adjoining properties is not considered a REC as both sites were issued case closure designations and are non-contiguous.

No significant data gaps were identified during this assessment that affect the ability of the Environmental Professional (EP) to identify RECs.

There are no unusual circumstances where greater certainty is required regarding RECs.

10.0 CONCLUSIONS AND RECOMMENDATIONS

Converse has performed a Phase I Environmental Site Assessment in general conformance with the scope and limitations of ASTM Practice E1527-13 for 1314 North Angelina Drive, City of Placentia, Orange County, California. Any exceptions to or deletions from this practice are described in the Limitations and Exceptions of Assessment section of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the Property.

The following environmental concern was noted:

- The site location within the Richfield Oil Field is an environmental concern because there are development requirements by the OCFA that require assessment and mitigation of combustible soil gas.

Converse recommends consultation with OCFA and then completion of a soil gas survey.

11.0 DEVIATIONS AND LIMITATIONS

There are no limitations and exceptions.

12.0 ADDITIONAL NON-SCOPE SERVICES

There are environmental issues outside the scope of the ASTM E1527-13 that can be assessed in connection with a commercial real estate transaction. These are dealt with as non-scope considerations since they do not typically present a Superfund Liability. The specific level of inquiry (if any) is defined in the Proposal which contains a Scope of Work. These non-scope services are very client specific and not covered by the ASTM standard. They are frequently related to the business environmental risk which is defined in the standard as "risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate…"

No non-scope issues were addressed in this report.

13.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312.

I have the specific qualifications based on education, training and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standard and practices set forth in 40 CFR Part 312.

Spencer Wagner
Senior Staff Environmental Scientist

This Phase I ESA was completed by the above Environmental Professional. A complete list of preparers, and their responsibilities for this assessment, is provided in the following section (Section 14.0, List of Preparers).

14.0 LIST OF PREPARERS

Norman S. Eke

Senior Vice President/Managing Officer

B.A., Liberal Studies, Environmental Studies Emphasis, University of California, Santa Barbara, 1988.
Cal/OSHA Certified Asbestos Consultant, #96-2093
NIOSH 582 Equivalent Training

Senior Vice President and Managing Officer of Converse's California Environmental offices. Mr. Eke has served as the Principal-in-Charge and Contract Administrator to deliver services to our public agency and private clients. Mr. Eke has 30 years of experience in the fields of Environmental Due Diligence including Phase I and Phase II Environmental Site Assessments, Asbestos surveys/specifications/abatement monitoring, Preliminary Endangerment Assessments and associated Supplemental Site Investigations and Removal Action Work Plans/Implementation, various forms of Remediation, Human Health Risk Assessment and Indoor Air Quality. Mr. Eke is the former Subcommittee Chairman for E.50-02 Real Assessment and Management of the ASTM E.50 Committee on Environmental Assessment, Risk Management, Corrective Action, which includes Phase I ESA standards (2008 to 2016).

Principal area of responsibility for this ESA report: Project Management, Client Point of Contact, and Quality Assurance/Quality Control and Technical Review.

Spencer Wagner

B.A., Environmental Science and Policy, California State University, Long Beach, 2006
B.A., Geography, California State University, Long Beach, 2006
40-Hour HAZWOPER Certified
Certified Wood Destroying Organism (WDO) Inspector

Mr. Wagner has over 13 years' experience conducting Phase I and II Environmental Site Assessments throughout California. Mr. Wagner has completed Phase I ESAs on undeveloped land, residential properties, commercial/retail facilities, industrial facilities, and school sites. His Phase II ESA experience includes collection of soil matrix, soil vapor, indoor air and groundwater samples. Phase II projects worked on have included residential properties, commercial warehousing sites, school sites, dry cleaning facilities, automotive service sites, metal plating facilities and multi-tenant commercial properties.

Principal area of responsibility for this ESA report: Project Management, Client Point of Contact, Historical Research, Regulatory Agency Interaction, Property Reconnaissance, Interviews, Report Generation, and Report Review.

15.0 REFERENCES

California Department of Conservation, Division of Mines and Geology, Geologic Map of California, 20101.

California Department of Conservation, Division of Oil and Gas and Geothermal Resources, Online DOGGR Database, December 2019.

California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control, Cypress Office, Request for Information, December 2019.

Cal/EPA, Envirostor Website (http://www.envirostor.dtsc.ca.gov/public/, December 2019.

Cal/EPA, Los Angeles Regional Water Quality Control Board, Request for Information, December 2019.

Cal/EPA, Geotracker Website (http://geotracker.waterboards.ca.gov/), December 2019.

Environmental Risk Information Services (ERIS), Inc., Aerial Photographs, December 2019.

ERIS, Inc., City Directory Abstract, December 2019.

ERIS, Inc., EDR-Radius Map Report, December 2019.

ERIS, Inc., Request for Sanborn Map, December 2019.

ERIS, Inc. Topographic Map, December 2019.

Orange County Fire Authority, Request for Information, December 2019.

Orange County Health Care Agency, Request for Information, December 2019.

Patty, Office Manager for Church, Interview, December 19, 2019.

Placentia, City of, Building and Safety Department, Building Permit Review, December 2019.

South Coast Air Quality Management District, Request for Information, December 2019.

United States Geological Survey, 7.5-Minute Topographic Quadrangle, Yorba Linda, 2015.

United States Department of Transportation, Pipeline and Hazardous Material Safety Administration (PHMSA), Pipeline Location Website (https://www.npms.phmsa.dot.gov/default.htm), December 2019.

Appendix A - Application for Authorization to Use

Converse Consultants
Geotechnical Engineering, Environmental & Groundwater Science, Inspection & Testing Services

Application for Authorization to Use

TO: Converse Consultants
3176 Pullman Street, Suite 108
Costa Mesa, California 92626

Project Title & Date: ______________________________

Project Address: ______________________________

FROM: (Please identify name & address of person/entity applying for permission to use the referenced report.)

____
____
____

Applicant ______________________________ hereby applies for permission to use the referenced report in order to:

____
____
____

Applicant wishes or needs to use the referenced report because:

____
____
____

Applicant also understands and agrees that the referenced document is a copyrighted document and shall remain the sole property of Converse Consultants. Unauthorized use or copying of the report is strictly prohibited without the express written permission of Converse Consultants. *Applicant* understands and agrees that Converse Consultants may withhold such permission at its sole discretion, or grant such permission upon agreement to Terms and Conditions, such as the payment of a re-use fee, amongst others.

Applicant Signature: ______________________________

Applicant Name (print): ______________________________

Title: ______________________________

Date: ______________________________

Appendix B - Property Plans

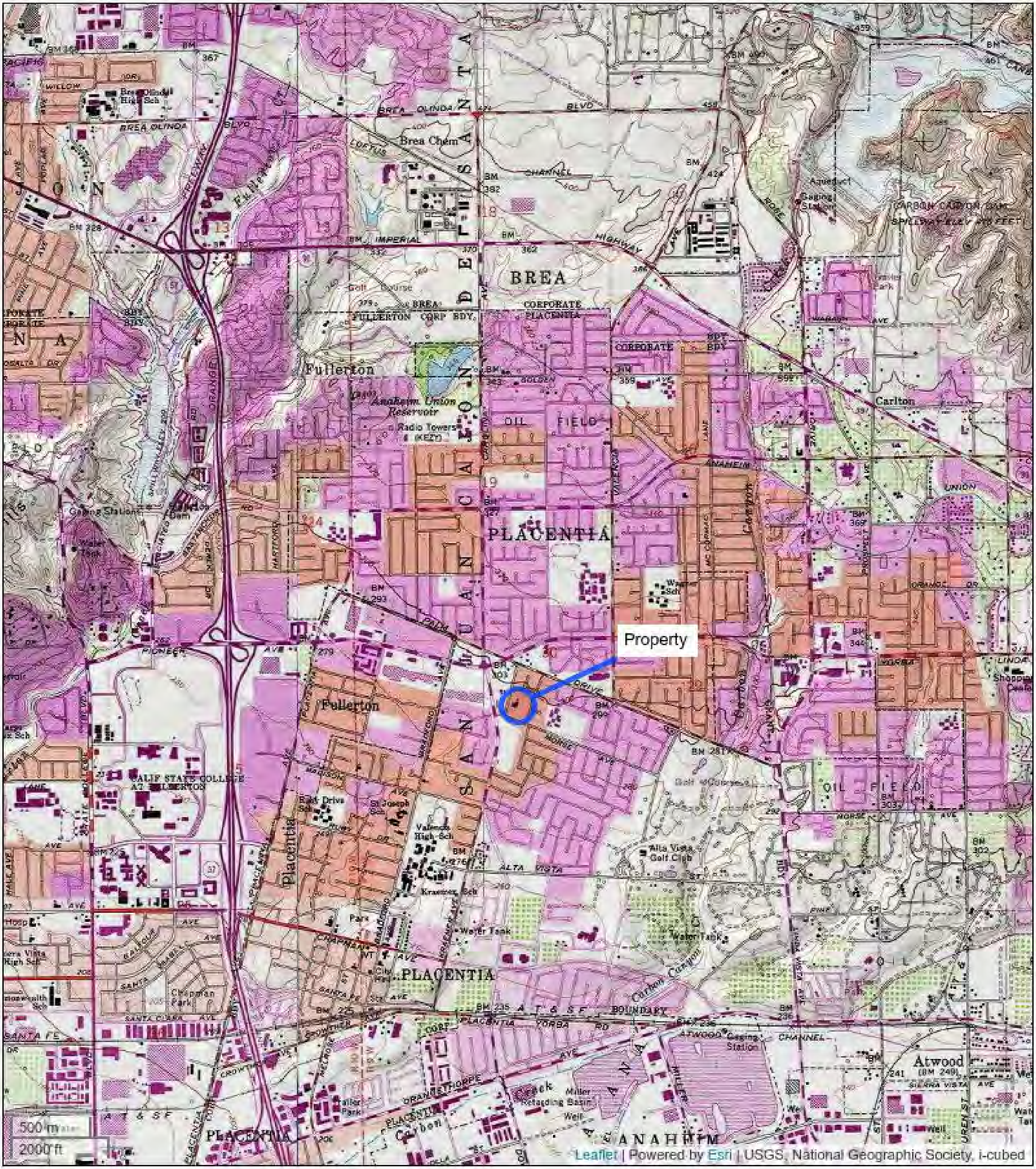


Figure 1 - Property Location Map

National Community Renaissance of California

1314 North Angelina Drive

Placentia, California

Converse Project No. 19-42-206-01

Figure 2 - Property Map

National Community Renaissance of California

1314 North Angelina Drive

Placentia, California

Converse Project No. 19-42-206-01

Well Finder
CalGEM GIS

More Info | Help | ©

Appendix C - Pertinent Property Photographs

1

View of Property (looking east) from N. Angelina Drive.

2

View of western Property boundary (looking north).

3

View of interior of church.

4

View of interior of administrative area in church building.

5

View of interior of administrative area in church building.

6

View of interior of classroom in church building.

7

View of interior of Parrish hall.

8

View of kitchen in Parrish hall.

9

View of kindergarten building.

10

View of interior of kindergarten classroom.

11

View of interior of kindergarten classroom.

12

View of storage building on east side of church building.

13

View of interior of storage building.

14

View of fuel cans and paints in storage building.

15

View of western adjoining US Post Office (1400 N. Kraemer Blvd.).

16

View of western adjoining multi-unit commercial building (1310-1390 N. Kraemer Blvd.).

17

View of southwestern adjoining multi-unit retail (1290 N. Kraemer Blvd.).

18

View of typical residential neighborhood as seen north, northeast, east, southeast, and south of Property.

Appendix D - Historical Information: Aerials, Maps & City Directory

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

FIRE INSURANCE MAPS

Project Property:	National CORE - N Angelina Drive 1314 North Angelina Drive Placentia CA 92870
Project No:	19-42-206-01
Requested By:	Converse Consultants
Order No:	20191204148
Date Completed:	December 05, 2019

Please note that no information was found for your site or adjacent properties.

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

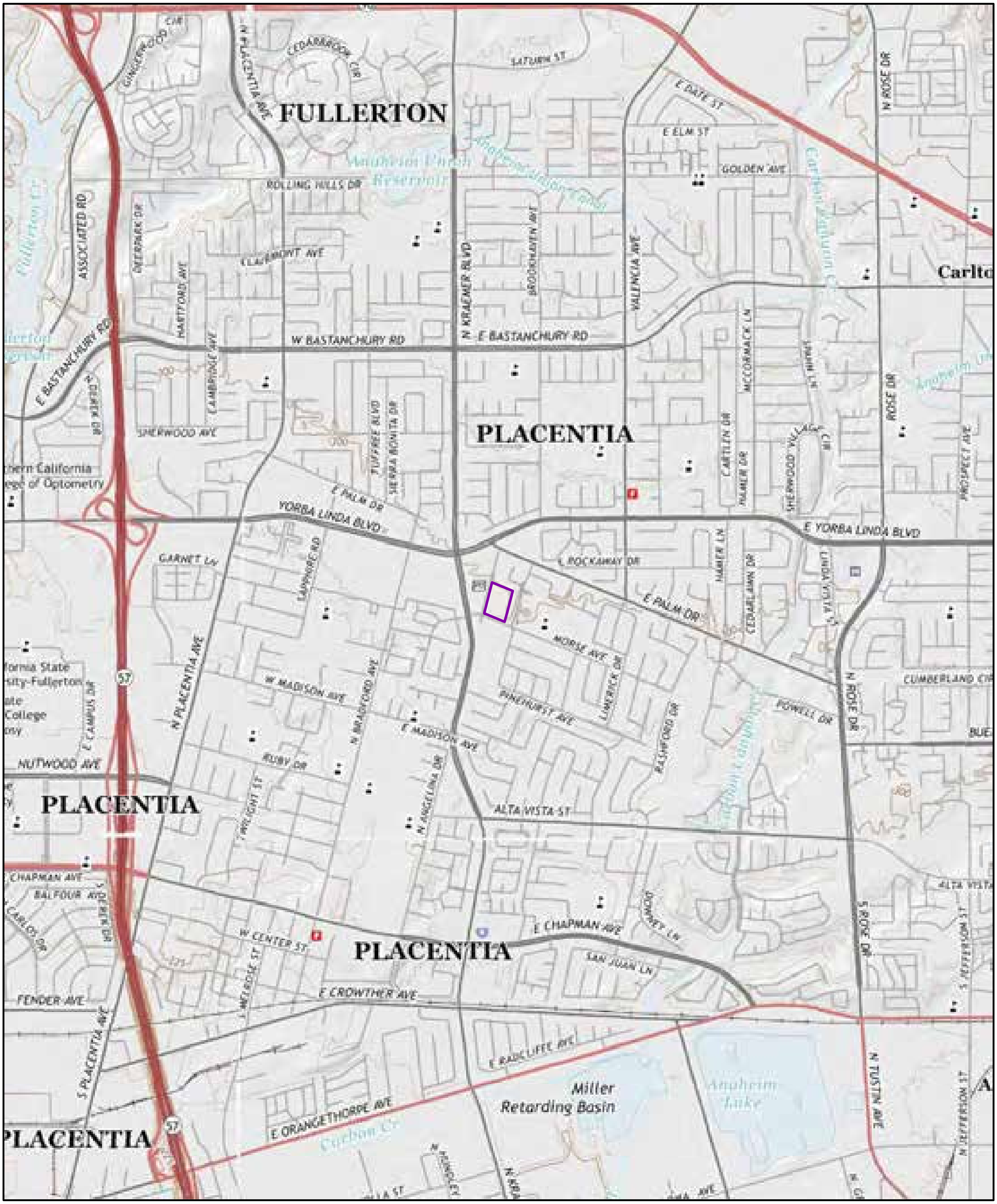
TOPOGRAPHIC MAPS

Project Property:	National CORE - N Angelina Drive 1314 North Angelina Drive Placentia CA 92870
Project No:	19-42-206-01
Requested By:	Converse Consultants
Order No:	20191204148
Date Completed:	December 05, 2019

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

We have searched USGS collections of current topographic maps and historical topographic maps for the project property. Below is a list of maps found for the project property and adjacent area. Maps are from 7.5 and 15 minute topographic map series, if available.

Year	Map Series
2015	7.5
1981	7.5
1972	7.5
1964	7.5
1950	7.5
1949	7.5
1942	15
1901	15
1898	15
1896	15



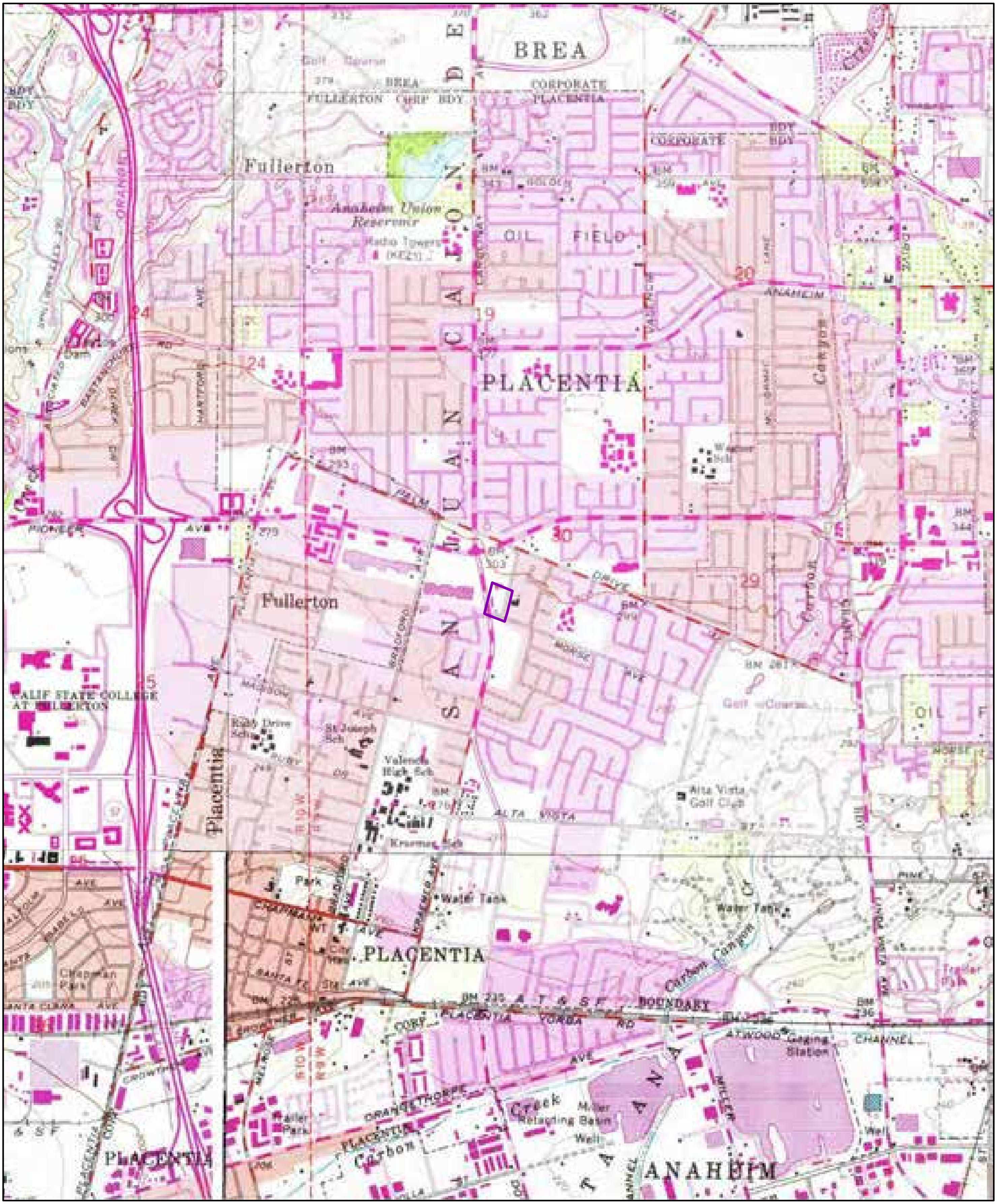
2015

0 0.2 0.4 0.8 Miles

Order No. 20191204148

Quadrangle(s): Yorba Linda,CA

Source: USGS 7.5 Minute Topographic Map

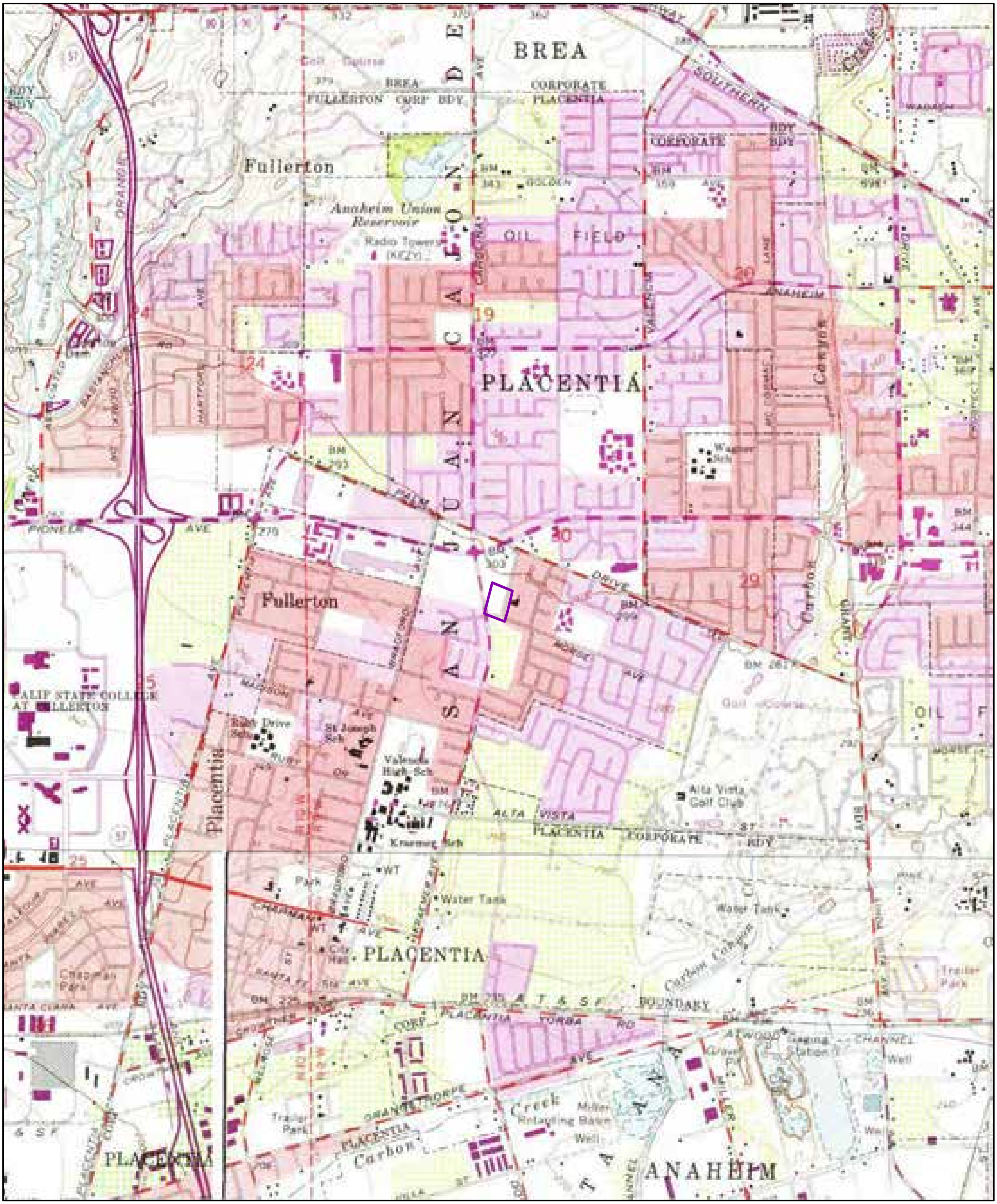


1981	0 0.2 0.4 0.8 Miles	Order No. 20191204148

Quadrangle(s): Yorba Linda,CA

Source: USGS 7.5 Minute Topographic Map

ENVIRONMENTAL RISK INFORMATION SERVICES



1972

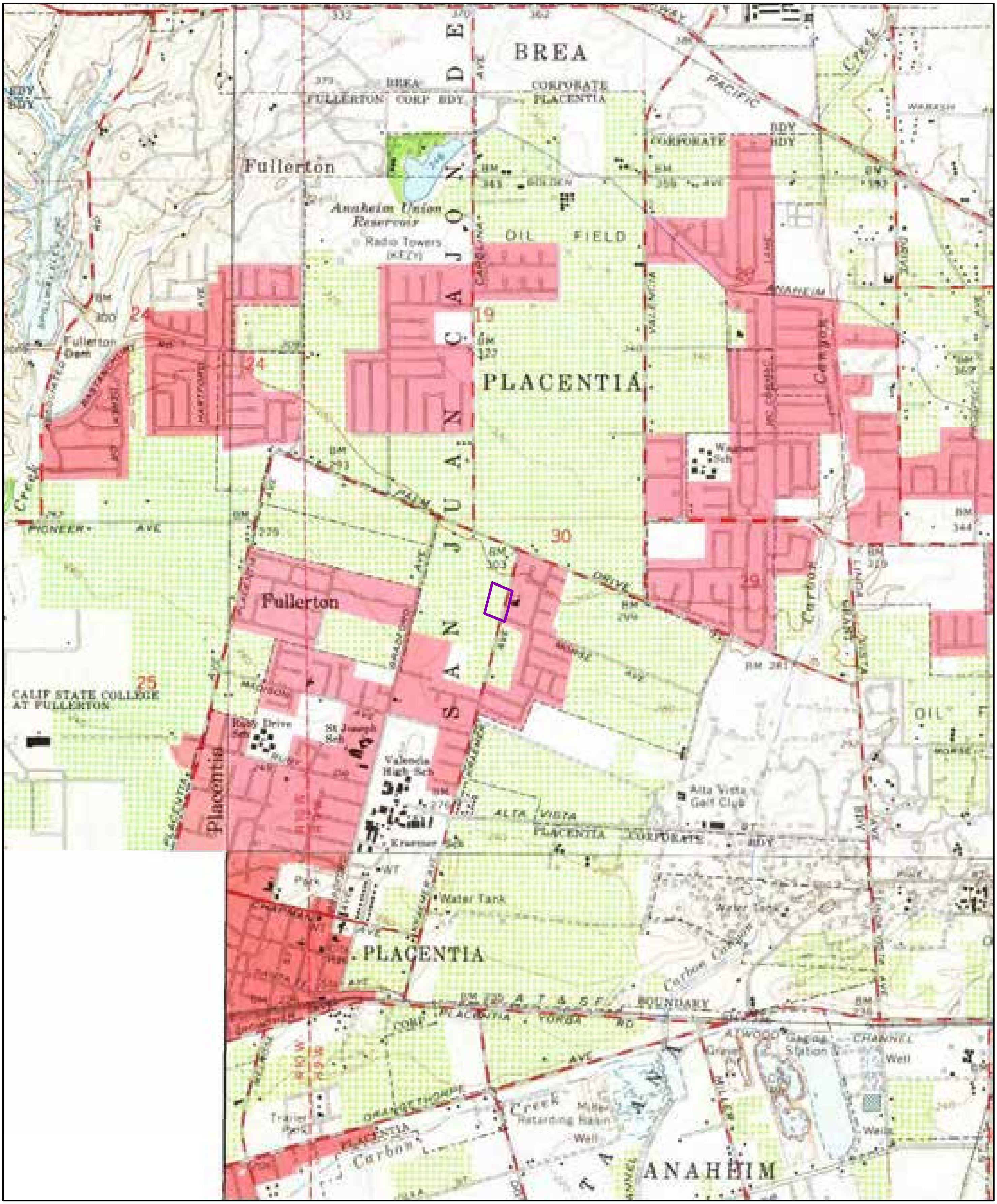
0 0.2 0.4 0.8 Miles

Order No. 20191204148

Quadrangle(s): Yorba Linda,CA

Source: USGS 7.5 Minute Topographic Map

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



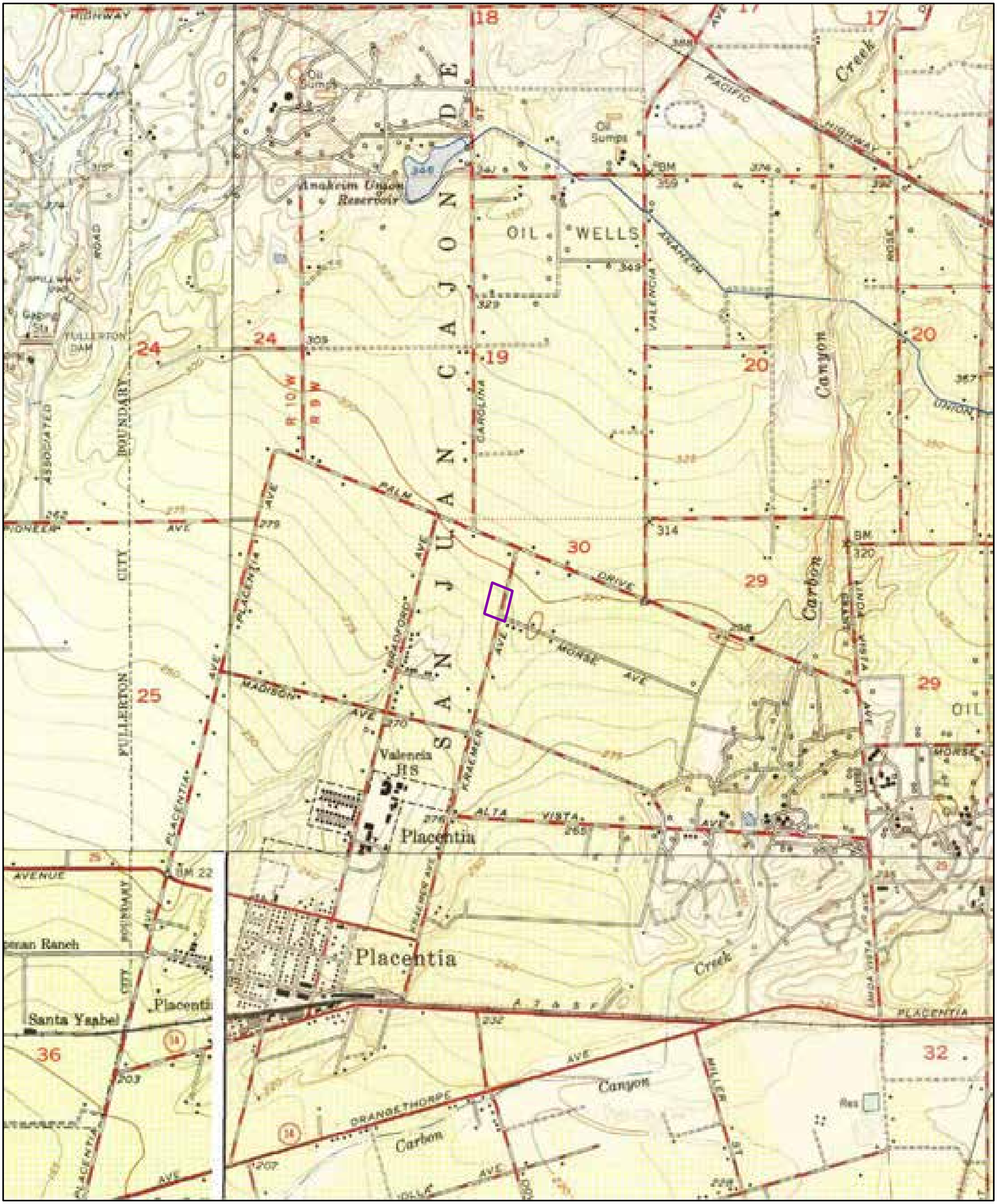
1964

0 0.2 0.4 0.8 Miles

Order No. 20191204148

Quadrangle(s): Yorba Linda,CA

Source: USGS 7.5 Minute Topographic Map



1950

0 0.2 0.4 0.8 Miles

Order No. 20191204148

Quadrangle(s): Yorba Linda,CA

E R I S
ENVIRONMENTAL RISK INFORMATION SERVICES

Source: USGS 7.5 Minute Topographic Map

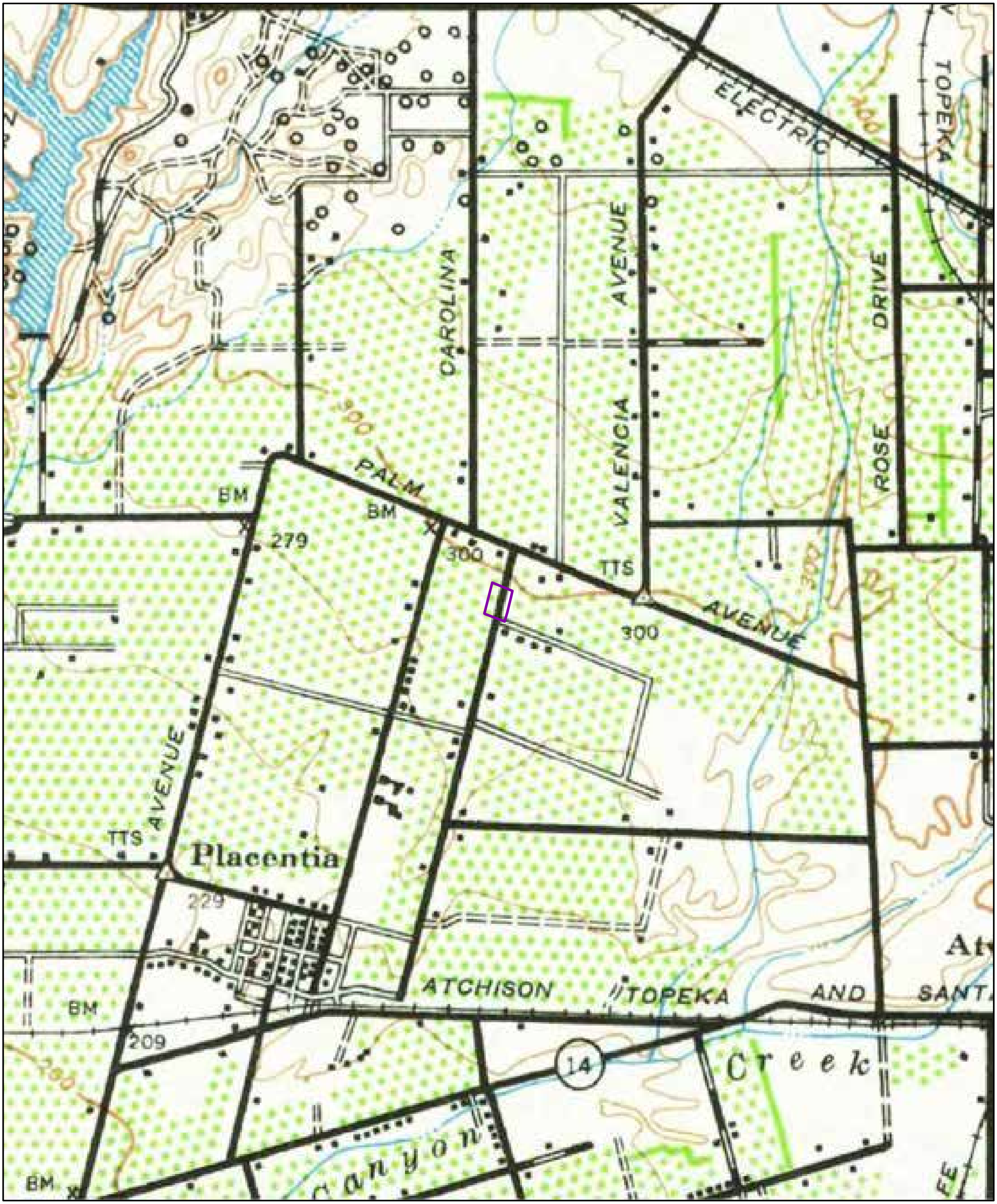
1949

0 0.2 0.4 0.8 Miles

Order No. 20191204148

Quadrangle(s): Yorba Linda,CA

Source: USGS 7.5 Minute Topographic Map



1942

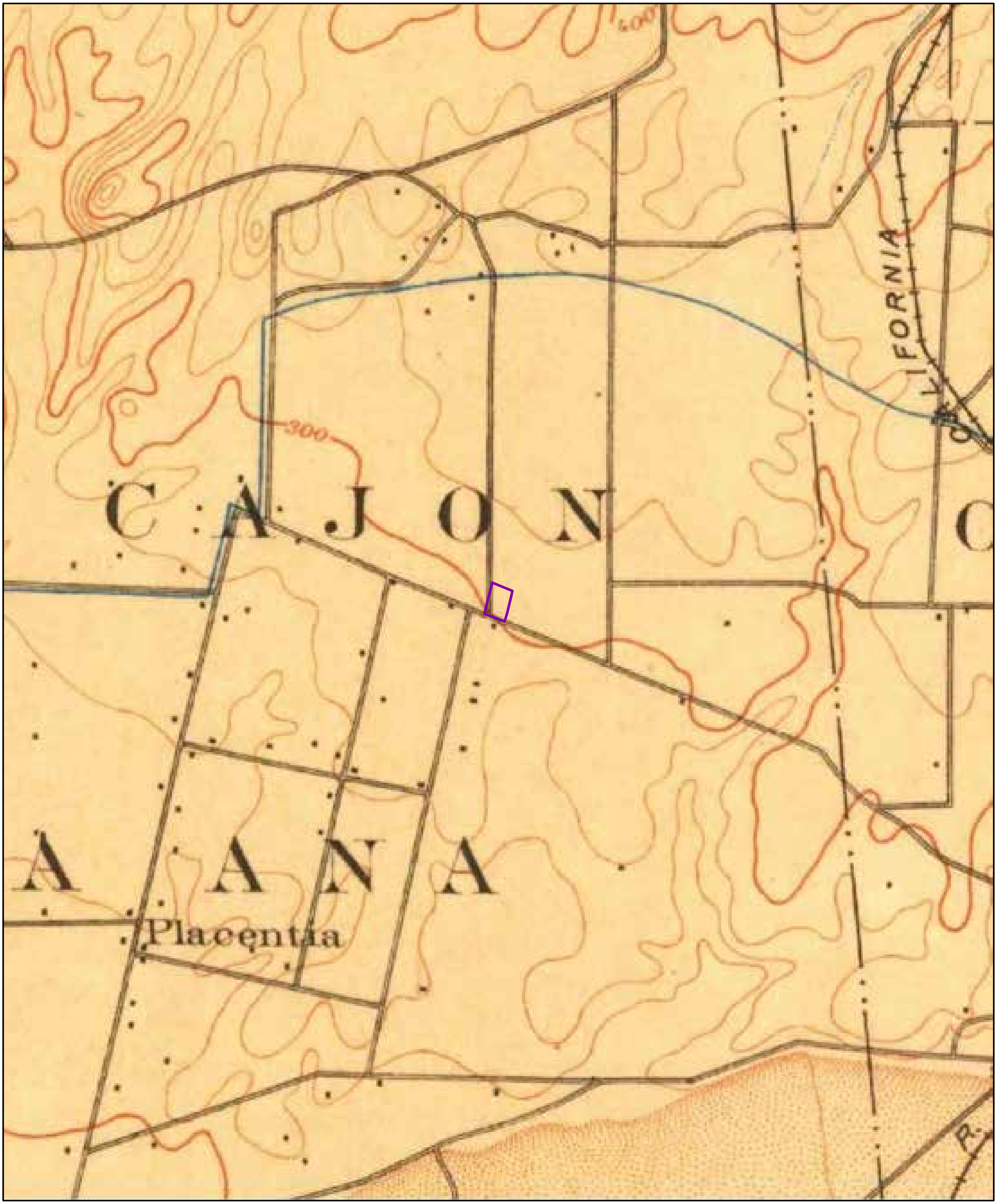
0 0.2 0.4 0.8 Miles

Order No. 20191204148

Quadrangle(s): Anaheim,CA

Source: USGS 15 Minute Topographic Map

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES



1901

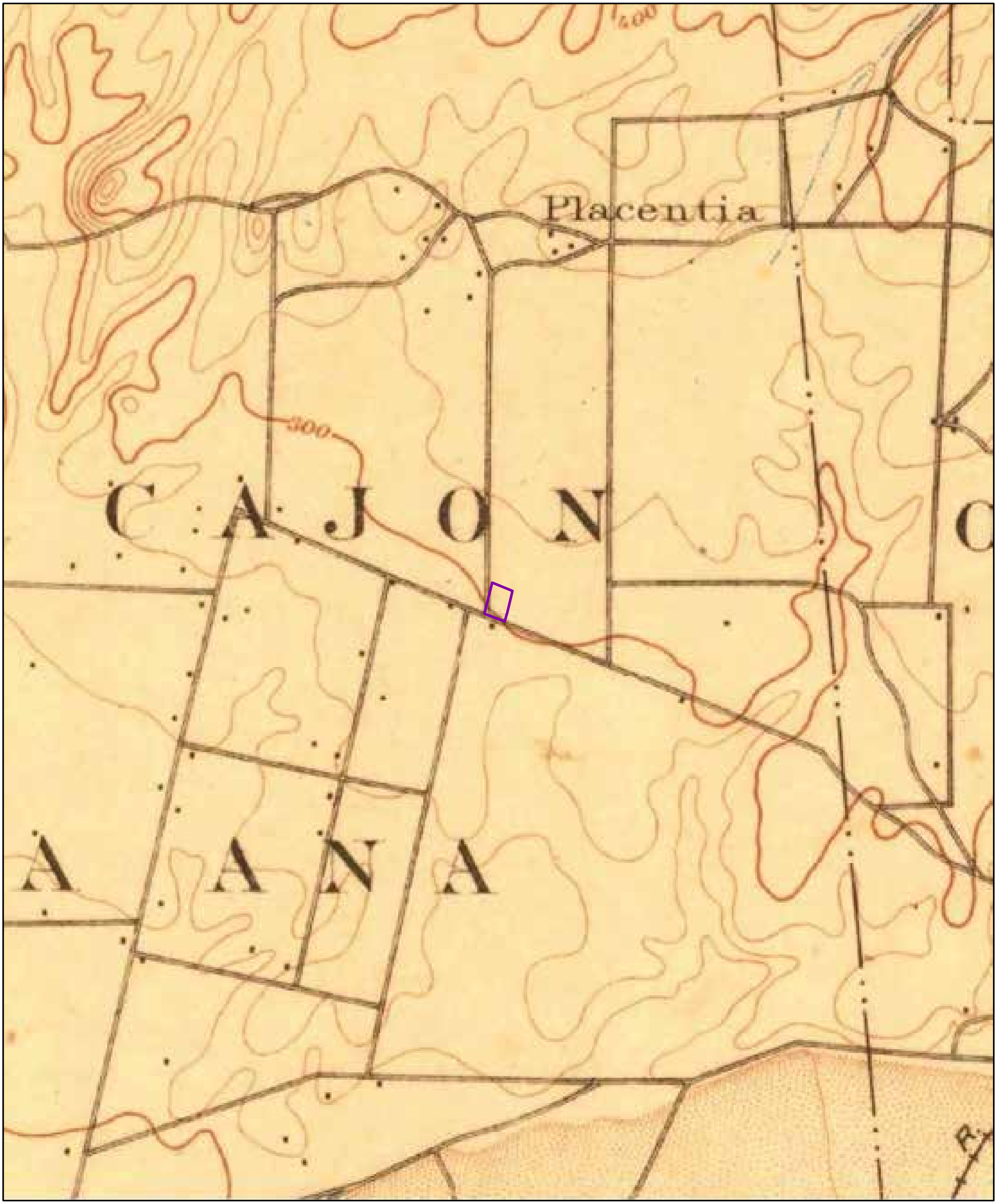
Miles
0 0.2 0.4 0.8

Order No. 20191204148

Quadrangle(s): Anaheim,CA

Source: USGS 15 Minute Topographic Map

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



1898

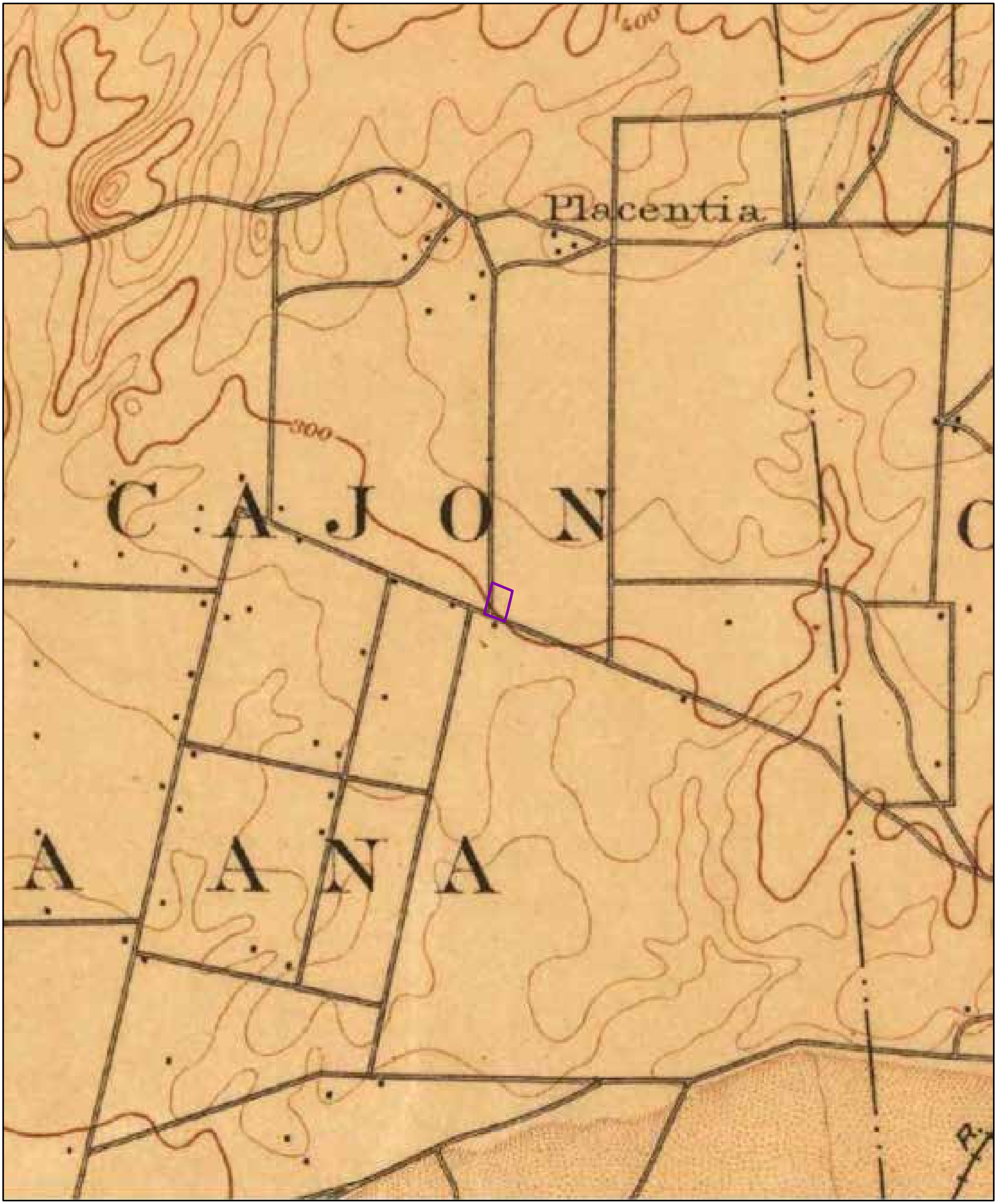
Miles
0 0.2 0.4 0.8

Order No. 20191204148

Quadrangle(s): Anaheim,CA

Source: USGS 15 Minute Topographic Map

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



1896

0 0.2 0.4 0.8 Miles

Order No. 20191204148

Quadrangle(s): Anaheim,CA

Source: USGS 15 Minute Topographic Map

TOPOGRAPHIC MAPS

Project Property:	National CORE - N Angelina Drive 1314 North Angelina Drive Placentia CA 92870
Project No:	19-42-206-01
Requested By:	Converse Consultants
Order No:	20191204148
Date Completed:	December 05, 2019

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 I info@erisinfo.com I erisinfo.com

We have searched USGS collections of current topographic maps and historical topographic maps for the project property. Below is a list of maps found for the project property and adjacent area. Maps are from 7.5 and 15 minute topographic map series, if available.

Year	Map Series
2015	7.5
1981	7.5
1972	7.5
1964	7.5
1950	7.5
1949	7.5
1942	15
1901	15
1898	15
1896	15

2015

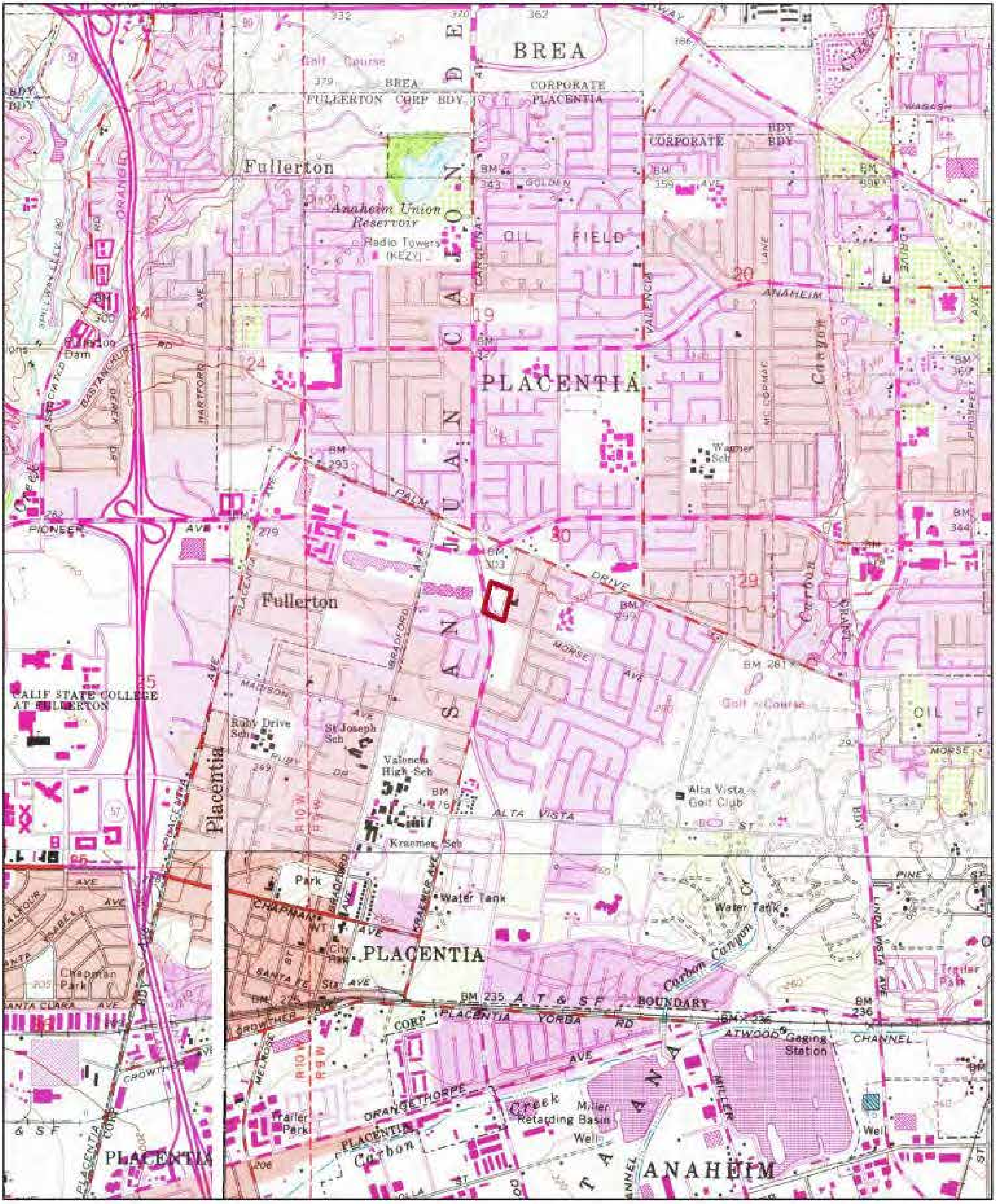
Miles 0 0.2 0.4 0.8

Order No. 20191204148

Quadrangle(s): Yorba Linda,CA

Source: USGS 7.5 Minute Topographic Map

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES



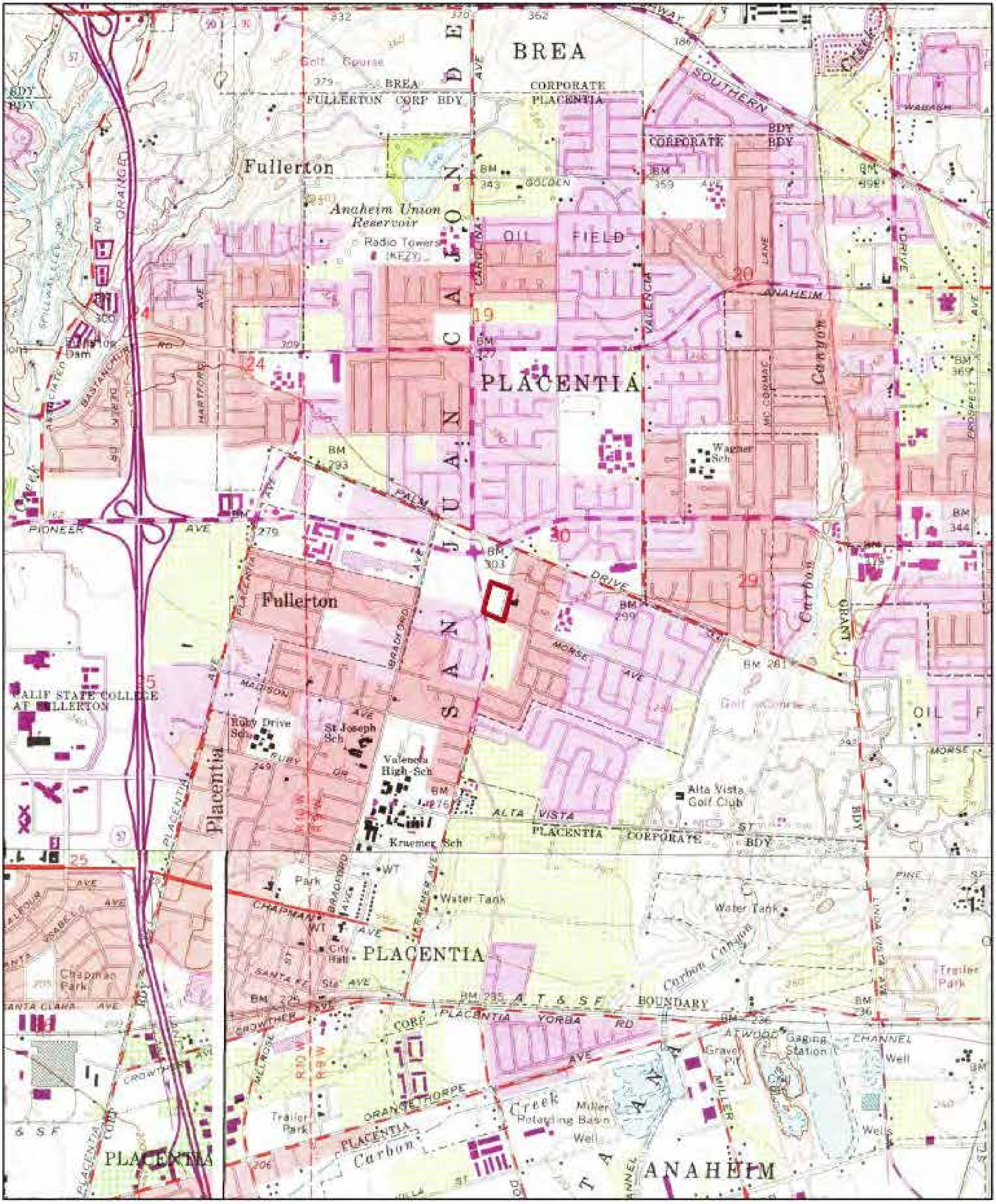
Miles
0 0.2 0.4 0.8

Order No. 20191204148

1981

Quadrangle(s): Yorba Linda,CA

Source: USGS 7.5 Minute Topographic Map



1972

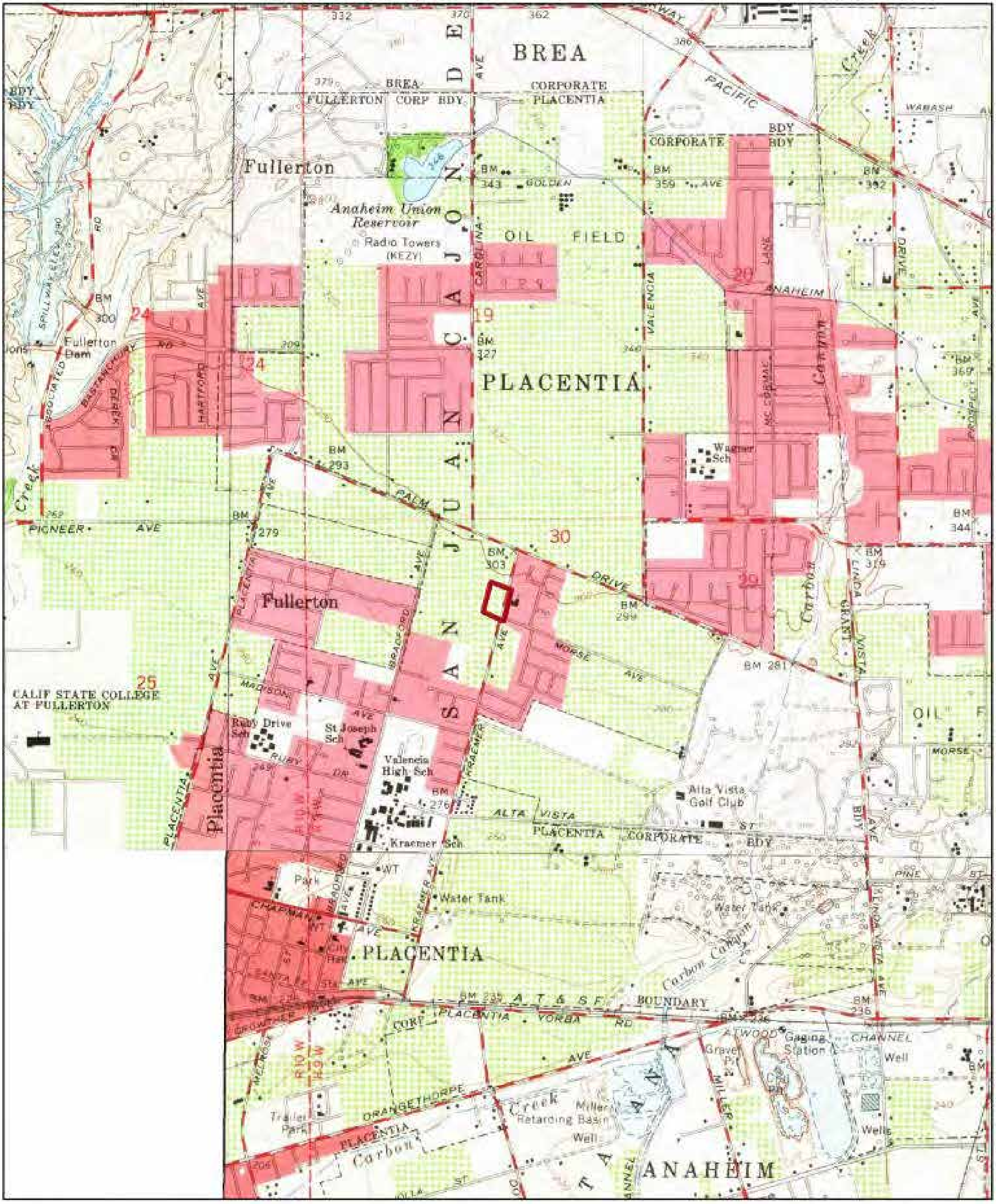
Miles
0 0.2 0.4 0.8

Order No. 20191204148

Quadrangle(s): Yorba Linda,CA

Source: USGS 7.5 Minute Topographic Map

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



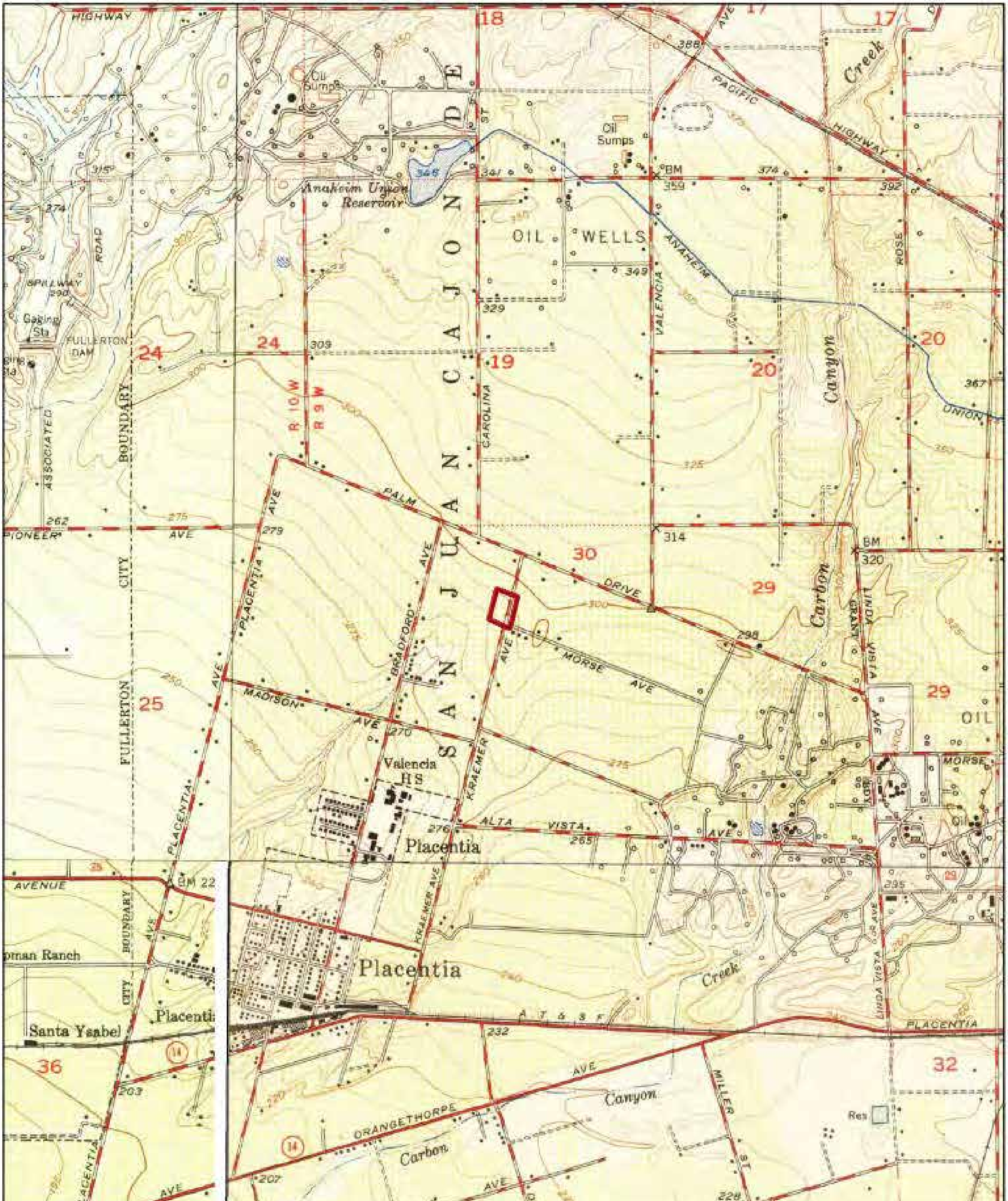
Miles
0 0.2 0.4 0.8

1964

Order No. 20191204148

Quadrangle(s): Yorba Linda,CA

Source: USGS 7.5 Minute Topographic Map



1950

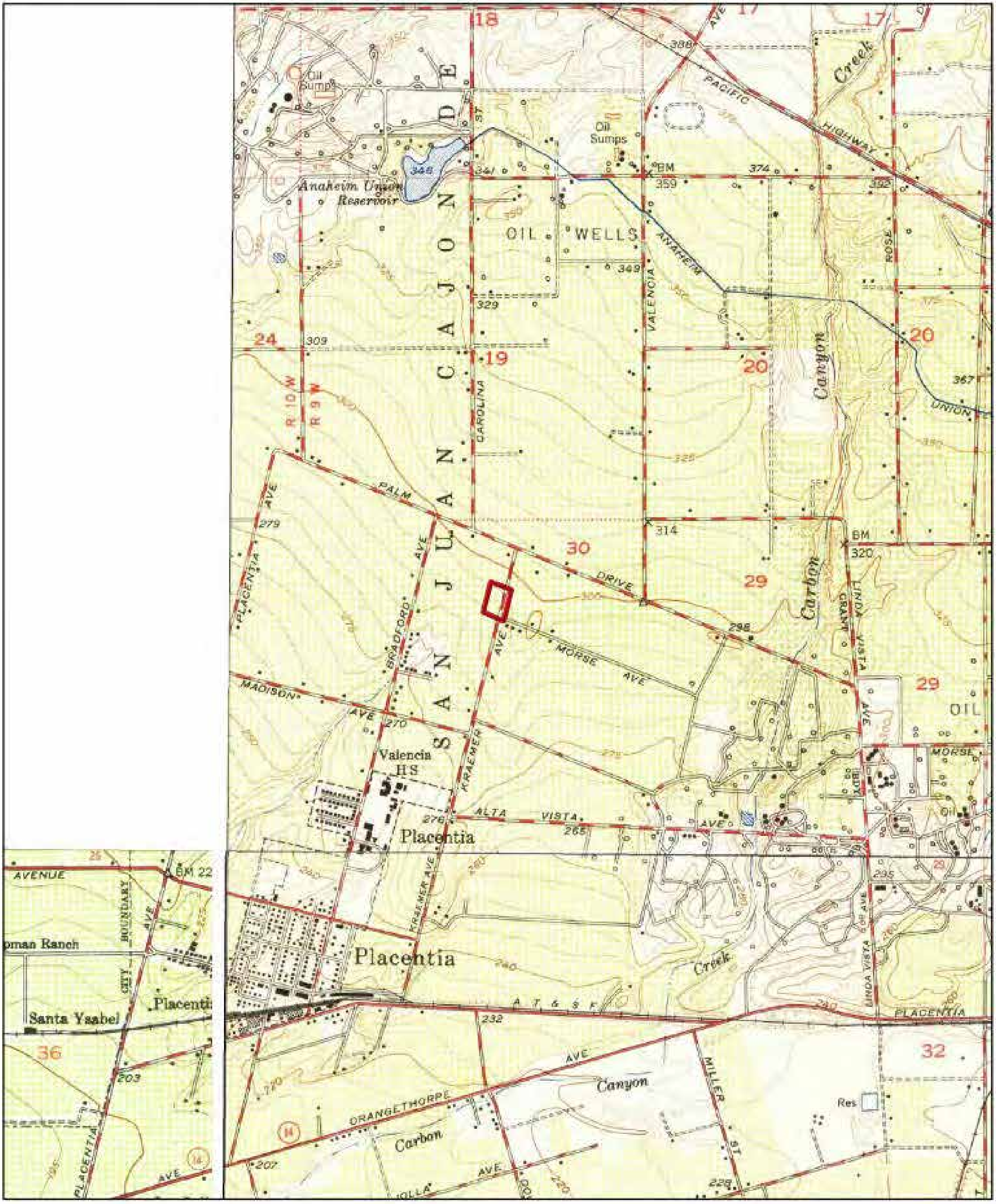
0 0.2 0.4 0.8 Miles

Order No. 20191204148

Quadrangle(s): Yorba Linda,CA

Source: USGS 7.5 Minute Topographic Map

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



1949

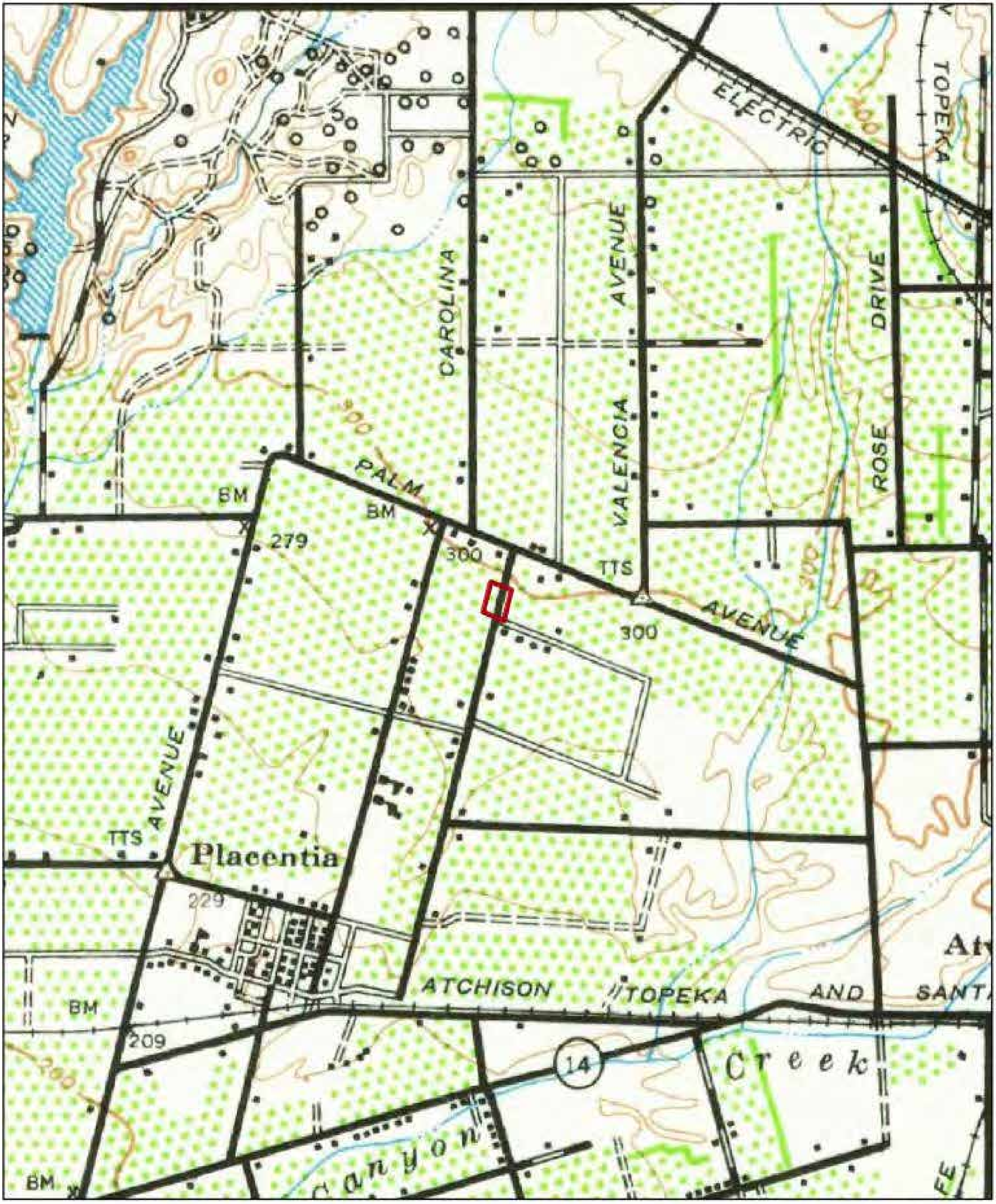
0 0.2 0.4 0.8 Miles

Order No. 20191204148

Quadrangle(s): Yorba Linda,CA

Source: USGS 7.5 Minute Topographic Map

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



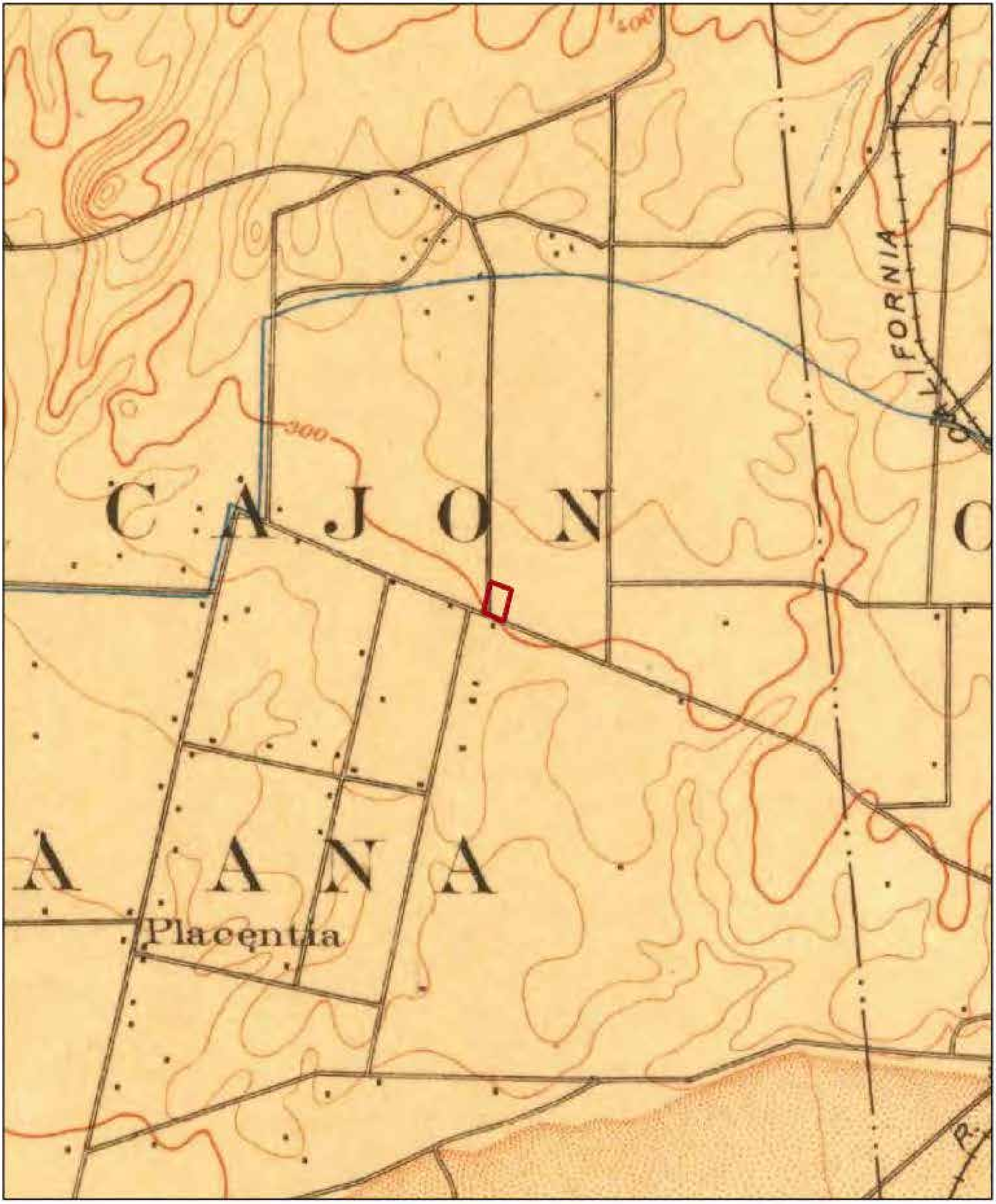
1942

Miles
0 0.2 0.4 0.8

Order No. 20191204148

Quadrangle(s): Anaheim,CA

Source: USGS 15 Minute Topographic Map



1901

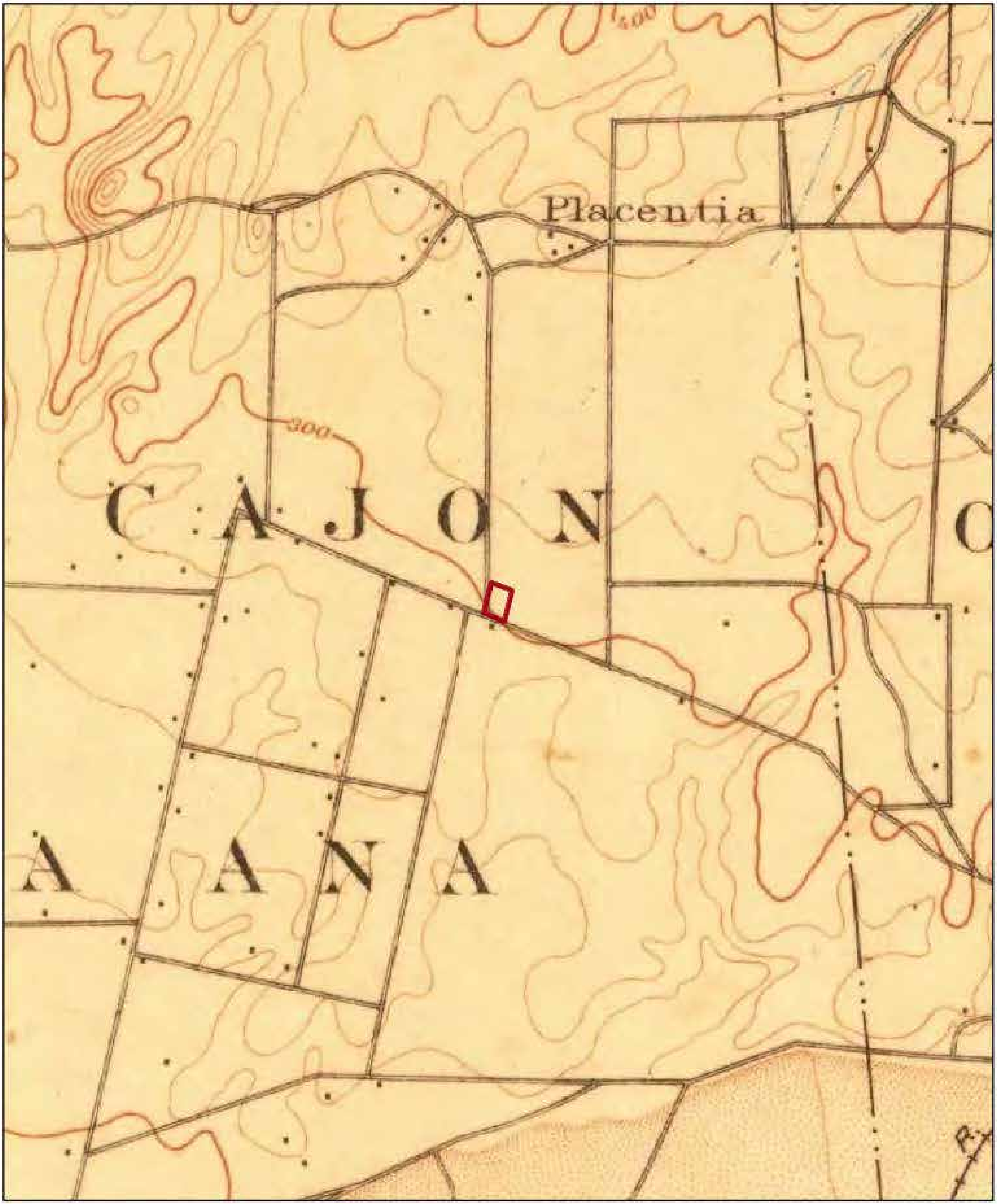
Miles
0 0.2 0.4 0.8

Order No. 20191204148

Quadrangle(s): Anaheim,CA

Source: USGS 15 Minute Topographic Map

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



1898

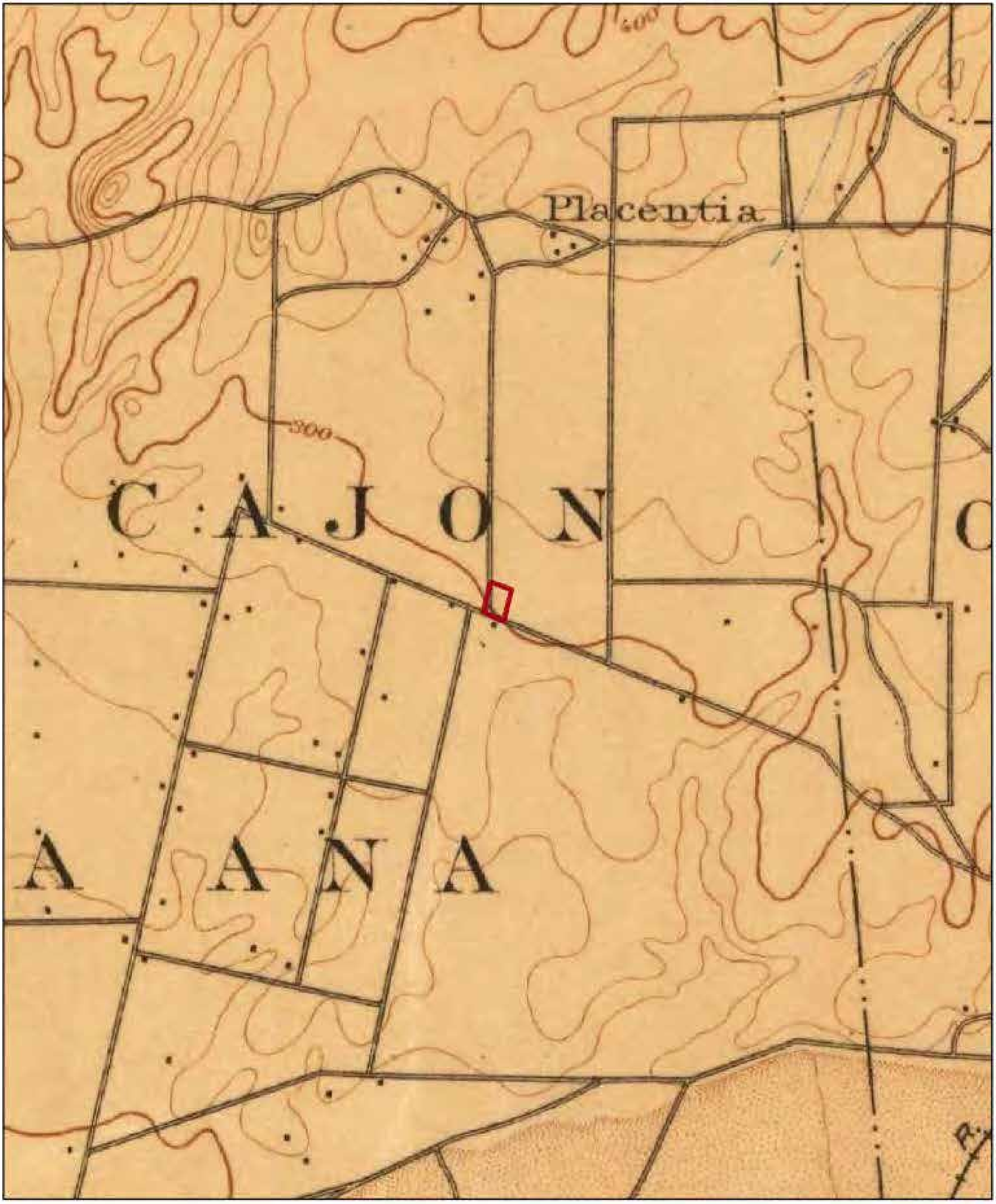
Miles
0 0.2 0.4 0.8

Order No. 20191204148

Quadrangle(s): Anaheim,CA

Source: USGS 15 Minute Topographic Map

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



1896

0 0.2 0.4 0.8 Miles

Order No. 20191204148

Quadrangle(s): Anaheim,CA

Source: USGS 15 Minute Topographic Map

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES

HISTORICAL AERIALS

Project Property:	National CORE - N Angelina Drive 1314 North Angelina Drive Placentia CA 92870
Requested By:	Converse Consultants
Order No:	20191204148
Data Completed:	December 06,2019

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Date	Source	Source Scale	Comments
2018	National Agriculture Information Program	1" to 500'	
2016	National Agriculture Information Program	1" to 500'	
2014	National Agriculture Information Program	1" to 500'	
2012	National Agriculture Information Program	1" to 500'	
2010	National Agriculture Information Program	1" to 500'	
2009	National Agriculture Information Program	1" to 500'	
2005	National Agriculture Information Program	1" to 500'	
2002	US Geological Survey	1" to 500'	
1995	US Geological Survey	1" to 500'	
1988	National High Altitude Photography	1" to 500'	
1980	US Geological Survey	1" to 500'	
1975	US Geological Survey	1" to 500'	
1972	US Geological Survey	1" to 500'	
1963	US Geological Survey	1" to 500'	
1953	Agriculture and Soil Conservation Service	1" to 500'	
1947	Agriculture and Soil Conservation Service	1" to 500'	
1938	Agriculture and Soil Conservation Service	1" to 500'	
1928	Private Company	1" to 500'	

Year:2018
Source:NAIP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:2016
Source:NAIP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

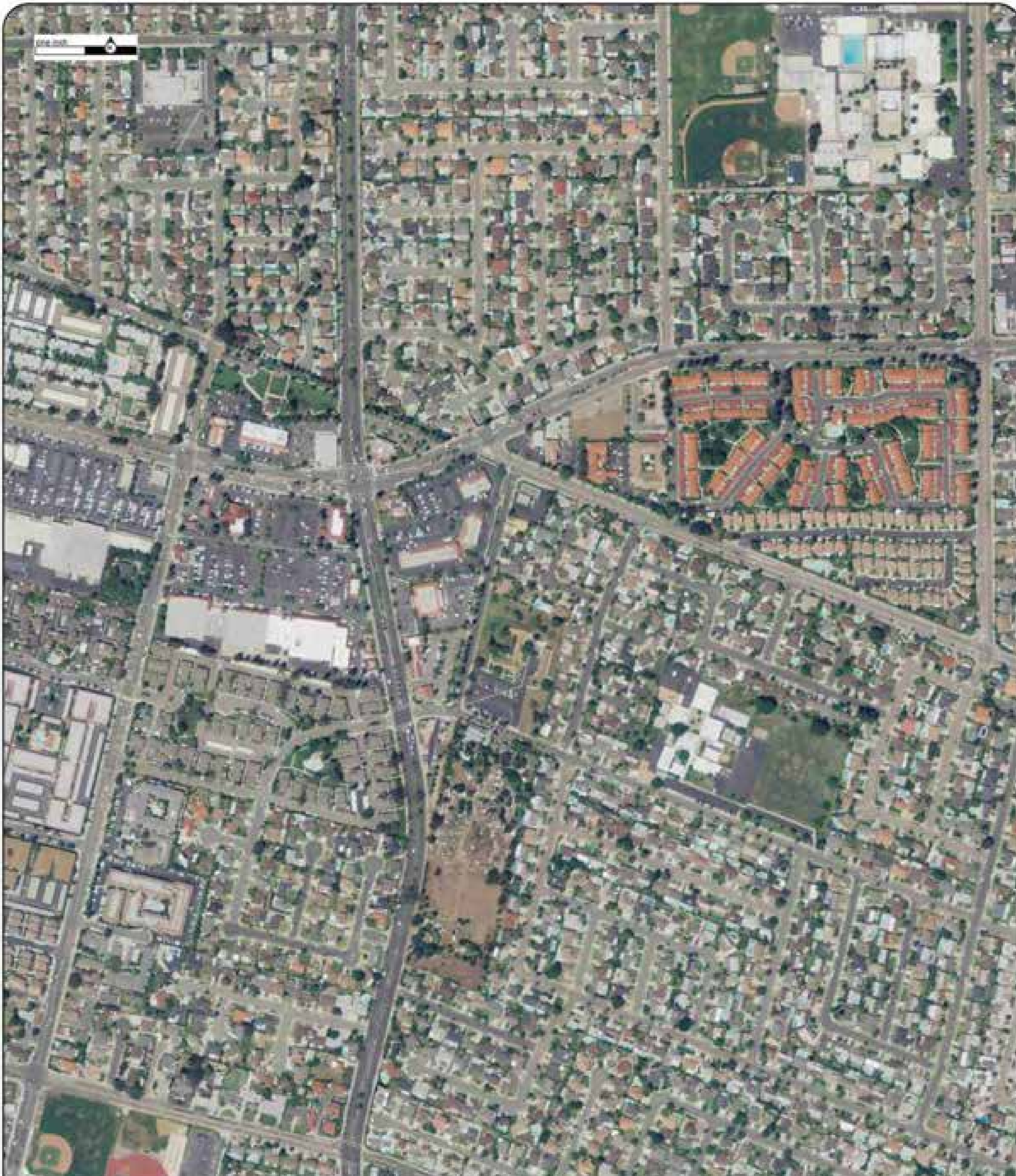
ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:2014
Source:NAIP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



Year:2012
Source:NAIP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:2010
Source:NAIP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

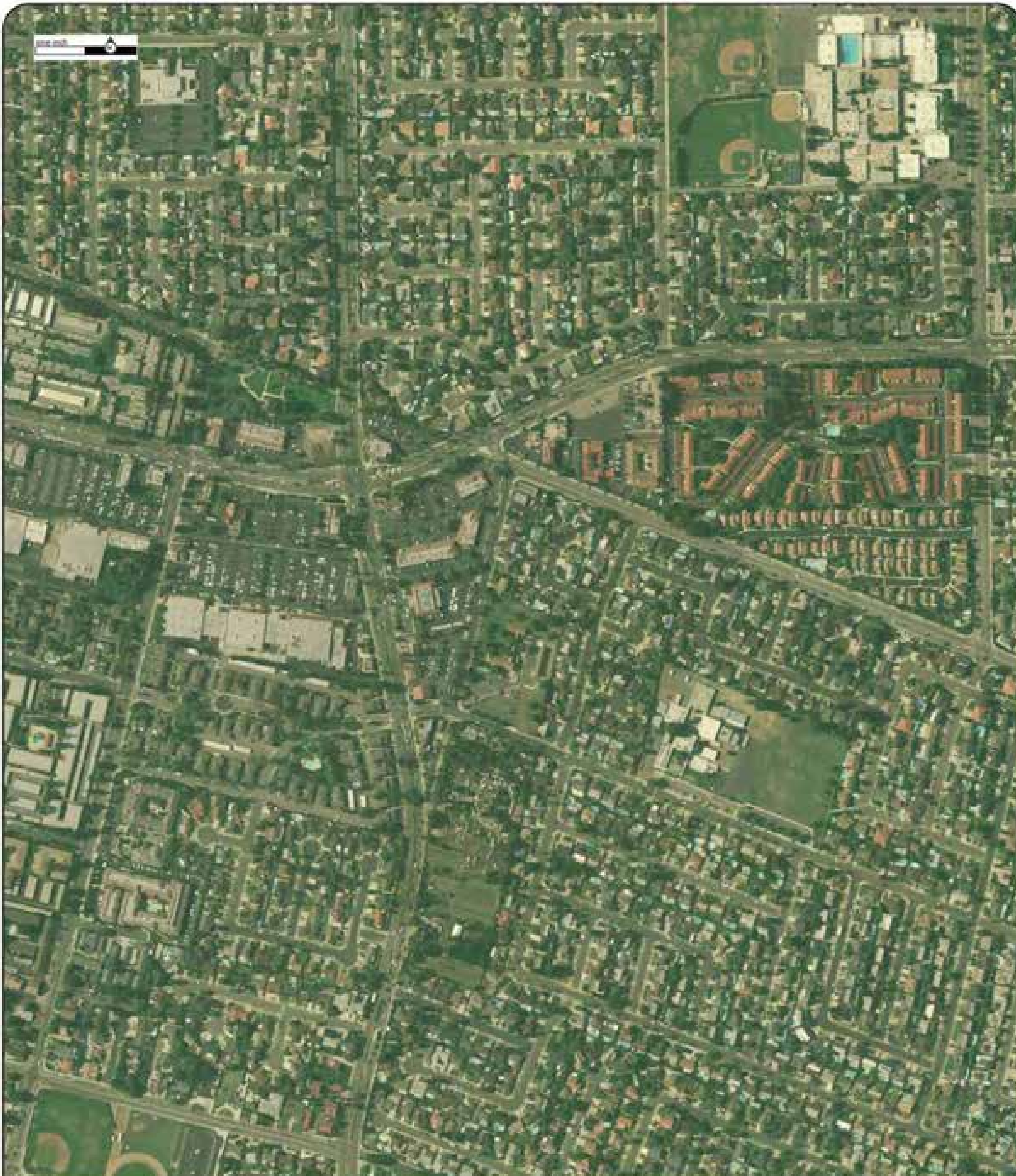
ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:2009
Source:NAIP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



Year:2005
Source:NAIP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:2002
Source:USGS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

Year:1995
Source:USGS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1988
Source:NHAP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1980
Source:USGS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1975
Source:USGS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1972
Source:USGS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1963

Source:USGS

Scale:1" to 500'

Comment:

Address:1314 North Angelina Drive,Placentia,CA

Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS

ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1953
Source:ASCS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

Year:1947
Source:ASCS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1938
Source:ASCS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1928
Source:FAIRCHILD
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

HISTORICAL AERIALS

Project Property:	National CORE - N Angelina Drive 1314 North Angelina Drive Placentia CA 92870
Requested By:	Converse Consultants
Order No:	20191204148
Data Completed:	December 06,2019

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Date	Source	Source Scale	Comments
2018	National Agriculture Information Program	1" to 500'	
2016	National Agriculture Information Program	1" to 500'	
2014	National Agriculture Information Program	1" to 500'	
2012	National Agriculture Information Program	1" to 500'	
2010	National Agriculture Information Program	1" to 500'	
2009	National Agriculture Information Program	1" to 500'	
2005	National Agriculture Information Program	1" to 500'	
2002	US Geological Survey	1" to 500'	
1995	US Geological Survey	1" to 500'	
1988	National High Altitude Photography	1" to 500'	
1980	US Geological Survey	1" to 500'	
1975	US Geological Survey	1" to 500'	
1972	US Geological Survey	1" to 500'	
1963	US Geological Survey	1" to 500'	
1953	Agriculture and Soil Conservation Service	1" to 500'	
1947	Agriculture and Soil Conservation Service	1" to 500'	
1938	Agriculture and Soil Conservation Service	1" to 500'	
1928	Private Company	1" to 500'	

Year:2018
Source:NAIP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

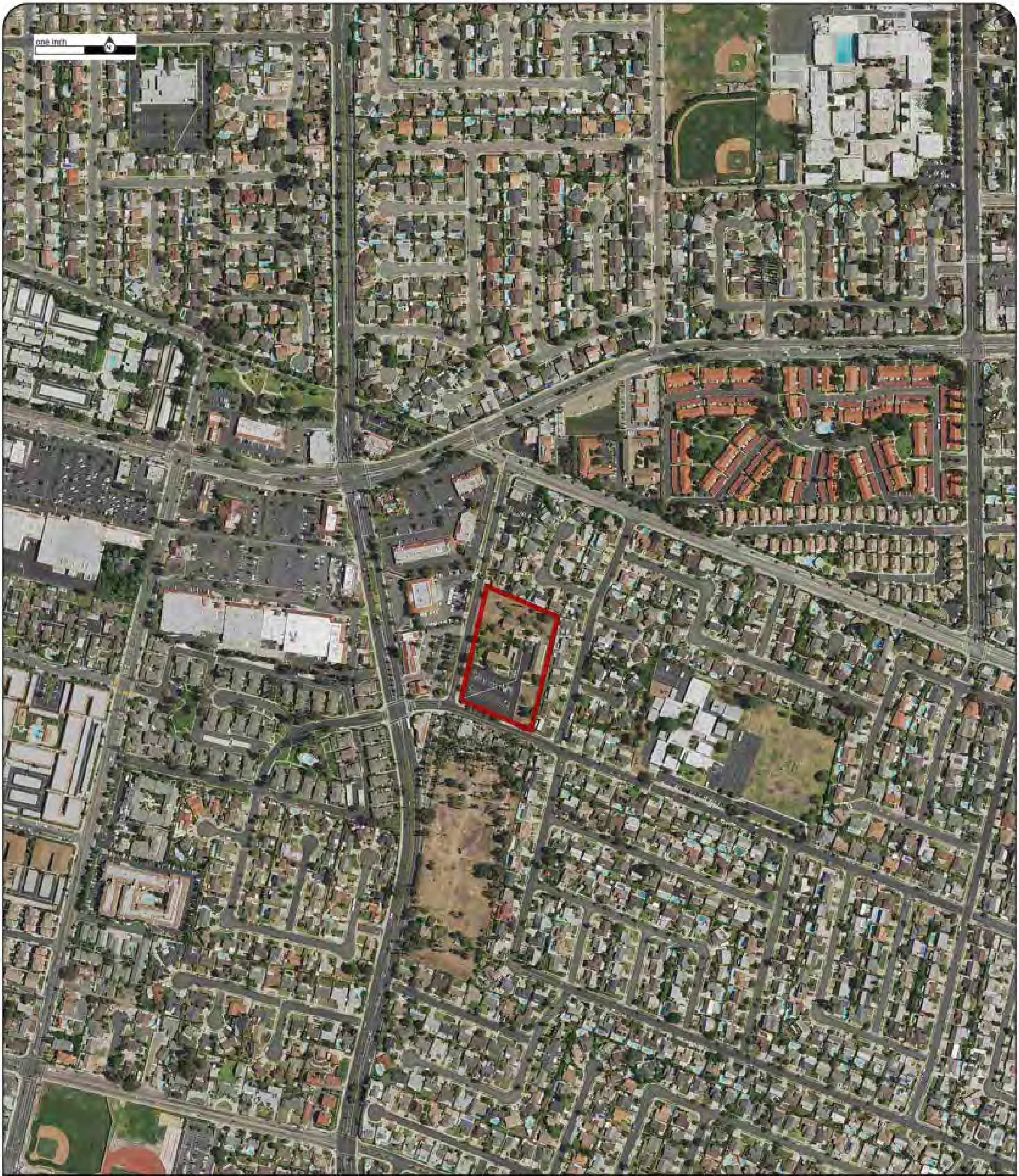
ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:2016
Source:NAIP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

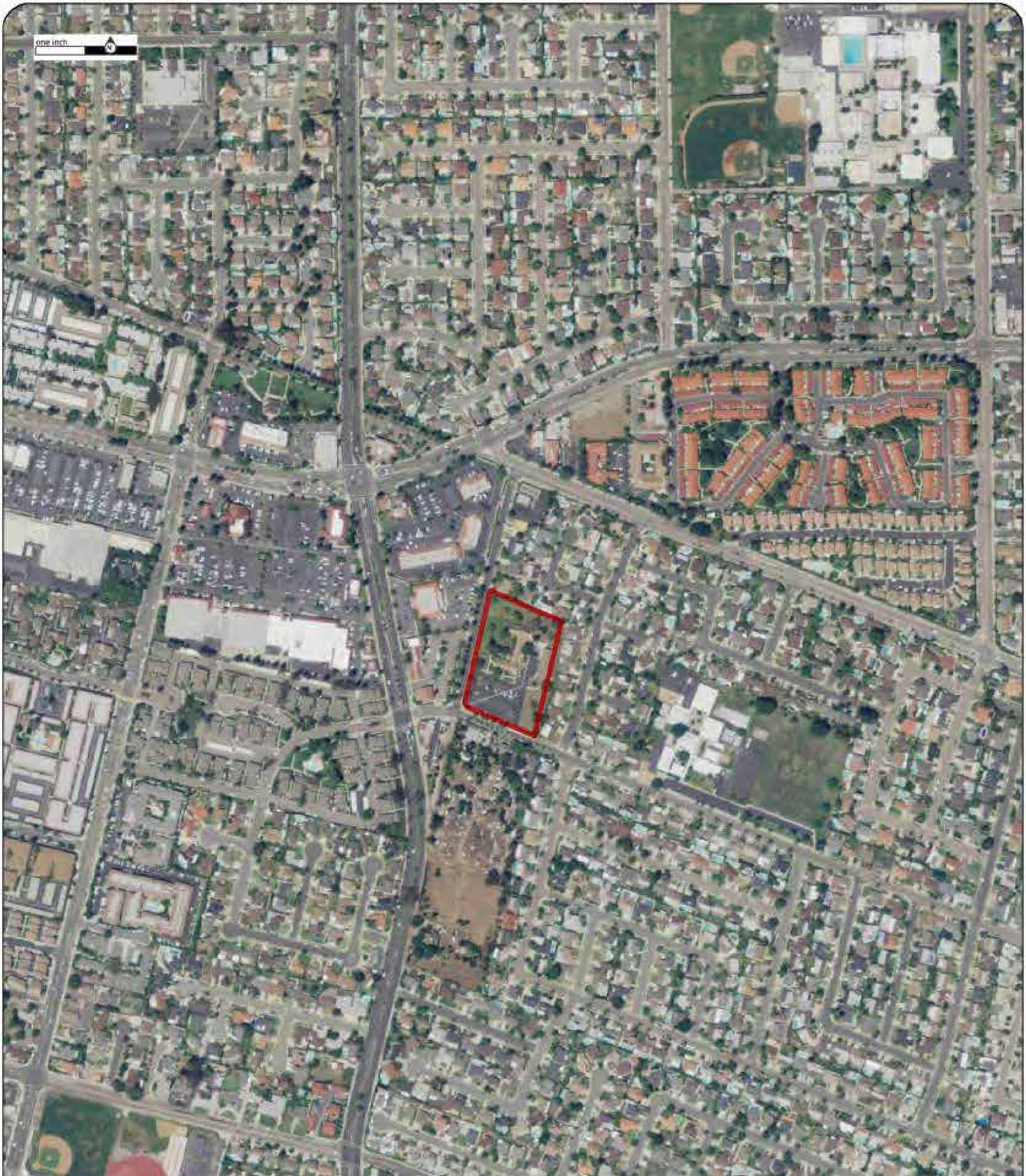


Year:2014
Source:NAIP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



Year:2012
Source:NAIP
Scale:1" to 500'
Comment:

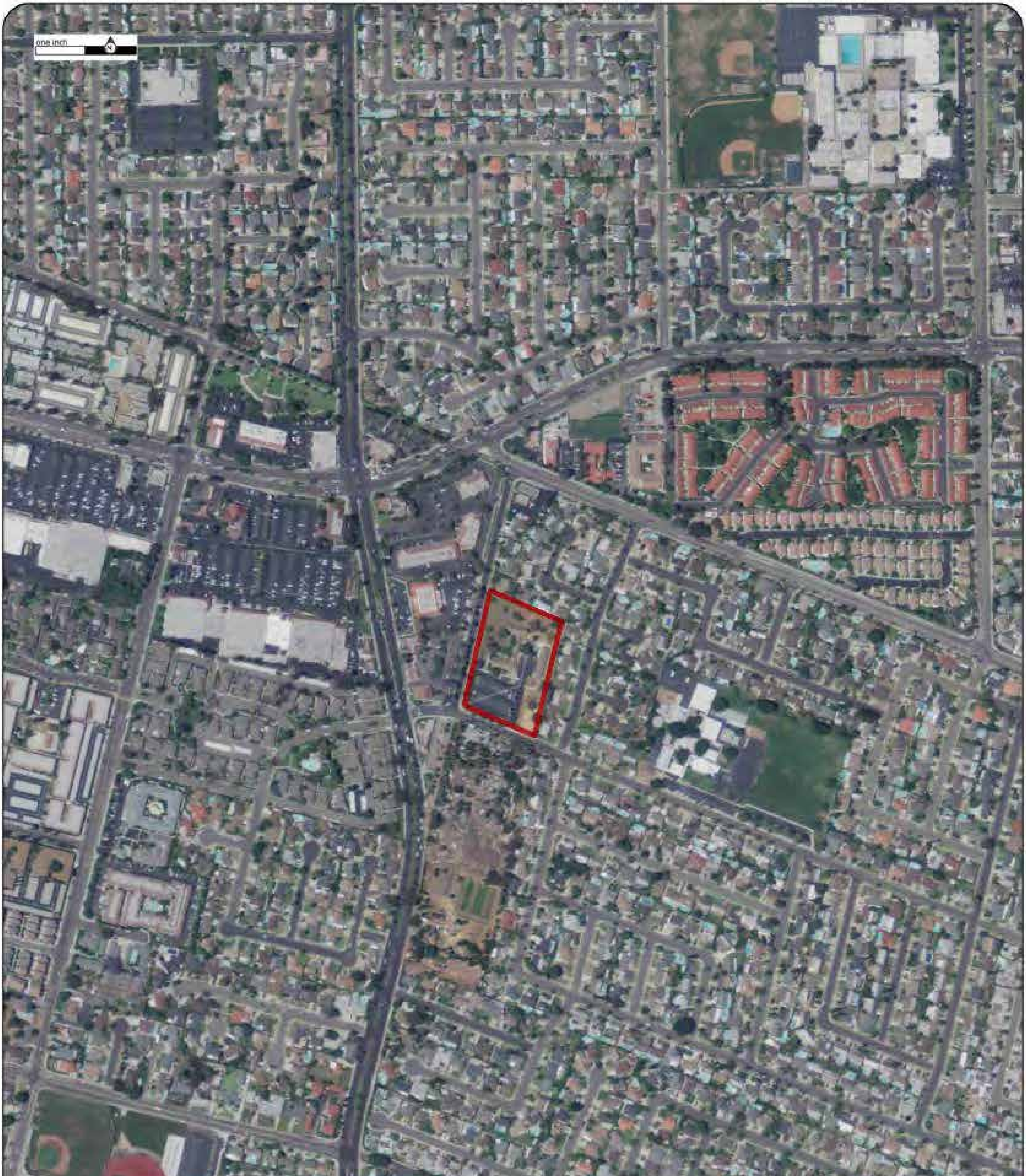
Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:2010
Address:1314 North Angelina Drive,Placentia,CA
Order No:20191204148
Source:NAIP
Approx Center:33.88570765/-117.86128548
Scale:1" to 500'
Comment:

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



Year:2009
Source:NAIP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

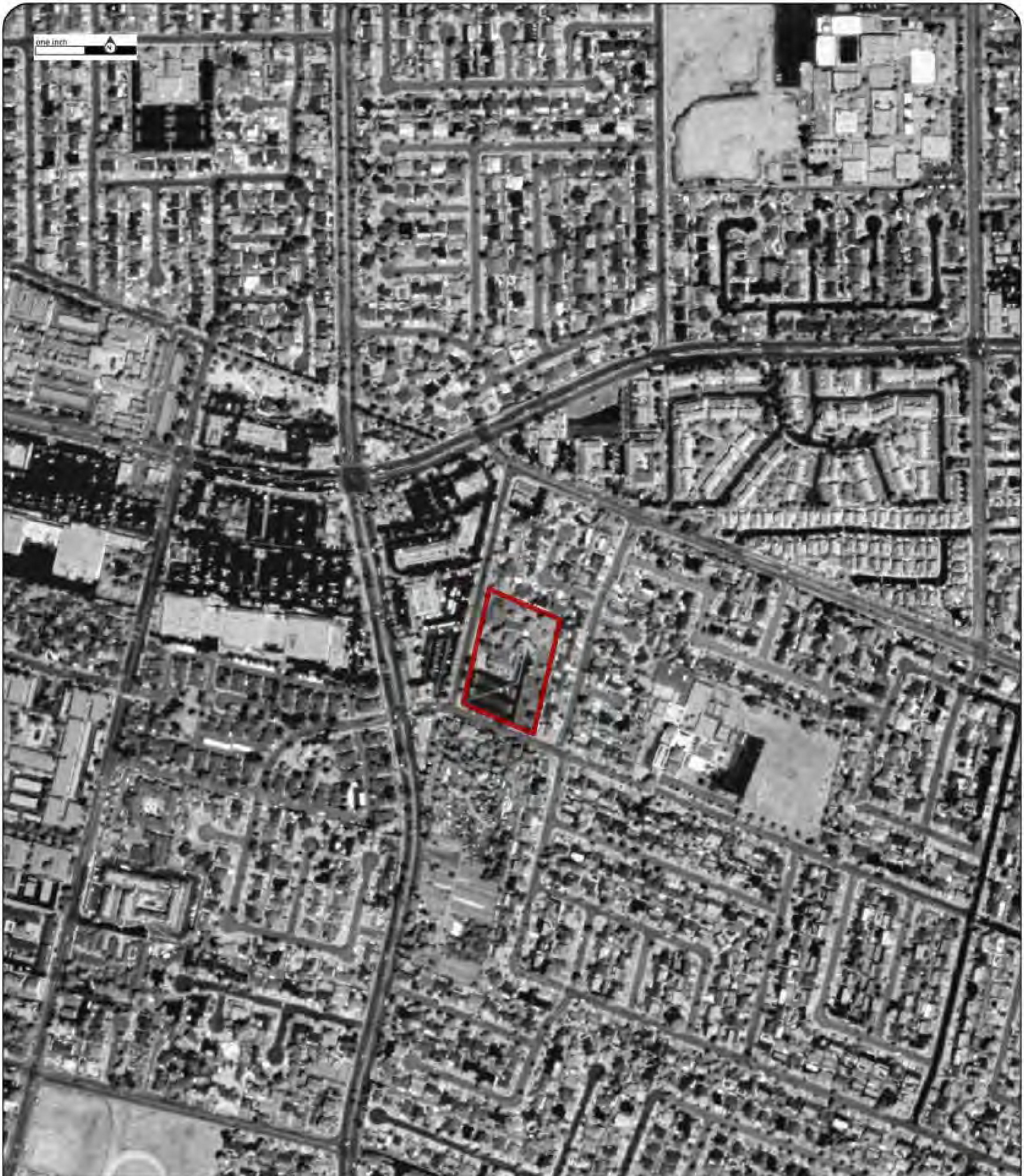
ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:2005
Source:NAIP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES



Year:2002
Source:USGS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1995
Source:USGS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1988
Source:NHAP
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1980
Source:USGS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1975
Source:USGS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1972
Source:USGS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

Year:1963
Source:USGS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1953
Source:ASCS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1947
Source:ASCS
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1938

Source:ASCS

Scale:1" to 500'

Comment:

Address:1314 North Angelina Drive,Placentia,CA

Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS

ENVIRONMENTAL RISK INFORMATION SERVICES

Year:1928
Source:FAIRCHILD
Scale:1" to 500'
Comment:

Address:1314 North Angelina Drive,Placentia,CA
Approx Center:33.88570765/-117.86128548

Order No:20191204148

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

ERIS

ENVIRONMENTAL RISK INFORMATION SERVICES

CITY DIRECTORY

Project Property:	*National CORE - N Angelina Drive* *1314 North Angelina Drive* *Placentia, CA 92870*
Project No:	*19-42-206-01*
Requested By:	*Converse Consultants*
Order No:	*20191204148*
Date Completed:	*December 9, 2019*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

December 9, 2019
RE: CITY DIRECTORY RESEARCH
National CORE - N Angelina Drive
1314 North Angelina Drive Placena, CAÈ

Thank you for contacting ERIS for an City Directory Search for the site described above. Our staff has conducted a reverse listing City Directory search to determine prior occupants of the subject site and adjacent properties. We have provided the nearest addresses(s) when adjacent addresses are not listed. If we have searched a range of addresses, all addresses in that range found in the Directory are included.

Note: Reverse Listing Directories generally are focused on more highly developed areas. Newly developed areas may be covered in the more recent years, but the older directories will tend to cover only the "central" parts of the city. To complete the search, we have either utilized the ACPL, Library of Congress, State Archives, and/or a regional library or history center as well as multiple digitized directories. These do not claim to be a complete collection of all reverse listing city directories produced.

ERIS has made every effort to provide accurate and complete information but shall not be held liable for missing, incomplete or inaccurate information. To complete this search we used the general range(s) below to search for relevant findings. If you believe there are additional addresses or streets that require searching please contact us at 866-517-5204.

Search Criteria:

1300-1425 of North Angelina Drive
250-350 of Morse Avenue

Search Results Summary

Date	Source	Comment
2018	DIGITAL BUSINESS DIRECTORY	
2014	DIGITAL BUSINESS DIRECTORY	
2010	DIGITAL BUSINESS DIRECTORY	
2006	DIGITAL BUSINESS DIRECTORY	
2002	DIGITAL BUSINESS DIRECTORY	
1998	DIGITAL BUSINESS DIRECTORY	
1990	HAINES	
1985	HAINES	
1981	HAINES	
1974	HAINES	
1970	STREET ADDRESS DIRECTORY	
1964	STREET ADDRESS DIRECTORY	
1959	STREET ADDRESS DIRECTORY	
1955	STREET ADDRESS DIRECTORY	

2018
SOURCE: DIGITAL BUSINESS DIRECTORY
MORSE AVENUE

NO LISTING FOUND FOR THIS YEAR...

2018
SOURCE: DIGITAL BUSINESS DIRECTORY
NORTH ANGELINA DRIVE

1314 **BLESSED SACRAMENT CHILDREN'S**...*Schools*
1314 **BLESSED SACRAMENT CHILDREN'S**...*Schools*
1314 **BLESSED SACRAMENT CHURCH**...*Missions*
1314 **BLESSED SACRAMENT CHURCH**...*Church Orga*
1314 **BLESSED SACRAMENT CHURCH**...*Churches*
1314 **BLESSED SACRAMENT CHURCH**...*Churches*

2014 — MORSE AVENUE
SOURCE: DIGITAL BUSINESS DIRECTORY

NO LISTING FOUND FOR THIS YEAR...

2014 — NORTH ANGELINA DRIVE
SOURCE: DIGITAL BUSINESS DIRECTORY

1314 **BLESSED SACRAMENT CHURCH**...*Religious O*
1314 **BLESSED SACRAMENT CHURCH**...*Schools-nur*
1314 **BLESSED SACRAMENT CHURCH**...*Church Orga*

2010 **MORSE AVENUE**
SOURCE: DIGITAL BUSINESS DIRECTORY

NO LISTING FOUND FOR THIS YEAR...

2010 **NORTH ANGELINA DRIVE**
SOURCE: DIGITAL BUSINESS DIRECTORY

1314 **BLESSED SACRAMENT CHILDRENS**...*Religiou*

2006 — MORSE AVENUE

SOURCE: DIGITAL BUSINESS DIRECTORY

NO LISTING FOUND FOR THIS YEAR...

2006 — NORTH ANGELINA DRIVE

SOURCE: DIGITAL BUSINESS DIRECTORY

1314 **BLESSED SACRAMENT CHILDRENS**...*Religiou*

2002 — MORSE AVENUE

SOURCE: DIGITAL BUSINESS DIRECTORY

NO LISTING FOUND FOR THIS YEAR...

2002 — NORTH ANGELINA DRIVE

SOURCE: DIGITAL BUSINESS DIRECTORY

1314 **BLESSED SACRAMENT EPISCOPAL**...
1314 **CHILDREN'S LEARNING CTR**...

1998
SOURCE: DIGITAL BUSINESS DIRECTORY

MORSE AVENUE

NO LISTING FOUND FOR THIS YEAR...

1998
SOURCE: DIGITAL BUSINESS DIRECTORY

NORTH ANGELINA DRIVE

NO LISTING FOUND FOR THIS YEAR...

1990
SOURCE: HAINES

MORSE AVENUE

330	**SCHANER PAUL**
334	**WALSWICK G D**
401	**CAMBRE BRUCE C**

1990
SOURCE: HAINES

NORTH ANGELINA DRIVE

1314	**AITEN KYUDEN DAITO**
1314	**BLESSED SACRAMNT CN**
1314	**ECPICOPAL CHURCH**
1408	**KINSEY A ARLO**
1408	**KINSEY ALINE W**
1408	**KINSEY ART SERVICE**
1408	**KINSEY RICHARD**
1414	**CARY JOS DAVID**
1419	**XXXX**
1420	**DORY GLEN S**

1985
SOURCE: HAINES
MORSE AVENUE

330	**CARLSON OSCAR**
334	**WALSWICK G D**
401	**CAMBRE BRUCE C**

1985
SOURCE: HAINES
NORTH ANGELINA DRIVE

1314	**BLESSED SACRAMNT CH**
1314	**EPISCPL CHRCH BL SC**
1408	**KINSEY A ARLO**
1408	**KINSEY ALINE W**
1408	**KINSEY ART SERVICE**
1408	**KINSEY RICHARD**
1414	**CARY JOS DAVID**
1419	**XXXX**
1420	**DORY GLEN S**

1981
SOURCE: HAINES

MORSE AVENUE

330	**CAALSON OSCAR**
334	**XXXX**
401	**CAMBAE BRUCE C**

1981
SOURCE: HAINES

NORTH ANGELINA DRIVE

1314	**BLESSED SACRAMNT CH**
1314	**EPISCPL CH SACRAMNT**
1408	**KINSEY A ARLO**
1408	**KINSEY ALINE W**
1408	**KINSEY ART SERVICE**
1414	**CARY JOS DAVID**
1419	**XXXX**
1420	**DOAY GLEN S**

1974 — MORSE AVENUE

SOURCE: HAINES

330	**CARLSON OSCAR**
401	**DOMANSKI DAVID A**

1974 — NORTH ANGELINA DRIVE

SOURCE: HAINES

1314	**EPSCPL CH SACRAMENT**
1402	**TORGERSON DONALD**
1408	**KINSEY A ARLO**
1408	**KINSEY ALINE W**
1408	**KINSEY ART SERVICE**
1408	**WILLIAMS VIRGIL MRS**
1414	**CARY JOS DAVID**
1419	**WAY LAWRENCE**
1420	**DORY GLEN S**

1970 — MORSE AVENUE

SOURCE: STREET ADDRESS DIRECTORY

330	**CARLSON OSCAR**
401	**DOMANSKI DAVID A**

1970 — NORTH ANGELINA DRIVE

SOURCE: STREET ADDRESS DIRECTORY

1238	**SCHANER J PETER**
1314	**EPISCOPAL CHURCH OF THE BLESSED**
1402	**TORGERSON DONALD**
1408	**KINSEY ART SERVICE**
1408	**WILLIAMS VIRGIL M MRS**
1414	**CARY JOS DAVID**
1419	**LOGUE GUY**
1420	**DORY GLEN S**

1964 **MORSE AVENUE**
SOURCE: STREET ADDRESS DIRECTORY

330	**CARLSON D**
401	**DOMANSKI D A**

1964 **NORTH ANGELINA DRIVE**
SOURCE: STREET ADDRESS DIRECTORY

STREET NOT LISTED

1959 — MORSE AVENUE

SOURCE: STREET ADDRESS DIRECTORY

STREET NOT LISTED

1959 — NORTH ANGELINA DRIVE

SOURCE: STREET ADDRESS DIRECTORY

STREET NOT LISTED

1955
SOURCE: STREET ADDRESS DIRECTORY

MORSE AVENUE

STREET NOT LISTED

1955
SOURCE: STREET ADDRESS DIRECTORY

NORTH ANGELINA DRIVE

STREET NOT LISTED

--- END REPORT ---

Appendix E - Regulatory Database Report

DATABASE REPORT

Project Property: *National CORE - N Angelina Drive*
1314 North Angelina Drive
Placentia CA 92870

Project No: *19-42-206-01*

Report Type: *Database Report*

Order No: *20191204148*

Requested by: *Converse Consultants*

Date Completed: *December 6, 2019*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 I info@erisinfo.com I erisinfo.com

Table of Contents

Executive Summary

Property Information:

Project Property:	*National CORE - N Angelina Drive* *1314 North Angelina Drive Placentia CA 92870*
Project No:	*19-42-206-01*

Coordinates:

Latitude:	*33.885708*
Longitude:	*-117.861285*
UTM Northing:	*3,749,817.36*
UTM Easting:	*420,354.64*
UTM Zone:	*UTM Zone 11S*

Elevation:	*299 FT*

Order Information:

Order No:	*20191204148*
Date Requested:	*December 4, 2019*
Requested by:	*Converse Consultants*
Report Type:	*Database Report*

Historicals/Products:

Aerial Photographs	*Historical Aerials (Boundaries)*
City Directory Search	*CD - 2 Street Search*
ERIS Xplorer	*ERIS Xplorer*
Excel Add-On	*Excel Add-On*
Fire Insurance Maps	*US Fire Insurance Maps*
Physical Setting Report (PSR)	*Physical Setting Report (PSR)*
Topographic Map	*Topographic Maps*

Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Standard Environmental Records								
Federal								
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	.5	0	0	0	0	-	0
SEMS	Y	.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	.5	0	0	0	0	-	0
ODI	Y	.5	0	0	0	0	-	0
CERCLIS	Y	.5	0	0	0	0	-	0
IODI	Y	.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	.5	0	**1**	0	**7**	-	**8**
RCRA LQG	Y	.25	0	0	**1**	-	-	**1**
RCRA SQG	Y	.25	0	**1**	**3**	-	-	**4**
RCRA CESQG	Y	.25	0	0	**1**	-	-	**1**
RCRA NON GEN	Y	.25	0	**7**	**11**	-	-	**18**
FED ENG	Y	.5	0	0	0	0	-	0
FED INST	Y	.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	-	-	-	-	0
FED BROWNFIELDS	Y	.5	0	0	0	0	-	0
FEMA UST	Y	.25	0	0	0	-	-	0
REFN	Y	.25	0	0	0	-	-	0
BULK TERMINAL	Y	.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
State								
RESPONSE	Y	1	0	0	0	0	0	0
ENVIROSTOR	Y	1	0	1	0	0	1	2
DELISTED ENVS	Y	1	0	0	0	0	0	0
SWF/LF	Y	.5	0	0	0	0	-	0
HWP	Y	1	0	0	0	0	0	0
SWAT	Y	.5	0	0	0	0	-	0
LDS	Y	.5	0	0	0	0	-	0
LUST	Y	.5	0	1	0	4	-	5
DELISTED LST	Y	.5	0	0	0	0	-	0
SWRCB SWF	Y	.5	0	0	0	0	-	0
UST	Y	.25	0	0	1	-	-	1
UST CLOSURE	Y	.5	0	0	1	0	-	1
HHSS	Y	.25	0	2	1	-	-	3
AST	Y	.25	0	0	0	-	-	0
DELISTED TNK	Y	.25	0	1	1	-	-	2
CERS TANK	Y	.25	0	0	1	-	-	1
LUR	Y	.5	0	0	0	0	-	0
HLUR	Y	.5	0	0	0	0	-	0
DEED	Y	.5	0	0	0	0	-	0
VCP	Y	.5	0	0	0	0	-	0
CLEANUP SITES	Y	.5	0	0	0	0	-	0
DELISTED COUNTY	Y	.25	0	0	0	-	-	0
DELISTED CTNK	Y	.25	0	0	0	-	-	0
HIST TANK	Y	.25	0	1	1	-	-	2
Tribal								
INDIAN LUST	Y	.5	0	0	0	0	-	0
INDIAN UST	Y	.25	0	0	0	-	-	0
DELISTED ILST	Y	.5	0	0	0	0	-	0
DELISTED IUST	Y	.25	0	0	0	-	-	0
County								
ORANGE ICP	Y	.25	0	0	3	-	-	3
ORANGE LOP	Y	.5	0	1	1	0	-	2
UST ORANGE CNTY	Y	.25	0	0	1	-	-	1

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
ORANGE AST	Y	.25	0	0	0	-	-	0
UST CLEANUP	Y	.5	0	0	0	0	-	0
ANAHEIM UST	Y	.25	0	0	0	-	-	0
ANAHEIM AST	Y	.25	0	0	0	-	-	0

Additional Environmental Records

Federal

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
PFAS NPL	Y	.5	0	0	0	0	-	0
FINDS/FRS	Y	PO	0	-	-	-	-	0
TRIS	Y	PO	0	-	-	-	-	0
PFAS TRI	Y	.5	0	0	0	0	-	0
HMIRS	Y	.125	0	0	-	-	-	0
NCDL	Y	.125	0	0	-	-	-	0
TSCA	Y	.125	0	0	-	-	-	0
HIST TSCA	Y	.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	.5	0	0	0	0	-	0
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	.25	0	0	**2**	-	-	**2**
DELISTED FED DRY	Y	.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	.25	0	0	0	-	-	0
ALT FUELS	Y	.25	0	0	0	-	-	0
SSTS	Y	.25	0	0	0	-	-	0
PCB	Y	.5	0	0	0	0	-	0

State

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
DRYCLEANERS	Y	.25	0	0	**9**	-	-	**9**
DELISTED DRYCLEANERS	Y	.25	0	0	0	-	-	0
DRYC GRANT	Y	.25	0	0	**1**	-	-	**1**
PFAS	Y	.5	0	0	0	0	-	0
PFAS GW	Y	.5	0	0	0	0	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
HWSS CLEANUP	Y	.5	0	0	0	0	-	0
DTSC HWF	Y	.5	0	0	0	0	-	0
INSP COMP ENF	Y	1	0	0	0	0	0	0
SCH	Y	1	0	0	0	0	0	0
CHMIRS	Y	PO	0	-	-	-	-	0
HAZNET	Y	PO	0	**1**	-	-	-	**1**
HIST CHMIRS	Y	PO	0	-	-	-	-	0
HIST MANIFEST	Y	PO	0	-	-	-	-	0
HIST CORTESE	Y	.5	0	0	0	0	-	0
CDO/CAO	Y	.5	0	0	0	0	-	0
CERS HAZ	Y	.125	0	**1**	-	-	-	**1**
DELISTED HAZ	Y	.5	0	0	**1**	0	-	**1**
GEOTRACKER	Y	.125	0	0	-	-	-	0
WASTE DISCHG	Y	.25	0	0	0	-	-	0
EMISSIONS	Y	.25	0	**1**	**5**	-	-	**6**
CDL	Y	.125	0	0	-	-	-	0
Tribal	*No Tribal additional environmental record sources available for this State.*							
County								
ORANGE HW	Y	.125	0	0	-	-	-	0
	Total:		0	19	45	11	1	76

**** PO – Property Only***
**** 'Property and adjoining properties' database search radii are set at 0.25 miles.***

Executive Summary: Site Report Summary - Project Property

Map Key	*DB*	*Company/Site Name*	*Address*	*Direction*	*Distance (mi/ft)*	*Elev Diff (ft)*	*Page Number*

No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
1	HAZNET	fatima jadallah	1402 n angelina dr PLACENTIA CA 92870	NNW	0.01 / 33.14	0	30
2	RCRA NON GEN	TOM DEMARTI	1407 ANNAJEANNE DRIVE PLACENTIA CA 92870 ***EPA Handler ID:*** CAC003022085	NNE	0.03 / 155.43	2	30
3	EMISSIONS	NORTON'S PALM CLEANERS	1454 NKRAEMER BL. PLACENTIA CA 92670	NNW	0.05 / 247.36	2	31
3	ENVIROSTOR	NORTON CLEANERS	1454 NORTH KRAEMER BOULEVARD PLACENTIA CA 92870 ***Estor/EPA ID | Cleanup Status:*** 30720015 | REFER: 1248 LOCAL AGENCY AS OF 5/21/2001	NNW	0.05 / 247.36	2	32
4	RCRA NON GEN	REES M OLSON DDS PROFESSIONAL CORPORATION	1320 N KRAEMER BLVD PLACENTIA CA 92870-3401 ***EPA Handler ID:*** CAL000360181	W	0.06 / 300.55	-6	33
5	RCRA NON GEN	GEORGE ACUNA	414 BARRY PL PLACENTIA CA 92870 ***EPA Handler ID:*** CAC002996596	ESE	0.06 / 338.89	1	34
5	RCRA NON GEN	GEORGE ACUNA	414 BARRY PLACE PLACENTIA CA 92870-3420 ***EPA Handler ID:*** CAC002995989	ESE	0.06 / 338.89	1	35
6	HHSS	PLACENTIA POST OFFICE	1400 N. KRAEMER PLACENTIA CA 92670	WNW	0.07 / 381.42	-6	36
6	HIST TANK	PLACENTIA POST OFFICE	1400 N. KRAEMER PLACENTIA CA	WNW	0.07 / 381.42	-6	36
6	ORANGE LOP	PLACENTIA POST OFFICE	1400 N KRAEMER BLVD PLACENTIA CA 92871 ***Record ID | Case Closed Date | Type of Closure:*** RO0001782 | 10/24/2002 | Closure certification issued	WNW	0.07 / 381.42	-6	36
6	RCRA SQG	USPS PLACENTIA POST OFFICE	1400 N KRAEMER BLVD PLACENTIA CA 92870 ***EPA Handler ID:*** CA3180090471	WNW	0.07 / 381.42	-6	36
7	DELISTED TNK	PLACENTIA POST OFFICE	1400 N KRAEMER BLVD PLACENTIA CA 92871	N	0.09 / 472.03	7	37

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
8	RCRA NON GEN	BOB STREET	1201 CYPRESS POINT DR. PLACENTIA CA 92870 ***EPA Handler ID:*** CAC003021022	S	0.09 / 498.33	-7	38
9	RCRA NON GEN	ADVANCED THERAPEUTICS	319 E. PALM DR., STE. A PLACENTIA CA 92870 ***EPA Handler ID:*** CAC002988112	NNE	0.10 / 530.85	7	39
10	LUST	PLACENTIA POST OFFICE	1400 KRAEMER PLACENTIA CA 92871 ***Global ID | Status | Status Date:*** T0605927490 | COMPLETED - CASE CLOSED | 2002-10-24 00:00:00	NW	0.10 / 543.70	-1	40
11	CERS HAZ	McDonald's	164 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.11 / 557.85	-3	41
12	RCRA NON GEN	JIM GARDNER	1131 CYPRESS POINT DR PLACENTIA CA 92870 ***EPA Handler ID:*** CAC003010069	S	0.11 / 571.22	-8	43
12	RCRA TSD	JIM GARDNER	1131 CYPRESS POINT DR PLACENTIA CA 92870 ***EPA Handler ID:*** CAC003010069	S	0.11 / 571.22	-8	44
13	HHSS	DIGAS	297B YORBA LINDA BLVD 57 FWY YORBA LINDA CA 92631	NNW	0.12 / 612.38	5	45
14	DRYCLEANERS	NORTON'S CLEANERS	204 E YORBA LINDA BLVD PLACENTIA CA 928700000	N	0.13 / 708.29	8	45
14	DRYC GRANT	Nortons Cleaners	204 E Yorba Linda Blvd Placentia CA 92870-3417	N	0.13 / 708.29	8	46
15	DRYCLEANERS	COURTESY ONE HOUR CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 926700000	NW	0.14 / 750.79	1	46
15	DRYCLEANERS	COURTESY 1 HR CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.14 / 750.79	1	46
15	DRYCLEANERS	Courtesy Cleaners	182 E Yorba Linda Blvd Center Of Ste Placentia CA 92870	NW	0.14 / 750.79	1	47
15	DRYCLEANERS	COURTESY ONE HOUR CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 926700000	NW	0.14 / 750.79	1	47

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
15	DRYCLEANERS	COURTESY 1 HR CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.14 / 750.79	1	47
15	DRYCLEANERS	COURTESY CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.14 / 750.79	1	48
15	DRYCLEANERS	COURTESY 1 HR CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 928703327	NW	0.14 / 750.79	1	48
15	EMISSIONS	COURTESY CLEANERS, CHOI SUNG-O	182 E YORBA LINDA BLVD PLACENTIA CA 92670	NW	0.14 / 750.79	1	48
15	ORANGE ICP	COURTESY 1 HOUR CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.14 / 750.79	1	49
15	RCRA SQG	COURTESY CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 92870 ***EPA Handler ID:*** CAD981576465	NW	0.14 / 750.79	1	49
16	DRYCLEANERS	NORTON CLEANERS INC	1454 KRAEMER PLACENTIA CA 926860000	NW	0.15 / 783.87	3	51
16	EMISSIONS	NORTON'S PALM CLEANERS	1454 N. KRAEMER BL. PLACENTIA CA 92670	NW	0.15 / 783.87	3	51
16	EMISSIONS	NORTON'S PALM CLEANERS	1454 N KRAEMER BLVD PLACENTIA CA 92670	NW	0.15 / 783.87	3	52
16	FED DRYCLEANERS	NORTON PALM CLEANERS	1454 KRAEMER BLVD PLACENTIA CA 92870	NW	0.15 / 783.87	3	53
16	ORANGE ICP	NORTONS PALM CLEANERS	1454 N KRAEMER BLVD PLACENTIA CA 92870	NW	0.15 / 783.87	3	54
16	RCRA SQG	NORTON PALM CLEANERS	1454 KRAEMER BLVD PLACENTIA CA 92870 ***EPA Handler ID:*** CAD981622681	NW	0.15 / 783.87	3	54
17	RCRA LQG	CVS PHARMACY # 9747	150 EAST YORBA LINDA BOULEVARD PLACENTIA CA 92870-0000	NW	0.15 / 813.85	-1	55

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
			EPA Handler ID: CAR000231423				
18	RCRA CESQG	WALGREENS #9197	191 E YORBA LINDA BLVD PLACENTIA CA 92870 ***EPA Handler ID:*** CAL000323609	NW	0.16 / 839.39	0	62
19	DELISTED HAZ	Asfour Family Corporation	183 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.16 / 870.24	-1	64
20	RCRA NON GEN	PLACENTIA VILLAGE PLAZA, LLC	1474 NORTH KRAEMER BLVD PLACENTIA CA 92780 ***EPA Handler ID:*** CAC002991792	NNW	0.18 / 929.08	5	65
21	RCRA NON GEN	GLORIA V PIEDILATO TRST	1410 VIA CORTEZ PLACENTIA CA 92870 ***EPA Handler ID:*** CAC002982605	NE	0.18 / 947.55	9	66
22	RCRA NON GEN	SUNNY SASAJIMA	218 CIMARON AVE PLACENTIA CA 92870 ***EPA Handler ID:*** CAC002968120	N	0.20 / 1,054.08	9	67
23	DELISTED TNK	ARCO #6226	102 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.21 / 1,132.02	5	68
24	FED DRYCLEANERS	VALUE CLEARNERS CORP	127 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.22 / 1,178.65	-3	68
24	ORANGE ICP	VALUE CLEANERS	127 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.22 / 1,178.65	-3	68
24	RCRA NON GEN	VALUE CLEARNERS CORP	127 E YORBA LINDA BLVD PLACENTIA CA 92870 ***EPA Handler ID:*** CAD983596073	NW	0.22 / 1,178.65	-3	68
25	RCRA NON GEN	JEWEL HOLLINGWORTH	457 VIA DE LEON PLACENTIA CA 92870-3227 ***EPA Handler ID:*** CAC002996061	NE	0.23 / 1,204.51	11	69
26	RCRA NON GEN	ROSS DRESS FOR LESS #0355	110 E YORBA LINDA BLVD PLACENTIA CA 92870-3327 ***EPA Handler ID:*** CAL000397448	WNW	0.23 / 1,210.80	-4	70
26	RCRA NON GEN	MARSHALLS 1193	130 E YORBA LINDA BLVD PLACENTIA CA 92870 ***EPA Handler ID:*** CAL000401942	WNW	0.23 / 1,210.80	-4	71
27	EMISSIONS	MARIE CALLENDER'S	126 E YORBA LINDA PLACENTIA CA 92670	WNW	0.23 / 1,218.53	-4	72

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
28	UST	ARCO #6226	102 E YORBA LINDA BLVD PLACENTIA CA 92870 ***Facility ID:*** FA0024085	WNW	0.24 / 1,259.80	-3	73
29	RCRA NON GEN	TODD FARMER	344 FAIRWAY LN PLACENTIA CA 92870 ***EPA Handler ID:*** CAC002980105	S	0.24 / 1,292.79	-12	73
30	RCRA NON GEN	ALICE LEE WU	1107 MONTECITO ST PLACENTIA CA 92870 ***EPA Handler ID:*** CAC002974836	SSE	0.25 / 1,297.67	-16	74
31	RCRA NON GEN	JASON PFEFFERTON	533 MORSE AVE PLACENTIA CA 92870 ***EPA Handler ID:*** CAC002975432	ESE	0.25 / 1,303.96	-11	75
32	CERS TANK	ARCO #6226	102 E YORBA LINDA BLVD PLACENTIA CA 92870 ***Site ID:*** 92969	WNW	0.25 / 1,312.38	-4	76
32	EMISSIONS	RJM VALLEJO MINI-MART, INC	102 E YORBA LINDA BLVD PLACENTIA CA 92870	WNW	0.25 / 1,312.38	-4	100
32	HHSS	PRESTIGE STATION INC 515	102 E YORBA LINDA PLACENTIA CA 92670	WNW	0.25 / 1,312.38	-4	100
32	HIST TANK	PRESTIGE STATIONS INC #515	102 E YORBA LINDA PLACENTIA CA	WNW	0.25 / 1,312.38	-4	101
32	ORANGE LOP	ARCO #6226	102 E YORBA LINDA BLVD PLACENTIA CA 92870 ***Record ID | Case Closed Date | Type of Closure:*** RO0001376 | 2/22/2016 | Closure certification issued	WNW	0.25 / 1,312.38	-4	101
32	RCRA NON GEN	RJM VALLEJO MIN MART INC	102 E YORBA LINDA BLVD PLACENTIA CA 92870 ***EPA Handler ID:*** CAL000373547	WNW	0.25 / 1,312.38	-4	101
32	RCRA SQG	ARCO FACILITY NO 06226	102 E YORBA LINDA BLVD PLACENTIA CA 92870 ***EPA Handler ID:*** CAR000101683	WNW	0.25 / 1,312.38	-4	102
32	UST CLOSURE	Arco #6226	102 East Yorba Linda Boulevard, Placentia, CA 92870 CA 92870 ***Claim Case No:*** Case No. 95UT018	WNW	0.25 / 1,312.38	-4	103
32	UST ORANGE CNTY	RJM VALLEJO #3	102 E YORBA LINDA BLVD PLACENTIA CA 92870	WNW	0.25 / 1,312.38	-4	103

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
			Facility ID: FA0061983				
33	LUST	ARCO #6226	102 YORBA LINDA PLACENTIA CA 92870	WNW	0.25 / 1,331.70	-3	104
			Global ID | Status | Status Date: T0605901847 | COMPLETED - CASE CLOSED | 2016-02-22 00:00:00				
34	LUST	TEXACO SERVICE STATION	3370 E YORBA LINDA BLVD FULLERTON CA 92631	WNW	0.28 / 1,453.52	-3	117
			Global ID | Status | Status Date: T0605901729 | COMPLETED - CASE CLOSED | 2000-07-12 00:00:00				
35	RCRA TSD	MARC CARREN	520 PINEHURST AVE PLACENTIA CA 92870	SSE	0.29 / 1,509.25	-18	120
			EPA Handler ID: CAC003006827				
36	RCRA TSD	RICHARD WOZNICHAK	1425 AVENIDA ALVARADO PLACENTIA CA 92870	ENE	0.32 / 1,682.44	8	121
			EPA Handler ID: CAC003019672				
37	RCRA TSD	ILSE BAIRD	613 MORSE AVE PLACENTIA CA 92876	ESE	0.34 / 1,818.05	-13	122
			EPA Handler ID: CAC003011440				
38	RCRA TSD	RC BRIARWOOD APARTMENTS	3300 QUARTZ LANE FULLERTON CA 92831	WSW	0.39 / 2,057.38	-22	123
			EPA Handler ID: CAC003017884				
39	LUST	CHEVRON/KRAEMER LEASE	842 ALTA VISTA PLACENTIA CA 92670	SSE	0.39 / 2,060.43	-22	124
			Global ID | Status | Status Date: T0605901208 | COMPLETED - CASE CLOSED | 1990-09-26 00:00:00				
39	LUST	KRAMER TRUST PROPERTY	230 ANGELINA PLACENTIA CA 92670	SSE	0.39 / 2,060.43	-22	126
			Global ID | Status | Status Date: T0605900710 | COMPLETED - CASE CLOSED | 1994-09-15 00:00:00				
40	RCRA TSD	SUAREZ AARON S M & AMY E	1631 SALMON RIV PLACENTIA CA 92870	N	0.45 / 2,365.51	20	128
			EPA Handler ID: CAC003012560				
41	RCRA TSD	STEVE STOUGH	232 BRETING WAY PLACENTIA CA 92870	SSW	0.47 / 2,504.81	-21	129
			EPA Handler ID: CAC003013847				
42	RCRA TSD	ALMORADI, MOHAMAD	1049 MAGNOLIA AVE PLACENTIA CA 92870	SE	0.48 / 2,528.78	-26	131
			EPA Handler ID: CAC003011506				
43	ENVIROSTOR	FULLERTON UNIVERSITY SHOPPING CENTER	2940/2948 YORBA LINDA BLVD. FULLERTON CA 92831	W	0.85 / 4,481.50	-28	132
			Estor/EPA ID | Cleanup Status: 30590006 | REFER: 1248 LOCAL AGENCY AS OF 6/10/2004				

Executive Summary: Summary by Data Source

Standard

Federal

RCRA TSD - RCRA non-CORRACTS TSD Facilities

A search of the RCRA TSD database, dated Aug 26, 2019 has found that there are 8 RCRA TSD site(s) within approximately 0.50 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
RICHARD WOZNICHAK	1425 AVENIDA ALVARADO PLACENTIA CA 92870 ***EPA Handler ID***: *CAC003019672*	ENE	0.32 / 1,682.44	36
SUAREZ AARON S M & AMY E	1631 SALMON RIV PLACENTIA CA 92870 ***EPA Handler ID***: *CAC003012560*	N	0.45 / 2,365.51	40

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
JIM GARDNER	1131 CYPRESS POINT DR PLACENTIA CA 92870 ***EPA Handler ID***: *CAC003010069*	S	0.11 / 571.22	12
MARC CARREN	520 PINEHURST AVE PLACENTIA CA 92870 ***EPA Handler ID***: *CAC003006827*	SSE	0.29 / 1,509.25	35
ILSE BAIRD	613 MORSE AVE PLACENTIA CA 92876 ***EPA Handler ID***: *CAC003011440*	ESE	0.34 / 1,818.05	37
RC BRIARWOOD APARTMENTS	3300 QUARTZ LANE FULLERTON CA 92831 ***EPA Handler ID***: *CAC003017884*	WSW	0.39 / 2,057.38	38
STEVE STOUGH	232 BRETING WAY PLACENTIA CA 92870 ***EPA Handler ID***: *CAC003013847*	SSW	0.47 / 2,504.81	41
ALMORADI, MOHAMAD	1049 MAGNOLIA AVE PLACENTIA CA 92870 ***EPA Handler ID***: *CAC003011506*	SE	0.48 / 2,528.78	42

RCRA LQG - RCRA Generator List

A search of the RCRA LQG database, dated Aug 26, 2019 has found that there are 1 RCRA LQG site(s) within approximately 0.25 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
CVS PHARMACY # 9747	150 EAST YORBA LINDA BOULEVARD PLACENTIA CA 92870-0000 ***EPA Handler ID**: CAR000231423*	NW	0.15 / 813.85	17

RCRA SQG - RCRA Small Quantity Generators List

A search of the RCRA SQG database, dated Aug 26, 2019 has found that there are 4 RCRA SQG site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
COURTESY CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 92870 ***EPA Handler ID**: CAD981576465*	NW	0.14 / 750.79	15
NORTON PALM CLEANERS	1454 KRAEMER BLVD PLACENTIA CA 92870 ***EPA Handler ID**: CAD981622681*	NW	0.15 / 783.87	16

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
USPS PLACENTIA POST OFFICE	1400 N KRAEMER BLVD PLACENTIA CA 92870 ***EPA Handler ID**: CA3180090471*	WNW	0.07 / 381.42	6
ARCO FACILITY NO 06226	102 E YORBA LINDA BLVD PLACENTIA CA 92870 ***EPA Handler ID**: CAR000101683*	WNW	0.25 / 1,312.38	32

RCRA CESQG - RCRA Conditionally Exempt and Very Small Quantity Generators List

A search of the RCRA CESQG database, dated Aug 26, 2019 has found that there are 1 RCRA CESQG site(s) within approximately 0.25 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
WALGREENS #9197	191 E YORBA LINDA BLVD PLACENTIA CA 92870 ***EPA Handler ID**: CAL000323609*	NW	0.16 / 839.39	18

RCRA NON GEN - RCRA Non-Generators

A search of the RCRA NON GEN database, dated Aug 26, 2019 has found that there are 18 RCRA NON GEN site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
TOM DEMARTI	1407 ANNAJEANNE DRIVE PLACENTIA CA 92870 ***EPA Handler ID**: CAC003022085*	NNE	0.03 / 155.43	2
GEORGE ACUNA	414 BARRY PLACE PLACENTIA CA 92870-3420	ESE	0.06 / 338.89	5

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
	***EPA Handler ID**: CAC002995989*			
GEORGE ACUNA	414 BARRY PL PLACENTIA CA 92870	ESE	0.06 / 338.89	5
	***EPA Handler ID**: CAC002996596*			
ADVANCED THERAPEUTICS	319 E. PALM DR., STE. A PLACENTIA CA 92870	NNE	0.10 / 530.85	9
	***EPA Handler ID**: CAC002988112*			
PLACENTIA VILLAGE PLAZA, LLC	1474 NORTH KRAEMER BLVD PLACENTIA CA 92780	NNW	0.18 / 929.08	20
	***EPA Handler ID**: CAC002991792*			
GLORIA V PIEDILATO TRST	1410 VIA CORTEZ PLACENTIA CA 92870	NE	0.18 / 947.55	21
	***EPA Handler ID**: CAC002982605*			
SUNNY SASAJIMA	218 CIMARON AVE PLACENTIA CA 92870	N	0.20 / 1,054.08	22
	***EPA Handler ID**: CAC002968120*			
JEWEL HOLLINGWORTH	457 VIA DE LEON PLACENTIA CA 92870-3227	NE	0.23 / 1,204.51	25
	***EPA Handler ID**: CAC002996061*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
REES M OLSON DDS PROFESSIONAL CORPORATION	1320 N KRAEMER BLVD PLACENTIA CA 92870-3401	W	0.06 / 300.55	4
	***EPA Handler ID**: CAL000360181*			
BOB STREET	1201 CYPRESS POINT DR. PLACENTIA CA 92870	S	0.09 / 498.33	8
	***EPA Handler ID**: CAC003021022*			
JIM GARDNER	1131 CYPRESS POINT DR PLACENTIA CA 92870	S	0.11 / 571.22	12
	***EPA Handler ID**: CAC003010069*			
VALUE CLEARNERS CORP	127 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.22 / 1,178.65	24
	***EPA Handler ID**: CAD983596073*			
MARSHALLS 1193	130 E YORBA LINDA BLVD PLACENTIA CA 92870	WNW	0.23 / 1,210.80	26
	***EPA Handler ID**: CAL000401942*			
ROSS DRESS FOR LESS #0355	110 E YORBA LINDA BLVD PLACENTIA CA 92870-3327	WNW	0.23 / 1,210.80	26
	***EPA Handler ID**: CAL000397448*			

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
TODD FARMER	344 FAIRWAY LN PLACENTIA CA 92870 ***EPA Handler ID**: CAC002980105*	S	0.24 / 1,292.79	29
ALICE LEE WU	1107 MONTECITO ST PLACENTIA CA 92870 ***EPA Handler ID**: CAC002974836*	SSE	0.25 / 1,297.67	30
JASON PFEFFERTON	533 MORSE AVE PLACENTIA CA 92870 ***EPA Handler ID**: CAC002975432*	ESE	0.25 / 1,303.96	31
RJM VALLEJO MIN MART INC	102 E YORBA LINDA BLVD PLACENTIA CA 92870 ***EPA Handler ID**: CAL000373547*	WNW	0.25 / 1,312.38	32

State

ENVIROSTOR - EnviroStor Database

A search of the ENVIROSTOR database, dated Oct 1, 2019 has found that there are 2 ENVIROSTOR site(s) within approximately 1.00 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
NORTON CLEANERS	1454 NORTH KRAEMER BOULEVARD PLACENTIA CA 92870 ***Estor/EPA ID | Cleanup Status**: 30720015 | REFER: 1248 LOCAL AGENCY AS OF 5/21/2001*	NNW	0.05 / 247.36	3

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
FULLERTON UNIVERSITY SHOPPING CENTER	2940/2948 YORBA LINDA BLVD. FULLERTON CA 92831 ***Estor/EPA ID | Cleanup Status**: 30590006 | REFER: 1248 LOCAL AGENCY AS OF 6/10/2004*	W	0.85 / 4,481.50	43

LUST - Leaking Underground Fuel Tank Reports

A search of the LUST database, dated Nov 14, 2019 has found that there are 5 LUST site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
PLACENTIA POST OFFICE	1400 KRAEMER PLACENTIA CA 92871 ***Global ID | Status | Status Date**: T0605927490 | COMPLETED - CASE CLOSED | 2002-10-24 00:00:00*	NW	0.10 / 543.70	10
ARCO #6226	102 YORBA LINDA PLACENTIA CA 92870 ***Global ID | Status | Status Date**: T0605901847 | COMPLETED - CASE CLOSED | 2016-02-22 00:00:00*	WNW	0.25 / 1,331.70	33
TEXACO SERVICE STATION	3370 E YORBA LINDA BLVD FULLERTON CA 92631	WNW	0.28 / 1,453.52	34

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
	***Global ID | Status | Status Date**: T0605901729 | COMPLETED - CASE CLOSED | 2000-07-12 00:00:00*			
KRAMER TRUST PROPERTY	230 ANGELINA PLACENTIA CA 92670	SSE	0.39 / 2,060.43	39
	***Global ID | Status | Status Date**: T0605900710 | COMPLETED - CASE CLOSED | 1994-09-15 00:00:00*			
CHEVRON/KRAEMER LEASE	842 ALTA VISTA PLACENTIA CA 92670	SSE	0.39 / 2,060.43	39
	***Global ID | Status | Status Date**: T0605901208 | COMPLETED - CASE CLOSED | 1990-09-26 00:00:00*			

UST - Permitted Underground Storage Tank (UST) in GeoTracker

A search of the UST database, dated Nov 14, 2019 has found that there are 1 UST site(s) within approximately 0.25 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ARCO #6226	102 E YORBA LINDA BLVD PLACENTIA CA 92870	WNW	0.24 / 1,259.80	28
	***Facility ID**: FA0024085*			

UST CLOSURE - Proposed Closure of Underground Storage Tank Cases

A search of the UST CLOSURE database, dated Oct 8, 2019 has found that there are 1 UST CLOSURE site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Arco #6226	102 East Yorba Linda Boulevard, Placentia, CA 92870 CA 92870 ***Claim Case No**: Case No. 95UT018*	WNW	0.25 / 1,312.38	32

HHSS - Historical Hazardous Substance Storage Information Database

A search of the HHSS database, dated Aug 27, 2015 has found that there are 3 HHSS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
DIGAS	297B YORBA LINDA BLVD 57 FWY YORBA LINDA CA 92631	NNW	0.12 / 612.38	13

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
PLACENTIA POST OFFICE	1400 N. KRAEMER PLACENTIA CA 92670	WNW	0.07 / 381.42	6
PRESTIGE STATION INC 515	102 E YORBA LINDA PLACENTIA CA 92670	WNW	0.25 / 1,312.38	32

DELISTED TNK - Delisted Storage Tanks

A search of the DELISTED TNK database, dated Nov 15, 2019 has found that there are 2 DELISTED TNK site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
PLACENTIA POST OFFICE	1400 N KRAEMER BLVD PLACENTIA CA 92871	N	0.09 / 472.03	7
ARCO #6226	102 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.21 / 1,132.02	23

CERS TANK - California Environmental Reporting System (CERS) Tanks

A search of the CERS TANK database, dated Nov 18, 2019 has found that there are 1 CERS TANK site(s) within approximately 0.25 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
ARCO #6226	102 E YORBA LINDA BLVD PLACENTIA CA 92870 ***Site ID**: 92969*	WNW	0.25 / 1,312.38	32

HIST TANK - Historical Hazardous Substance Storage Container Information - Facility Summary

A search of the HIST TANK database, dated May 27, 1988 has found that there are 2 HIST TANK site(s) within approximately 0.25 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
PLACENTIA POST OFFICE	1400 N. KRAEMER PLACENTIA CA	WNW	0.07 / 381.42	6
PRESTIGE STATIONS INC #515	102 E YORBA LINDA PLACENTIA CA	WNW	0.25 / 1,312.38	32

County

ORANGE ICP - Orange County - Industrial Cleanup Program Cases Listing

A search of the ORANGE ICP database, dated Oct 4, 2019 has found that there are 3 ORANGE ICP site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
COURTESY 1 HOUR CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.14 / 750.79	15
NORTONS PALM CLEANERS	1454 N KRAEMER BLVD PLACENTIA CA 92870	NW	0.15 / 783.87	16

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
VALUE CLEANERS	127 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.22 / 1,178.65	24

ORANGE LOP - Orange County - LOP Lead Cases List

A search of the ORANGE LOP database, dated Oct 4, 2019 has found that there are 2 ORANGE LOP site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
PLACENTIA POST OFFICE	1400 N KRAEMER BLVD PLACENTIA CA 92871	WNW	0.07 / 381.42	6
	***Record ID | Case Closed Date | Type of Closure**: RO0001782 | 10/24/2002 | Closure certification issued*			
ARCO #6226	102 E YORBA LINDA BLVD PLACENTIA CA 92870	WNW	0.25 / 1,312.38	32
	***Record ID | Case Closed Date | Type of Closure**: RO0001376 | 2/22/2016 | Closure certification issued*			

UST ORANGE CNTY - Orange County - Underground Storage Tanks Listing

A search of the UST ORANGE CNTY database, dated Oct 4, 2019 has found that there are 1 UST ORANGE CNTY site(s) within approximately 0.25 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
RJM VALLEJO #3	102 E YORBA LINDA BLVD PLACENTIA CA 92870	WNW	0.25 / 1,312.38	32
	***Facility ID**: FA0061983*			

Non Standard

Federal

FED DRYCLEANERS - Drycleaner Facilities

A search of the FED DRYCLEANERS database, dated May 29, 2018 has found that there are 2 FED DRYCLEANERS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
NORTON PALM CLEANERS	1454 KRAEMER BLVD PLACENTIA CA 92870	NW	0.15 / 783.87	16

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
VALUE CLEARNERS CORP	127 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.22 / 1,178.65	24

State

DRYCLEANERS - Dry Cleaning Facilities

A search of the DRYCLEANERS database, dated Oct 25, 2019 has found that there are 9 DRYCLEANERS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
NORTON'S CLEANERS	204 E YORBA LINDA BLVD PLACENTIA CA 928700000	N	0.13 / 708.29	14
COURTESY 1 HR CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 928703327	NW	0.14 / 750.79	15
COURTESY CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.14 / 750.79	15
COURTESY 1 HR CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.14 / 750.79	15
COURTESY ONE HOUR CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 926700000	NW	0.14 / 750.79	15
Courtesy Cleaners	182 E Yorba Linda Blvd Center Of Ste Placentia CA 92870	NW	0.14 / 750.79	15
COURTESY 1 HR CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.14 / 750.79	15
COURTESY ONE HOUR CLEANERS	182 E YORBA LINDA BLVD PLACENTIA CA 926700000	NW	0.14 / 750.79	15
NORTON CLEANERS INC	1454 KRAEMER PLACENTIA CA 926860000	NW	0.15 / 783.87	16

DRYC GRANT - Non-Toxic Dry Cleaning Incentive Program

A search of the DRYC GRANT database, dated Feb 28, 2018 has found that there are 1 DRYC GRANT site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Nortons Cleaners	204 E Yorba Linda Blvd Placentia CA 92870-3417	N	0.13 / 708.29	14

HAZNET - Hazardous Waste Manifest Data

A search of the HAZNET database, dated Oct 24, 2016 has found that there are 1 HAZNET site(s) within approximately 0.02 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
fatima jadallah	1402 n angelina dr PLACENTIA CA 92870	NNW	0.01 / 33.14	1

CERS HAZ - California Environmental Reporting System (CERS) Hazardous Waste Sites

A search of the CERS HAZ database, dated Nov 18, 2019 has found that there are 1 CERS HAZ site(s) within approximately 0.12 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
McDonald's	164 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.11 / 557.85	11

DELISTED HAZ - Delisted Environmental Reporting System (CERS) Hazardous Waste Sites

A search of the DELISTED HAZ database, dated Nov 29, 2018 has found that there are 1 DELISTED HAZ site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Asfour Family Corporation	183 E YORBA LINDA BLVD PLACENTIA CA 92870	NW	0.16 / 870.24	19

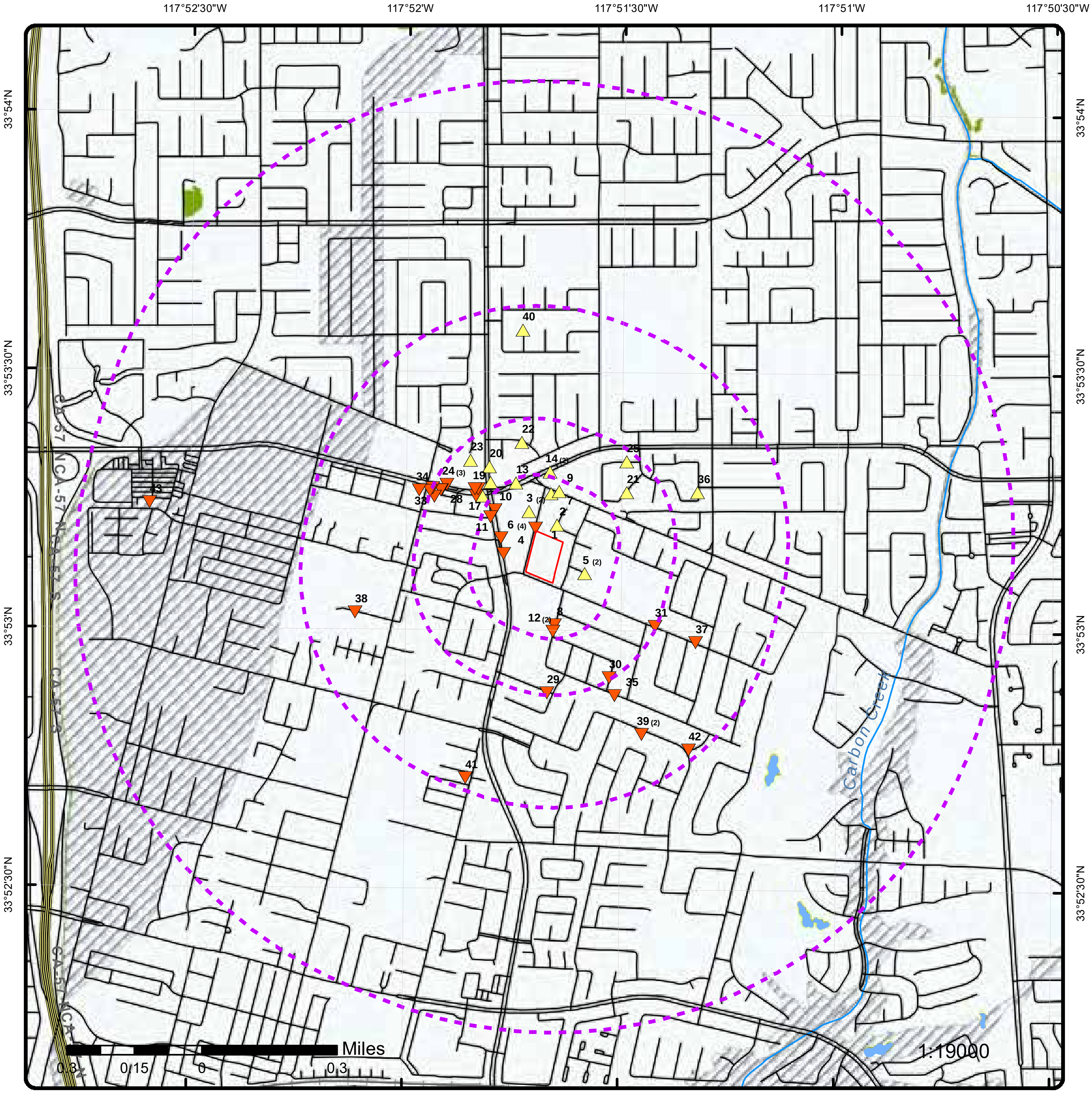
EMISSIONS - Toxic Pollutant Emissions Facilities

A search of the EMISSIONS database, dated Dec 31, 2017 has found that there are 6 EMISSIONS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
NORTON'S PALM CLEANERS	1454 NKRAEMER BL. PLACENTIA CA 92670	NNW	0.05 / 247.36	3
COURTESY CLEANERS, CHOI SUNG-O	182 E YORBA LINDA BLVD PLACENTIA CA 92670	NW	0.14 / 750.79	15
NORTON'S PALM CLEANERS	1454 N. KRAEMER BL. PLACENTIA CA 92670	NW	0.15 / 783.87	16
NORTON'S PALM CLEANERS	1454 N KRAEMER BLVD PLACENTIA CA 92670	NW	0.15 / 783.87	16

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
MARIE CALLENDER'S	126 E YORBA LINDA PLACENTIA CA 92670	WNW	0.23 / 1,218.53	27

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
RJM VALLEJO MINI-MART, INC	102 E YORBA LINDA BLVD PLACENTIA CA 92870	WNW	0.25 / 1,312.38	32



Map : 1 Mile Radius

Order No: 20191204148

Address: 1314 North Angelina Drive, Placentia, CA, 92870

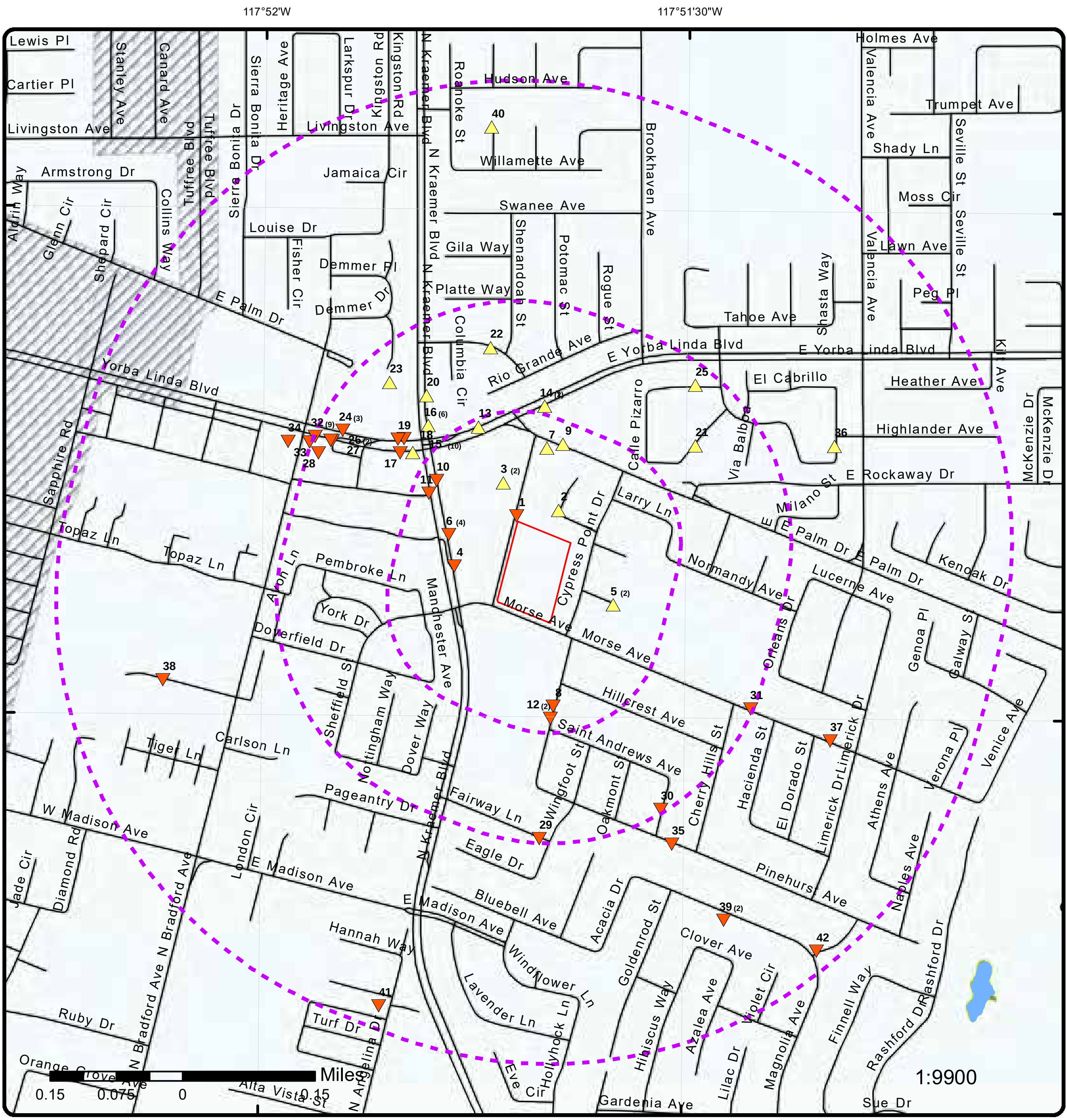
Project Property
Buffer Outline
Eris Sites with Higher Elevation
Eris Sites with Same Elevation
Eris Sites with Lower Elevation
Eris Sites with Unknown Elevation
County Boundary

Rails
Major Highways
Major Highways Ramps
Major Roads
Major Roads Ramps
Secondary Roads
Secondary Roads Ramps
Local Roads and Ramps

State Boundary
National Priority List Sites
National Wetland
Indian Reserve Land
Historic Fill
100 Year Flood Zone
500 Year Flood Zone

FWS Special Designation Areas
State Brownfield Sites
State Brownfield Areas
State Superfund Areas:Dept. of Defense
State Superfund Areas:NPL
WQARF Areas
Federal Lands: Dept. of Defense (owned/administered areas)

Source: © 2016 ESRI



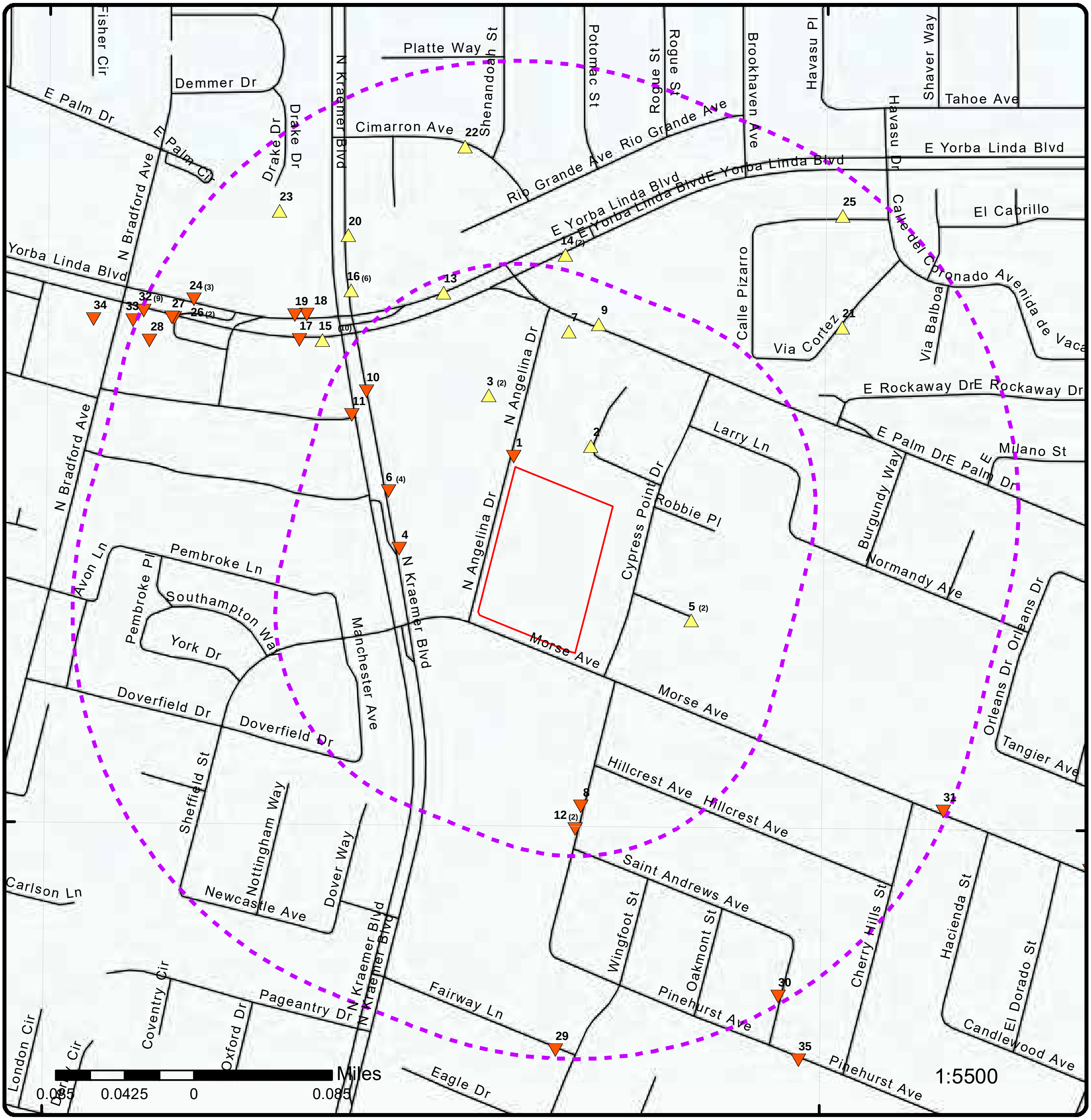
Map : 0.5 Mile Radius

Order No: 20191204148

Address: 1314 North Angelina Drive, Placentia, CA, 92870

Project Property	Rails	State Boundary	FWS Special Designation Areas
Buffer Outline	Major Highways	National Priority List Sites	State Brownfield Sites
Eris Sites with Higher Elevation	Major Highways Ramps	National Wetland	State Brownfield Areas
Eris Sites with Same Elevation	Major Roads	Indian Reserve Land	State Superfund Areas:Dept. of Defense
Eris Sites with Lower Elevation	Major Roads Ramps	Historic Fill	State Superfund Areas:NPL
Eris Sites with Unknown Elevation	Secondary Roads	100 Year Flood Zone	WQARF Areas
County Boundary	Secondary Roads Ramps	500 Year Flood Zone	Federal Lands: Dept. of Defense (owned/administered areas)
	Local Roads and Ramps		

Source: © 2016 ESRI



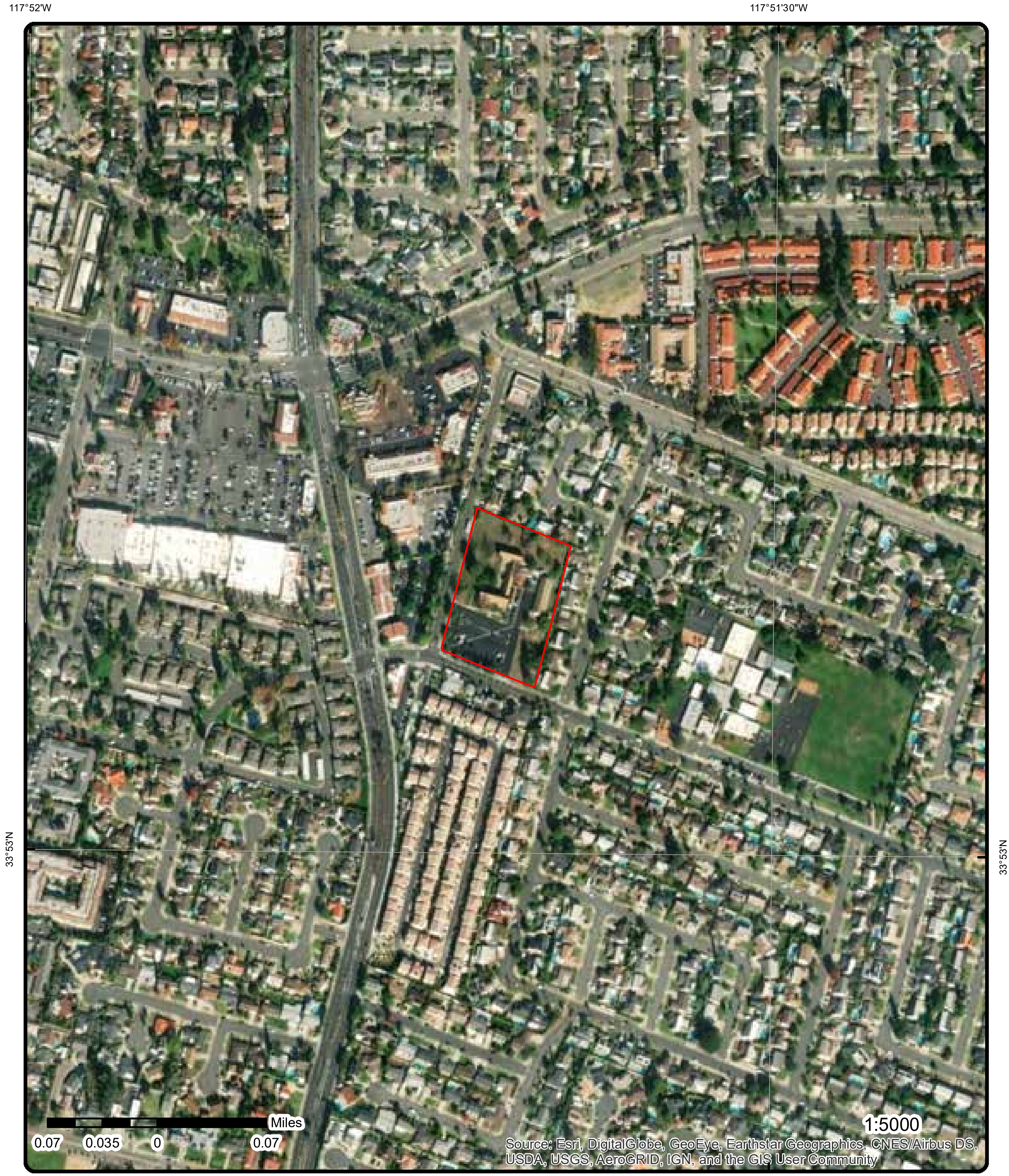
Map : 0.25 Mile Radius

Order No: 20191204148

Address: 1314 North Angelina Drive, Placentia, CA, 92870

Project Property	Rails	State Boundary	FWS Special Designation Areas
Buffer Outline	Major Highways	National Priority List Sites	State Brownfield Sites
Eris Sites with Higher Elevation	Major Highways Ramps	National Wetland	State Brownfield Areas
Eris Sites with Same Elevation	Major Roads	Indian Reserve Land	State Superfund Areas:Dept. of Defense
Eris Sites with Lower Elevation	Major Roads Ramps	Historic Fill	State Superfund Areas:NPL
Eris Sites with Unknown Elevation	Secondary Roads	100 Year Flood Zone	WQARF Areas
County Boundary	Secondary Roads Ramps	500 Year Flood Zone	Federal Lands: Dept. of Defense (owned/administered areas)
	Local Roads and Ramps		

Source: © 2016 ESRI

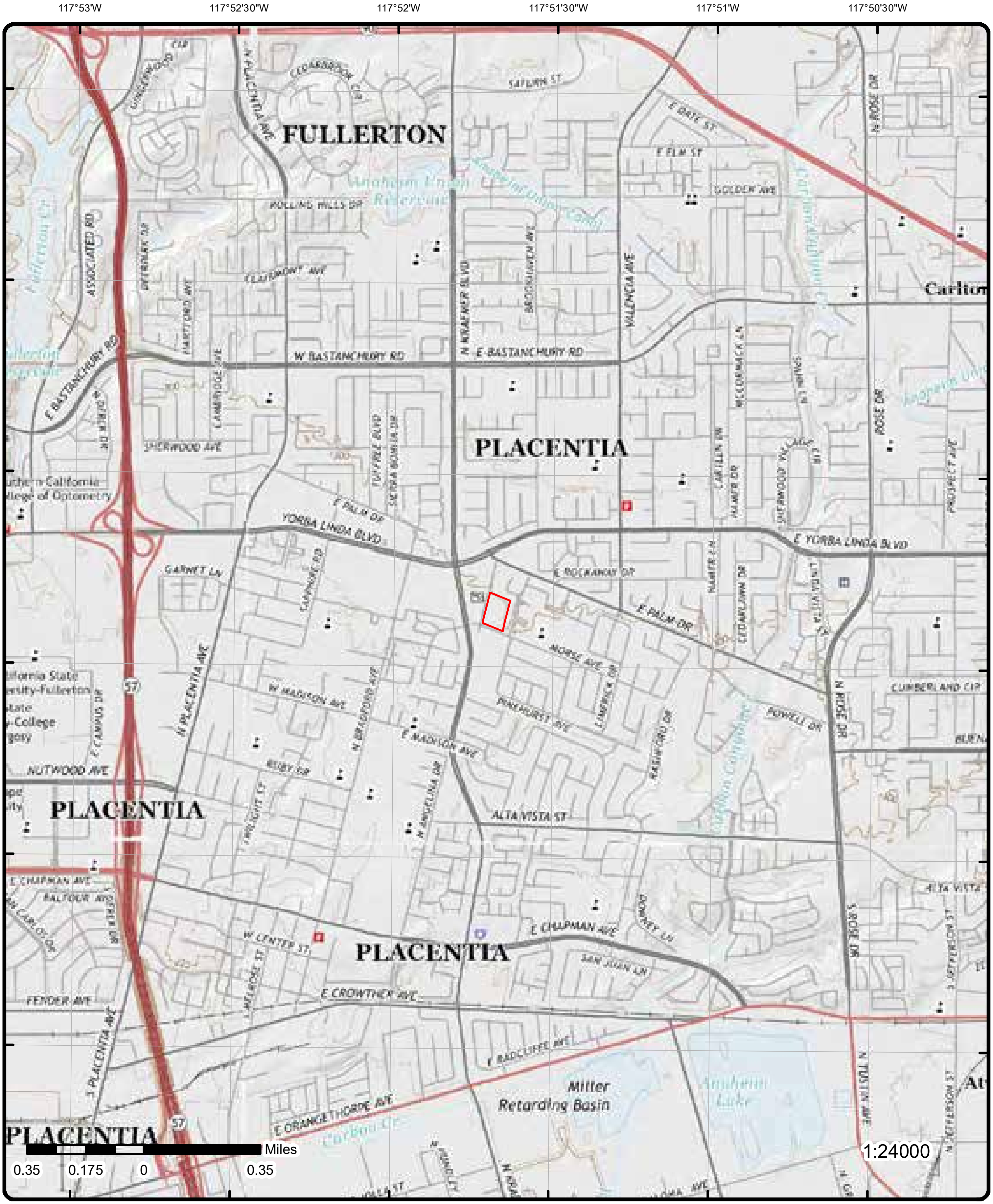


Aerial (2018)

Order No: 20191204148

Address: 1314 North Angelina Drive, Placentia, CA, 92870

Source: ESRI World Imagery



Topographic Map (2015)

Address: 1314 North Angelina Drive, Placentia, CA, 92870

Order No: 20191204148

ERIS

Quadrangle(s): **Yorba Linda,CA; Orange,CA; La Habra,CA; Anaheim,CA;**

Source: USGS Topographic Map

Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
1	1 of 1	NNW	0.01 / 33.14	298.58 / 0	fatima jadallah 1402 n angelina dr PLACENTIA CA 92870	HAZNET

SIC Code:
NAICS Code:
EPA ID: CAC002705935
Create Date: 9/21/2012
Fac Act Ind: No
Inact Date: 12/21/2012
County Code: 30
County Name: Orange
Mail Name: fatima jadallah
Mailing Addr 1: 1402 n angelina dr
Mailing Addr 2:
Owner Fax:
Mailing City: PLACENTIA
Mailing State: CA
Mailing Zip: 92870
Region Code: 4
Owner Name: fatima jadallah
Owner Addr 1: 1402 n angelina dr
Owner Addr 2:
Owner City: PLACENTIA
Owner State: CA
Owner Zip: 92870
Owner Phone: 7147249086

Contact Information
-- --
Contact Name: fatima jadallah
Street Address 1: 1402 n angelina dr
Street Address 2:
City: PLACENTIA
State: CA
Zip: 92870
Phone: 7147249086
-- --
-- --
Tanner Information
-- --
Generator EPA ID: CAC002705935
Generator County Code: 30
Generator County: Orange
TSD EPA ID: CAD009007626
TSD County Code: 19
TSD County: Los Angeles
State Waste Code: 151
State Waste Code Desc.: Asbestos containing waste
Method Code: H132
Method Description: LANDFILL OR SURFACE IMPOUNDMENT THAT WILL BE CLOSED AS LANDFILL(TO INCLUDE ON-SITE TREATMENT AND/OR STABILIZATION)
Tons: 0.4
Year: 2012
-- --

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
2	1 of 1	NNE	0.03 / 155.43	300.72 / 2	TOM DEMARTI 1407 ANNAJEANNE DRIVE PLACENTIA CA 92870	RCRA NON GEN

EPA Handler ID: CAC003022085
Gen Status Universe: No Report
Contact Name: TOM DEMARTI
Contact Address: 1407 ANNAJEANNE DRIVE , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext: 714-528-4912
Contact Email: NANCYRUIZ@ALLIANCE-ENVIRO.COM
Contact Country:
County Name: ORANGE
EPA Region: 09
Land Type:

Receive Date:	20190701

Violation/Evaluation Summary

Note:	NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20190701
Handler Name:	TOM DEMARTI
Generator Status Universe:	No Report
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1407 ANNAJEANNE DRIVE
Name:	TOM DEMARTI	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-528-4912	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	1407 ANNAJEANNE DRIVE
Name:	TOM DEMARTI	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-528-4912	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	***1 of 2***	***NNW***	***0.05 / 247.36***	***301.56 / 2***	***NORTON'S PALM CLEANERS 1454 NKRAEMER BL. PLACENTIA CA 92670***	***EMISSIONS***

1993 Criteria Data

Facility ID:	4343	***CERR Code:***	
Facility SIC Code:	7216	***TOGT:***	2
CO:	30	***ROGT:***	0
Air Basin:	SC	***COT:***	0

District:	SC	***NOXT:***	.1
COID:	ORA	***SOXT:***	
DISN:	SOUTH COAST AQMD	***PMT:***	0
CHAPIS:		***PM10T:***	0

1993 Toxic Data

Facility ID:	4343	***COID:***	ORA
Facility SIC Code:	7216	***DISN:***	SOUTH COAST AQMD
CO:	30	***CHAPIS:***	
Air Basin:	SC	***CERR Code:***	
District:	SC		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

1995 Criteria Data

Facility ID:	4343	***CERR Code:***	
Facility SIC Code:	7216	***TOGT:***	2
CO:	30	***ROGT:***	0
Air Basin:	SC	***COT:***	0
District:	SC	***NOXT:***	.1
COID:	ORA	***SOXT:***	
DISN:	SOUTH COAST AQMD	***PMT:***	0
CHAPIS:		***PM10T:***	0

1995 Toxic Data

Facility ID:	4343	***COID:***	ORA
Facility SIC Code:	7216	***DISN:***	SOUTH COAST AQMD
CO:	30	***CHAPIS:***	
Air Basin:	SC	***CERR Code:***	
District:	SC		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	***2 of 2***	***NNW***	***0.05 / 247.36***	***301.56 / 2***	***NORTON CLEANERS 1454 NORTH KRAEMER BOULEVARD PLACENTIA CA 92870***	***ENVIROSTOR***

Estor/EPA ID:	30720015	***Permit Renewal Lead:***	
Site Code:		***Project Manager:***	
Nat Priority List:	NO	***Supervisor:***	
Acres:	NONE SPECIFIED	***Public Partici Spclst:***	
Special Program:		***Census Tract:***	6059011715
Funding:	NOT APPLICABLE	***County:***	ORANGE
Assembly District:	72	***Latitude:***	33.8871774
Senate District:		***Longitude:***	-117.8619017
School District:			

APN:	NONE SPECIFIED
Cleanup Status:	REFER: 1248 LOCAL AGENCY AS OF 5/21/2001
Cleanup Oversight Agencies:	NONE SPECIFIED
Site Type:	EVALUATION
Office:	CLEANUP CYPRESS
Past Use that Caused Contam:	NONE SPECIFIED
Potential Media Affected:	NONE SPECIFIED
Potential Contamin of Concern:	

NONE SPECIFIED

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site History:

Status:	REFER: 1248 LOCAL AGENCY
Program Type:	EVALUATION
CalEnviroScreen Score:	36-40%
Summary Link:	http://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=30720015

Completed Activities

Title:	SB 1248
Title Link:	http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=30720015&doc_id=6019422
Area Name:	
Area Link:	
Sub Area:	
Sub Area Link:	
Document Type:	SB 1248 Notification
Date Completed:	5/18/2001
Comments:	SB 1248 Orange County

4	***1 of 1***	***W***	***0.06 / 300.55***	***293.49 / -6***	***REES M OLSON DDS PROFESSIONAL CORPORATION 1320 N KRAEMER BLVD PLACENTIA CA 92870-3401***	***RCRA NON GEN***

EPA Handler ID:	CAL000360181
Gen Status Universe:	No Report
Contact Name:	REES M OLSON
Contact Address:	1320 N KRAEMER BLVD , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext:	714-993-3610
Contact Email:	REESMOLSONDDS@EARTHLINK.NET
Contact Country:	
County Name:	ORANGE
EPA Region:	09
Land Type:	
Receive Date:	20110107

Violation/Evaluation Summary

Note:	NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	Yes
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20110107

Handler Name:	REES M OLSON DDS PROFESSIONAL CORPORATION
Generator Status Universe:	No Report
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	1320 N KRAEMER BLVD
Name:	REES M OLSON DDS PROFESSIONAL CORP	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-993-3610	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870-3401

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1320 N KRAEMER BLVD
Name:	REES M OLSON	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-993-3610	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

5	***1 of 2***	***ESE***	***0.06 / 338.89***	***300.38 / 1***	***GEORGE ACUNA 414 BARRY PL PLACENTIA CA 92870***	***RCRA NON GEN***

EPA Handler ID:	CAC002996596
Gen Status Universe:	No Report
Contact Name:	GEORGE ACUNA
Contact Address:	414 BARRY PL , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext:	626-367-6820
Contact Email:	NANCYRUIZ@ALLIANCE-ENVIRO.COM
Contact Country:	
County Name:	ORANGE
EPA Region:	09
Land Type:	
Receive Date:	20190115

Violation/Evaluation Summary

Note:	NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190115
Handler Name: GEORGE ACUNA
Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	414 BARRY PL
Name:	GEORGE ACUNA	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	626-367-6820	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870
Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	414 BARRY PL
Name:	GEORGE ACUNA	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	626-367-6820	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

5	***2 of 2***	***ESE***	***0.06 / 338.89***	***300.38 / 1***	***GEORGE ACUNA 414 BARRY PLACE PLACENTIA CA 92870-3420***	***RCRA NON GEN***

EPA Handler ID: CAC002995989
Gen Status Universe: No Report
Contact Name: GEORGE ACUNA
Contact Address: 414 BARRY PLACE , , PLACENTIA , CA, 92870-3420 ,
Contact Phone No and Ext: 626-367-6820
Contact Email: STEPHANIECRUZ@ALLIANCE-ENVIRO.COM
Contact Country:
County Name: ORANGE
EPA Region: 09
Land Type:
Receive Date: 20190110

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190110
Handler Name: GEORGE ACUNA
Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	414 BARRY PLACE
Name:	GEORGE ACUNA	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	626-367-6820	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870-3420

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	414 BARRY PLACE
Name:	GEORGE ACUNA	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	626-367-6820	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870-3420

6	*1 of 4*	*WNW*	*0.07 / 381.42*	*293.53 / -6*	***PLACENTIA POST OFFICE 1400 N. KRAEMER PLACENTIA CA 92670***	***HHSS***

County:
Pdf File Url: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002ef73.pdf

---

6	*2 of 4*	*WNW*	*0.07 / 381.42*	*293.53 / -6*	***PLACENTIA POST OFFICE 1400 N. KRAEMER PLACENTIA CA***	***HIST TANK***

Owner Name:	U.S. POSTAL SERVICE	***No of Containers:***	1
Owner Street:	3101 W. SUNFLOWER	***County:***	ORANGE
Owner City:	SANTA ANA	***Facility State:***	CA
Owner State:	CA	***Facility Zip:***	92670
Owner Zip:	92799		

6	*3 of 4*	*WNW*	*0.07 / 381.42*	*293.53 / -6*	***PLACENTIA POST OFFICE 1400 N KRAEMER BLVD PLACENTIA CA 92871***	***ORANGE LOP***

Record ID:	RO0001782	***Case Closed Date:***	10/24/2002
Case ID:	00UT027	***Type of Closure:***	Closure certification issued

Released Substance: Gasoline-Automotive (motor gasoline and additives), leaded & unleaded

---

6	*4 of 4*	*WNW*	*0.07 / 381.42*	*293.53 / -6*	***USPS PLACENTIA POST OFFICE 1400 N KRAEMER BLVD PLACENTIA CA 92870***	***RCRA SQG***

EPA Handler ID: CA3180090471
Gen Status Universe: Small Quantity Generator
Contact Name: ENVIRONMENTAL MANAGER
Contact Address: 1400 N KRAEMER , , PLACENTIA , CA, 92670 , US
Contact Phone No and Ext: 714-848-9994
Contact Email:

Contact Country:	US
County Name:	ORANGE
EPA Region:	09
Land Type:	Federal
Receive Date:	19880602

Violation/Evaluation Summary

Note:	NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	19880602
Handler Name:	USPS PLACENTIA POST OFFICE
Generator Status Universe:	Small Quantity Generator
Source Type:	Notification

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Federal	***Street 1:***	NOT REQUIRED
Name:	US POSTAL SERVICE	***Street 2:***	
Date Became Current:		***City:***	NOT REQUIRED
Date Ended Current:		***State:***	ME
Phone:	415-555-1212	***Country:***	
Source Type:	Notification	***Zip Code:***	99999

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Federal	***Street 1:***	NOT REQUIRED
Name:	NOT REQUIRED	***Street 2:***	
Date Became Current:		***City:***	NOT REQUIRED
Date Ended Current:		***State:***	ME
Phone:	415-555-1212	***Country:***	
Source Type:	Notification	***Zip Code:***	99999

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
7	***1 of 1***	***N***	***0.09 / 472.03***	***306.13 / 7***	***PLACENTIA POST OFFICE 1400 N KRAEMER BLVD PLACENTIA CA 92871***	***DELISTED TNK***

Delisted Storage Tanks

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility ID:	8150	***Latitude:***	33.887752
County:	Orange	***Longitude:***	-117.861051
Permitting Agency:	ORANGE COUNTY		
Original Source:	UST		
Record Date:	30-JAN-2017		

8	***1 of 1***	***S***	***0.09 / 498.33***	***292.05 / -7***	***BOB STREET 1201 CYPRESS POINT DR. PLACENTIA CA 92870***	***RCRA NON GEN***

EPA Handler ID:	CAC003021022
Gen Status Universe:	No Report
Contact Name:	BOB STREET
Contact Address:	1201 CYPRESS POINT DR. , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext:	714-309-5056
Contact Email:	KC@AQHIINC.COM
Contact Country:	
County Name:	ORANGE
EPA Region:	09
Land Type:	
Receive Date:	20190624

Violation/Evaluation Summary

Note:	NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20190624
Handler Name:	BOB STREET
Generator Status Universe:	No Report
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1201 CYPRESS POINT DR.
Name:	BOB STREET	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-309-5056	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	1201 CYPRESS POINT DR.
Name:	BOB STREET	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	714-309-5056	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870

9	*1 of 1*	*NNE*	*0.10 / 530.85*	*305.99 / 7*	*ADVANCED THERAPEUTICS 319 E. PALM DR., STE. A PLACENTIA CA 92870*	*RCRA NON GEN*

EPA Handler ID:	CAC002988112
Gen Status Universe:	No Report
Contact Name:	DARRYL STEWART
Contact Address:	319 E. PALM DR., STE. A , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext:	714-667-3832
Contact Email:	IMC_PHARMACIST@YAHOO.COM
Contact Country:	
County Name:	ORANGE
EPA Region:	09
Land Type:	
Receive Date:	20181106

Violation/Evaluation Summary

Note:	NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20181106
Handler Name:	ADVANCED THERAPEUTICS
Generator Status Universe:	No Report
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	319 E. PALM DR., STE. A
Name:	DARRYL STEWART	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	714-667-3832	**Country:**	

Source Type: Implementer
Zip Code: 92870

Owner/Operator Ind: Current Owner
Type: Other
Name: MIKE OCHOA/GARY GILLMEN
Date Became Current:
Date Ended Current:
Phone: 714-667-3832
Source Type: Implementer
Street No:
Street 1: 319 E. PALM DR., STE. A
Street 2:
City: PLACENTIA
State: CA
Country:
Zip Code: 92870

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
10	1 of 1	NW	0.10 / 543.70	297.60 / -1	PLACENTIA POST OFFICE 1400 KRAEMER PLACENTIA CA 92871	LUST

Global ID: T0605927490
Status: COMPLETED - CASE CLOSED
Status Date: 2002-10-24 00:00:00
Case Type: LUST CLEANUP SITE
County: ORANGE
Latitude: 33.887205
Longitude: -117.863218
Date Source: LUST Cleanup Sites from GeoTracker Search; LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download

LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities Detail

RB Case No:
Local Case No: 00UT027
Begin Date: 2000-08-18 00:00:00
Lead Agency: ORANGE COUNTY LOP
Local Agency: ORANGE COUNTY LOP
CUF Case: NO
Potential COC: Gasoline
How Discovered: Tank Closure
Stop Method: Close and Remove Tank
Stop Description:
Case Worker: TE
File Location: Local Agency
Potential Media of Concern: Soil
How Discovered Description:
Calwater Watershed Name: San Gabriel River - Anaheim (845.61)
DWR GW Subbasin Name: Coastal Plain Of Orange County (8-001)
Disadvantaged Community:
Site History:

Regulatory Activity

Action Type: Other
Date : 2000-08-18 00:00:00
Action: Leak Reported

Action Type: Other
Date : 2000-08-18 00:00:00
Action: Leak Discovery

Regulatory Contacts

Contact Type: Local Agency Caseworker
Contact Name: TAMARA ESCOBEDO
City: SANTA ANA
Address: 1241 EAST DYER ROAD SUITE 120
Email: tescobedo@ochca.com
Phone No: 7144336251
Organization Name: ORANGE COUNTY LOP

Status History

Status: Completed - Case Closed
Status Date: 2002-10-24 00:00:00

Status: Open - Case Begin Date
Status Date: 2000-08-18 00:00:00

LUST Sites from GeoTracker Search - Regulatory Profile(as of Oct 31, 2019)

Site Facility Name: PLACENTIA POST OFFICE
Site Facility Type: LUST CLEANUP SITE
Cleanup Status: COMPLETED - CASE CLOSED
Project Status:
WDR Place Type:
WDR File:
WDR Order:
CUF Priority Assig:
CUF Amount Paid:

Potential COC: GASOLINE
Facility Type:
Composting Method:
Address: 1400 KRAEMER
City: PLACENTIA
Zip: 92871
County: ORANGE
CUF Claim:

File Location: LOCAL AGENCY
Designated Beneficial Use: MUN, AGR, IND, PROC
Project Oversight Agencies:
Report Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=T0605927490
Cleanup Status Detail: COMPLETED - CASE CLOSED AS OF 10/24/2002
Cleanup History Link: https://geotracker.waterboards.ca.gov/profile_report_include?global_id=T0605927490&tabname=regulatoryhistory
Potential Media of Concern: SOIL
User Defined Beneficial Use:
DWR GW Sub Basin: Coastal Plain Of Orange County (8-001)
Calwater Watershed Name: San Gabriel River - Anaheim (845.61)
Post Closure Site Management:
Future Land Use:
Cleanup Oversight Agencies: ORANGE COUNTY LOP (LEAD) - CASE #: 00UT027
CASEWORKER: TAMARA ESCOBEDO
SANTA ANA RWQCB (REGION 8)
Gndwater Monitoring Freque:
Site History:

No site history available

LUST Sites from GeoTracker Search - Cleanup Status History(as of Oct 31, 2019)

Status: Completed - Case Closed
Date : 10/24/2002

Status: Open - Case Begin Date
Date : 8/18/2000

LUST Sites from GeoTracker Search - Regulatory Activities(as of Oct 31, 2019)

Action Type: Leak Action
Action Date: 8/18/2000
Received Issue Date:
Action: Leak Discovery
Doc Link:
Title Description Comments:

Action Type: Leak Action
Action Date: 8/18/2000
Received Issue Date:
Action: Leak Reported
Doc Link:
Title Description Comments:

11	1 of 1	NW	0.11 / 557.85	295.99 / -3	McDonald's 164 E YORBA LINDA BLVD PLACENTIA CA 92870	CERS HAZ

Site ID: 425723
Latitude: 33.886640
Longitude: -117.863410
County: Orange County

Regulated Programs

EI ID: 10743373 ***EI Description:*** Chemical Storage Facilities

Evaluations

Eval Date: 10/24/2018
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

On site for a routine inspection. Facility has disclosed 1 chemical - liquid C02. There were no other materials on site meeting disclosure thresholds at the time of this inspection. Site map was reviewed. Please relocate the evacuation staging area to be in front of CVS as per the evacuation maps posted on site. Annual training was verified.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Affiliations

Affil Type Desc: Document Preparer
Entity Name: Brian Frisbie
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone:

Affil Type Desc: Legal Owner
Entity Name: Frisbie Management, Inc.
Entity Title:
Address: 1060 Ortega Way Unit A
City: Placentia
State: CA
Country: United States
Zip Code: 92870
Phone: (714) 630-9430

Affil Type Desc: Parent Corporation
Entity Name: FRISBIE MANAGEMENT INC
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone:

Affil Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title:
Address: 164 E Yorba Linda Blvd
City: Placentia
State: CA
Country:
Zip Code: 92870
Phone:

Affil Type Desc: Operator
Entity Name: Brian Frisbie
Entity Title:

Address:
City:
State:
Country:
Zip Code:
Phone: (714) 309-7297

Affil Type Desc: CUPA District
Entity Name: Orange County Env Health
Entity Title:
Address: 1241 East Dyer RoadSuite 120
City: Santa Ana
State: CA
Country:
Zip Code: 92705-5611
Phone: (714) 433-6000

Affil Type Desc: Environmental Contact
Entity Name: Brian Frisbie
Entity Title:
Address: 1060 Ortega Way Unit A
City: Placentia
State: CA
Country:
Zip Code: 92870
Phone:

Affil Type Desc: Identification Signer
Entity Name: Brian Frisbie
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone:

Coordinates

Env Int Type Code:	HMBP	***Longitude:***	-117.863410
Program ID:	10743373	***Coord Name:***	
Latitude:	33.886640	***Ref Point Type Desc:***	Center of a facility or station.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
12	***1 of 2***	***S***	***0.11 / 571.22***	***291.31 / -8***	***JIM GARDNER 1131 CYPRESS POINT DR PLACENTIA CA 92870***	***RCRA NON GEN***

EPA Handler ID: CAC003010069
Gen Status Universe: No Report
Contact Name: JIM GARDNER
Contact Address: 1131 CYPRESS POINT DR , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext: 714-272-0783
Contact Email: JANET@WDRCONTRACTING.COM
Contact Country:
County Name: ORANGE
EPA Region: 09
Land Type:
Receive Date: 20190412

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	Yes
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20190412
Handler Name:	JIM GARDNER
Generator Status Universe:	No Report
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	1131 CYPRESS POINT DR
Name:	JIM GARDNER	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	714-272-0783	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	1131 CYPRESS POINT DR
Name:	JIM GARDNER	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	714-272-0783	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
12	2 of 2	S	0.11 / 571.22	291.31 / -8	JIM GARDNER 1131 CYPRESS POINT DR PLACENTIA CA 92870	RCRA TSD

EPA Handler ID:	CAC003010069
Gen Status Universe:	No Report
Contact Name:	JIM GARDNER
Contact Address:	1131 CYPRESS POINT DR , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext:	714-272-0783
Contact Email:	JANET@WDRCONTRACTING.COM
Contact Country:	
Land Type:	
County Name:	ORANGE
EPA Region:	09
Receive Date:	20190412

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	Yes
Transfer Facility:	No
Onsite Burner Exemption:	No
Smelting, Melting and Refining:	No
Underground Injection Control:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20190412
Handler Name:	JIM GARDNER
Generator Status Universe:	No Report
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1131 CYPRESS POINT DR
Name:	JIM GARDNER	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-272-0783	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	1131 CYPRESS POINT DR
Name:	JIM GARDNER	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-272-0783	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
13	*1 of 1*	*NNW*	*0.12 / 612.38*	*303.80 / 5*	***DIGAS 297B YORBA LINDA BLVD 57 FWY YORBA LINDA CA 92631***	*HHSS*

County:	
Pdf File Url:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002eec1.pdf

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
14	*1 of 2*	*N*	*0.13 / 708.29*	*307.38 / 8*	***NORTON'S CLEANERS 204 E YORBA LINDA BLVD PLACENTIA CA 928700000***	*DRYCLEANERS*

EPA ID:	CAL000224085	***Owner Phone:***	0000000000
Create Date:	4/18/2001	***Owner Fax:***	
Facility Act Ind:	No	***Contact Name:***	JOHN NORTON/ OWNER
Inact Date:	6/30/2007	***Contact Street 1:***	204 E YORBA LINDA BLVD
Reason:	SIC/NAICS	***Contact Street 2:***	
County Name:	Orange	***Contact City:***	PLACENTIA
Region Code:	4	***Contact State:***	CA
Owner Name:	JOHN NORTON	***Contact Zip:***	928700000
Owner Street 1:	204 E YORBA LINDA BLVD	***Contact Phone:***	7145247130

Owner Street 2:		**Mail Name:**	
Owner City:	PLACENTIA	**DD Latitude:**	33.888286
Owner State:	CA	**DD Longitude:**	-117.861558
Owner Zip:	928700000		

NAICS Details

NAICS Code:	81232
NAICS Description:	Drycleaning and Laundry Services (except Coin-Operated)
SIC Code:	7211
SIC Description:	Power Laundries, Family and Commercial

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
14	2 of 2	N	0.13 / 708.29	307.38 / 8	Nortons Cleaners 204 E Yorba Linda Blvd Placentia CA 92870-3417	DRYC GRANT

Grant Year:	2007	**Districts:**	South Coast AQMD
Technology:	Water-Based Cleaning	**Exec Full:**	John Norton
Phone No:	714-524-7130		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
15	1 of 10	NW	0.14 / 750.79	300.04 / 1	COURTESY ONE HOUR CLEANERS 182 E YORBA LINDA BLVD PLACENTIA CA 926700000	DRYCLEANERS

EPA ID:	CAX000131086	**Owner Phone:**	0000000000
Create Date:	12/7/1984	**Owner Fax:**	
Facility Act Ind:	No	**Contact Name:**	INACTIVE/VALID #CAD981576465
Inact Date:	4/30/1986	**Contact Street 1:**	PER SURVEY
Reason:	Cleaners	**Contact Street 2:**	
County Name:	Orange	**Contact City:**	--
Region Code:	4	**Contact State:**	99
Owner Name:	--	**Contact Zip:**	--
Owner Street 1:	--	**Contact Phone:**	7149960850
Owner Street 2:		**Mail Name:**	
Owner City:	--	**DD Latitude:**	
Owner State:	99	**DD Longitude:**	
Owner Zip:	--		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
15	2 of 10	NW	0.14 / 750.79	300.04 / 1	COURTESY 1 HR CLEANERS 182 E YORBA LINDA BLVD PLACENTIA CA 92870	DRYCLEANERS

EPA ID:	CAL000323300	**Owner Phone:**	7149960850
Create Date:	8/8/2007 10:24:11 AM	**Owner Fax:**	
Facility Act Ind:	No	**Contact Name:**	JULITO ROSETE
Inact Date:	6/30/2008	**Contact Street 1:**	182 E YORBA LINDA BLVD
Reason:	SIC/NAICS	**Contact Street 2:**	
County Name:	Orange	**Contact City:**	Placentia
Region Code:	4	**Contact State:**	CA
Owner Name:	JULITO ROSETE	**Contact Zip:**	92870
Owner Street 1:	182 E YORBA LINDA BLVD	**Contact Phone:**	7149960850
Owner Street 2:		**Mail Name:**	
Owner City:	Placentia	**DD Latitude:**	33.887813
Owner State:	CA	**DD Longitude:**	-117.862494
Owner Zip:	92870		

NAICS Details

NAICS Code:	81232
NAICS Description:	Drycleaning and Laundry Services (except Coin-Operated)
SIC Code:	7211
SIC Description:	Power Laundries, Family and Commercial

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
15	3 of 10	NW	0.14 / 750.79	300.04 / 1	Courtesy Cleaners 182 E Yorba Linda Blvd Center Of Ste Placentia CA 92870	DRYCLEANERS

EPA ID:	CAP000123596	**Owner Phone:**	9096527771
Create Date:	3/4/2003 8:07:30 AM	**Owner Fax:**	
Facility Act Ind:	No	**Contact Name:**	Henry Avila
Inact Date:	9/5/2003 8:00:00 AM	**Contact Street 1:**	220 W Florida Ave Ste 300
Reason:	Cleaners	**Contact Street 2:**	
County Name:	Orange	**Contact City:**	Hemet
Region Code:	4	**Contact State:**	CA
Owner Name:	Donahue Schriber	**Contact Zip:**	92545
Owner Street 1:	182 E Yorba Linda Blvd	**Contact Phone:**	9096527771
Owner Street 2:		**Mail Name:**	
Owner City:	Placentia	**DD Latitude:**	
Owner State:	CA	**DD Longitude:**	
Owner Zip:	92870		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
15	4 of 10	NW	0.14 / 750.79	300.04 / 1	COURTESY ONE HOUR CLEANERS 182 E YORBA LINDA BLVD PLACENTIA CA 926700000	DRYCLEANERS

EPA ID:	CAD981576465	**Owner Phone:**	0000000000
Create Date:	4/10/1987	**Owner Fax:**	
Facility Act Ind:	No	**Contact Name:**	CHOI SUNG-OH
Inact Date:	6/30/2001	**Contact Street 1:**	INACTIVE PER VQ01 - BMI
Reason:	SIC/NAICS	**Contact Street 2:**	
County Name:	Orange	**Contact City:**	FULLERTON
Region Code:	4	**Contact State:**	CA
Owner Name:	CHOI SUNG-OH	**Contact Zip:**	928330000
Owner Street 1:	1784 ISLAND DR	**Contact Phone:**	7149960850
Owner Street 2:		**Mail Name:**	
Owner City:	FULLERTON	**DD Latitude:**	33.50055
Owner State:	CA	**DD Longitude:**	-117.662576
Owner Zip:	--		

NAICS Details

NAICS Code:	81232
NAICS Description:	Drycleaning and Laundry Services (except Coin-Operated)
SIC Code:	7211
SIC Description:	Power Laundries, Family and Commercial

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
15	5 of 10	NW	0.14 / 750.79	300.04 / 1	COURTESY 1 HR CLEANERS 182 E YORBA LINDA BLVD PLACENTIA CA 92870	DRYCLEANERS

EPA ID:	CAL000297165	**Owner Phone:**	7145720180
Create Date:	8/4/2005 1:45:58 PM	**Owner Fax:**	
Facility Act Ind:	No	**Contact Name:**	BOK KIM
Inact Date:	6/30/2006 10:14:52 AM	**Contact Street 1:**	3220 QUARTZ LN
Reason:	SIC/NAICS	**Contact Street 2:**	
County Name:	Orange	**Contact City:**	FULLERTON
Region Code:	4	**Contact State:**	CA
Owner Name:	BOK KIM	**Contact Zip:**	92831
Owner Street 1:	3220 QUARTZ LN	**Contact Phone:**	7149960850
Owner Street 2:		**Mail Name:**	
Owner City:	FULLERTON	**DD Latitude:**	33.887908
Owner State:	CA	**DD Longitude:**	-117.862532
Owner Zip:	92831		

NAICS Details

NAICS Code: 81232
NAICS Description: Drycleaning and Laundry Services (except Coin-Operated)
SIC Code: 7211
SIC Description: Power Laundries, Family and Commercial

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
15	6 of 10	NW	0.14 / 750.79	300.04 / 1	COURTESY CLEANERS 182 E YORBA LINDA BLVD PLACENTIA CA 92870	DRYCLEANERS

EPA ID: CAL000393905
Create Date: 2/4/2014 1:56:30 PM
Facility Act Ind: No
Inact Date: 6/30/2015
Reason: SIC/NAICS
County Name: Orange
Region Code: 4
Owner Name: DANNY SU
Owner Street 1: 20154 PADRINO AVE
Owner Street 2:
Owner City: WALNUT
Owner State: CA
Owner Zip: 917890000
Owner Phone: 9093368528
Owner Fax: 0000000000
Contact Name: DANNY SU
Contact Street 1: 182 E YORBA LINDA BLVD
Contact Street 2:
Contact City: PLACENTIA
Contact State: CA
Contact Zip: 928700000
Contact Phone: 7149960850
Mail Name:
DD Latitude: 0
DD Longitude: 0

NAICS Details

NAICS Code: 81232
NAICS Description: Drycleaning and Laundry Services (except Coin-Operated)
SIC Code: 7211
SIC Description: Power Laundries, Family and Commercial

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
15	7 of 10	NW	0.14 / 750.79	300.04 / 1	COURTESY 1 HR CLEANERS 182 E YORBA LINDA BLVD PLACENTIA CA 928703327	DRYCLEANERS

EPA ID: CAL000327840
Create Date: 12/13/2007 10:23:35 AM
Facility Act Ind: No
Inact Date: 6/30/2008
Reason: SIC/NAICS
County Name: Orange
Region Code: 4
Owner Name: SEUNG KIM
Owner Street 1: 182 E YORBA LINDA BLVD
Owner Street 2:
Owner City: PLACENTIA
Owner State: CA
Owner Zip: 928703327
Owner Phone: 7149960850
Owner Fax:
Contact Name: SEUNG KIM
Contact Street 1: 182 E YORBA LINDA BLVD
Contact Street 2:
Contact City: PLACENTIA
Contact State: CA
Contact Zip: 928703327
Contact Phone: 7149960850
Mail Name:
DD Latitude: 33.887908
DD Longitude: -117.862532

NAICS Details

NAICS Code: 81232
NAICS Description: Drycleaning and Laundry Services (except Coin-Operated)
SIC Code: 7211
SIC Description: Power Laundries, Family and Commercial

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
15	8 of 10	NW	0.14 / 750.79	300.04 / 1	COURTESY CLEANERS, CHOI SUNG-O 182 E YORBA LINDA BLVD PLACENTIA CA 92670	EMISSIONS

1987 Criteria Data

Facility ID:	38337	**CERR Code:**	
Facility SIC Code:	7216	**TOGT:**	1.6
CO:	30	**ROGT:**	0
Air Basin:	SC	**COT:**	
District:	SC	**NOXT:**	
COID:	ORA	**SOXT:**	
DISN:	SOUTH COAST AQMD	**PMT:**	
CHAPIS:		**PM10T:**	

1987 Toxic Data

Facility ID:	38337	**COID:**	ORA
Facility SIC Code:	7216	**DISN:**	SOUTH COAST AQMD
CO:	30	**CHAPIS:**	
Air Basin:	SC	**CERR Code:**	
District:	SC		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

1990 Criteria Data

Facility ID:	38337	**CERR Code:**	
Facility SIC Code:	7216	**TOGT:**	.8
CO:	30	**ROGT:**	0
Air Basin:	SC	**COT:**	
District:	SC	**NOXT:**	
COID:	ORA	**SOXT:**	
DISN:	SOUTH COAST AQMD	**PMT:**	
CHAPIS:		**PM10T:**	

1990 Toxic Data

Facility ID:	38337	**COID:**	ORA
Facility SIC Code:	7216	**DISN:**	SOUTH COAST AQMD
CO:	30	**CHAPIS:**	
Air Basin:	SC	**CERR Code:**	
District:	SC		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

15	9 of 10	NW	0.14 / 750.79	300.04 / 1	COURTESY 1 HOUR CLEANERS 182 E YORBA LINDA BLVD PLACENTIA CA 92870	ORANGE ICP

Record ID:	RO0000691	**Status Description:**	CLOSED
Case ID:	99IC018	**Case Closed Date:**	10/2/2002
Released Substance(s):	PERCHLOROETHYLENE SOLVENTS- HALOGENATED		
Type of Closure:	Closure certification issued		

15	10 of 10	NW	0.14 / 750.79	300.04 / 1	COURTESY CLEANERS 182 E YORBA LINDA BLVD PLACENTIA CA 92870	RCRA SQG

EPA Handler ID: CAD981576465

Gen Status Universe: Small Quantity Generator
Contact Name: HENRY AVILA
Contact Address: 2200 W FLORIDA AVE STE 300 , , HEMET , CA, 92545 , US
Contact Phone No and Ext: 909-652-7771
Contact Email:
Contact Country: US
County Name: ORANGE
EPA Region: 09
Land Type: Private
Receive Date: 20020723

<u>Violation/Evaluation Summary</u>

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

<u>Handler Summary</u>

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

<u>Hazardous Waste Handler Details</u>

Sequence No: 1
Receive Date: 20020723
Handler Name: COURTESY CLEANERS
Generator Status Universe: Small Quantity Generator
Source Type: Notification

<u>Waste Code Details</u>

Hazardous Waste Code: F003
Waste Code Description: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

<u>Hazardous Waste Handler Details</u>

Sequence No: 1
Receive Date: 20020723
Handler Name: COURTESY CLEANERS
Generator Status Universe: Small Quantity Generator
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street 1:***	2200 W FLORIDA AVE STE 300
Name:	DONAHUE SCHRIBER	***Street 2:***	
Date Became Current:		***City:***	HEMET
Date Ended Current:		***State:***	CA
Phone:	909-652-7771	***Country:***	
Source Type:	Notification	***Zip Code:***	92545

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Private	***Street 1:***	NOT REQUIRED
Name:	NOT REQUIRED	***Street 2:***	
Date Became Current:		***City:***	NOT REQUIRED
Date Ended Current:		***State:***	ME
Phone:	415-555-1212	***Country:***	
Source Type:	Implementer	***Zip Code:***	99999

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Private	***Street 1:***	NOT REQUIRED
Name:	NOT REQUIRED	***Street 2:***	
Date Became Current:		***City:***	NOT REQUIRED
Date Ended Current:		***State:***	ME
Phone:	415-555-1212	***Country:***	
Source Type:	Notification	***Zip Code:***	99999

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street 1:***	2200 W FLORIDA AVE STE 300
Name:	DONAHUE SCHRIBER	***Street 2:***	
Date Became Current:		***City:***	HEMET
Date Ended Current:		***State:***	CA
Phone:	909-652-7771	***Country:***	
Source Type:	Implementer	***Zip Code:***	92545

16	***1 of 6***	***NW***	***0.15 / 783.87***	***301.82 / 3***	***NORTON CLEANERS INC 1454 KRAEMER PLACENTIA CA 926860000***	***DRYCLEANERS***

EPA ID:	CAD981622681	***Owner Phone:***	0000000000
Create Date:	7/3/1987	***Owner Fax:***	
Facility Act Ind:	No	***Contact Name:***	JOHN NORTON
Inact Date:	6/30/2002	***Contact Street 1:***	INACTIVE PER VQ01 - BMI
Reason:	Cleaners	***Contact Street 2:***	
County Name:	Orange	***Contact City:***	PLACENTIA
Region Code:	4	***Contact State:***	CA
Owner Name:	NORTON CLEANERS INC	***Contact Zip:***	926800000
Owner Street 1:	1454 N KRAEMER BLVD	***Contact Phone:***	
Owner Street 2:		***Mail Name:***	
Owner City:	PLACENTIA	***DD Latitude:***	
Owner State:	CA	***DD Longitude:***	
Owner Zip:	--		

16	***2 of 6***	***NW***	***0.15 / 783.87***	***301.82 / 3***	***NORTON'S PALM CLEANERS 1454 N. KRAEMER BL. PLACENTIA CA 92670***	***EMISSIONS***

1987 Criteria Data

Facility ID:	4343	***CERR Code:***	
Facility SIC Code:	7216	***TOGT:***	.1
CO:	30	***ROGT:***	0
Air Basin:	SC	***COT:***	
District:	SC	***NOXT:***	
COID:	ORA	***SOXT:***	
DISN:	SOUTH COAST AQMD	***PMT:***	

CHAPIS:		**PM10T:**	

1987 Toxic Data

Facility ID:	4343	**COID:**	ORA
Facility SIC Code:	7216	**DISN:**	SOUTH COAST AQMD
CO:	30	**CHAPIS:**	
Air Basin:	SC	**CERR Code:**	
District:	SC		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

1990 Criteria Data

Facility ID:	4343	**CERR Code:**	
Facility SIC Code:	7216	**TOGT:**	2
CO:	30	**ROGT:**	0
Air Basin:	SC	**COT:**	
District:	SC	**NOXT:**	
COID:	ORA	**SOXT:**	
DISN:	SOUTH COAST AQMD	**PMT:**	
CHAPIS:		**PM10T:**	

1990 Toxic Data

Facility ID:	4343	**COID:**	ORA
Facility SIC Code:	7216	**DISN:**	SOUTH COAST AQMD
CO:	30	**CHAPIS:**	
Air Basin:	SC	**CERR Code:**	
District:	SC		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

16	3 of 6	NW	0.15 / 783.87	301.82 / 3	NORTON'S PALM CLEANERS 1454 N KRAEMER BLVD PLACENTIA CA 92670	EMISSIONS

1996 Criteria Data

Facility ID:	4343	**CERR Code:**	
Facility SIC Code:	7216	**TOGT:**	0
CO:	30	**ROGT:**	0
Air Basin:	SC	**COT:**	0
District:	SC	**NOXT:**	.1
COID:	ORA	**SOXT:**	
DISN:	SOUTH COAST AQMD	**PMT:**	0
CHAPIS:		**PM10T:**	0

1996 Toxic Data

Facility ID:	4343	**COID:**	ORA
Facility SIC Code:	7216	**DISN:**	SOUTH COAST AQMD
CO:	30	**CHAPIS:**	
Air Basin:	SC	**CERR Code:**	
District:	SC		
TS:			
Health Risk Asmt:			

Non-Cancer Chronic Haz Ind:
Non-Cancer Acute Haz Ind:

1998 Toxic Data

Facility ID:	4343	**COID:**	ORA
Facility SIC Code:	7216	**DISN:**	SOUTH COAST AQMD
CO:	30	**CHAPIS:**	
Air Basin:	SC	**CERR Code:**	
District:	SC		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

1999 Toxic Data

Facility ID:	4343	**COID:**	ORA
Facility SIC Code:	7216	**DISN:**	SOUTH COAST AQMD
CO:	30	**CHAPIS:**	
Air Basin:	SC	**CERR Code:**	
District:	SC		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2000 Toxic Data

Facility ID:	4343	**COID:**	ORA
Facility SIC Code:	7216	**DISN:**	SOUTH COAST AQMD
CO:	30	**CHAPIS:**	
Air Basin:	SC	**CERR Code:**	
District:	SC		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2001 Toxic Data

Facility ID:	4343	**COID:**	ORA
Facility SIC Code:	7216	**DISN:**	SOUTH COAST AQMD
CO:	30	**CHAPIS:**	
Air Basin:	SC	**CERR Code:**	
District:	SC		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

16	*4 of 6*	*NW*	*0.15 / 783.87*	*301.82 / 3*	*NORTON PALM CLEANERS 1454 KRAEMER BLVD PLACENTIA CA 92870*	*FED DRYCLEANERS*

FRS Facility ID:	110002416911
NPDES IDs:	
NAICS Codes:	81232
SIC Codes:	
Latitude:	33.887278
Longitude:	-117.863231

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
16	5 of 6	NW	0.15 / 783.87	301.82 / 3	NORTONS PALM CLEANERS 1454 N KRAEMER BLVD PLACENTIA CA 92870	ORANGE ICP

Record ID: RO0000035
Case ID: 01IC015
Released Substance(s): PERCHLOROETHYLENE
Type of Closure: Closure certification issued
Status Description: CLOSED
Case Closed Date: 9/25/2001

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
16	6 of 6	NW	0.15 / 783.87	301.82 / 3	NORTON PALM CLEANERS 1454 KRAEMER BLVD PLACENTIA CA 92870	RCRA SQG

EPA Handler ID: CAD981622681
Gen Status Universe: Small Quantity Generator
Contact Name:
Contact Address: US
Contact Phone No and Ext:
Contact Email:
Contact Country: US
County Name: ORANGE
EPA Region: 09
Land Type:
Receive Date: 19960901

Violation/Evaluation Summary

Note: NO VIOLATIONS: All of the compliance records associated with this facility (EPA ID) indicate NO VIOLATIONS; Compliance Monitoring and Enforcement table dated August, 2019.

Evaluation Details

Evaluation Start Date: 19940825
Evaluation Type Description: COMPLIANCE EVALUATION INSPECTION ON-SITE
Violation Short Description:
Return to Compliance Date:
Evaluation Agency: State Contractor/Grantee

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 19861222
Handler Name: NORTON PALM CLEANERS
Generator Status Universe: Small Quantity Generator

Source Type: Notification

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 19960901
Handler Name: NORTON PALM CLEANERS
Generator Status Universe: Small Quantity Generator
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street 1:***	NOT REQUIRED
Name:	JOHN NORTON	***Street 2:***	
Date Became Current:		***City:***	NOT REQUIRED
Date Ended Current:		***State:***	ME
Phone:	415-555-1212	***Country:***	
Source Type:	Notification	***Zip Code:***	99999

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Private	***Street 1:***	NOT REQUIRED
Name:	NOT REQUIRED	***Street 2:***	
Date Became Current:		***City:***	NOT REQUIRED
Date Ended Current:		***State:***	ME
Phone:	415-555-1212	***Country:***	
Source Type:	Implementer	***Zip Code:***	99999

17	1 of 1	NW	0.15 / 813.85	298.11 / -1	CVS PHARMACY # 9747 150 EAST YORBA LINDA BOULEVARD PLACENTIA CA 92870-0000	RCRA LQG

EPA Handler ID: CAR000231423
Gen Status Universe: Large Quantity Generator
Contact Name: NICOLE WILKINSON
Contact Address: 1 , CVS DRIVE , , WOONSOCKET , RI, 02895 , US
Contact Phone No and Ext: 401-770-7132
Contact Email: NICOLE.WILKINSON@CVSHEALTH.COM
Contact Country: US
County Name: ORANGE
EPA Region: 09
Land Type: Private
Receive Date: 20180301

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No

Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20121025
Handler Name: CVS PHARMACY NO 9747
Generator Status Universe: Large Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: P001
Waste Code Description: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

Hazardous Waste Code: P042
Waste Code Description: 1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)- (OR) EPINEPHRINE

Hazardous Waste Code: P075
Waste Code Description: NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS

Hazardous Waste Code: P081
Waste Code Description: 1,2,3-PROPANETRIOL, TRINITRATE (R) (OR) NITROGLYCERINE (R)

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20140301
Handler Name: CVS PHARMACY #9747
Generator Status Universe: Large Quantity Generator
Source Type: Annual/Biennial Report update with Notification

Waste Code Details

Hazardous Waste Code: 122
Waste Code Description: Alkaline solution without metals (pH > 12.5)

Hazardous Waste Code: 123
Waste Code Description: Unspecified alkaline solution

Hazardous Waste Code: 131
Waste Code Description: Aqueous solution (2 < pH < 12.5) containing reactive anions (azide, bromate, chlorate, cyanide, fluoride, hypochlorite, nitrite, perchlorate, and sulfide anions)

Hazardous Waste Code: 134
Waste Code Description: Aqueous solution with <10% total organic residues

Hazardous Waste Code: 141
Waste Code Description: Off-specification, aged, or surplus inorganics

Hazardous Waste Code: 181
Waste Code Description: Other inorganic solid waste

Hazardous Waste Code: 214
Waste Code Description: Unspecified solvent mixture

Hazardous Waste Code: 311
Waste Code Description: Pharmaceutical waste

Hazardous Waste Code: 331
Waste Code Description: Off-specification, aged, or surplus organics

Hazardous Waste Code: 352
Waste Code Description: Other organic solids

Hazardous Waste Code: 541
Waste Code Description: Photochemicals / photo processing waste

Hazardous Waste Code: 561
Waste Code Description: Detergent and soap

Hazardous Waste Code: 791
Waste Code Description: Liquids with pH < 2

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D004
Waste Code Description: ARSENIC

Hazardous Waste Code: D005
Waste Code Description: BARIUM

Hazardous Waste Code: D006
Waste Code Description: CADMIUM

Hazardous Waste Code: D007
Waste Code Description: CHROMIUM

Hazardous Waste Code: D008
Waste Code Description: LEAD

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Hazardous Waste Code: D010
Waste Code Description: SELENIUM

Hazardous Waste Code: D011
Waste Code Description: SILVER

Hazardous Waste Code: D016
Waste Code Description: 2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)

Hazardous Waste Code: D018
Waste Code Description: BENZENE

Hazardous Waste Code: D024
Waste Code Description: M-CRESOL

Hazardous Waste Code: D027
Waste Code Description: 1,4-DICHLOROBENZENE

Hazardous Waste Code: D035
Waste Code Description: METHYL ETHYL KETONE

Hazardous Waste Code: D039
Waste Code Description: TETRACHLOROETHYLENE

Hazardous Waste Code: P001
Waste Code Description: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

Hazardous Waste Code: P012
Waste Code Description: ARSENIC OXIDE AS2O3 (OR) ARSENIC TRIOXIDE

Hazardous Waste Code: P075
Waste Code Description: NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS

Hazardous Waste Code: P081
Waste Code Description: 1,2,3-PROPANETRIOL, TRINITRATE (R) (OR) NITROGLYCERINE (R)

Hazardous Waste Code: P188
Waste Code Description: BENZOIC ACID, 2-HYDROXY-, COMPD. WITH (3AS-CIS)-1,2,3,3A,8,8A-HEXAHYDRO-1,3A,8-TRIMETHYLPYRROLO[2,3-B]INDOL-5-YL METHYLCARBAMATE ESTER (1:1) (OR) PHYSOSTIGMINE SALICYLATE

Hazardous Waste Code: U002
Waste Code Description: 2-PROPANONE (I) (OR) ACETONE (I)

Hazardous Waste Code: U010
Waste Code Description: AZIRINO [2',3':3,4]PYRROLO[1,2-A]INDOLE-4,7-DIONE, 6-AMINO-8-[[(AMINOCARBONYL)OXY]METHYL]-1,1A,2,8,8A,8B-HEXAHYDRO-8A-METHOXY-5-METHYL-, [1AS-(1AALPHA, 8BETA, 8AALPHA, 8BALPHA)]- (OR) MITOMYCIN C

Hazardous Waste Code: U031
Waste Code Description: 1-BUTANOL (I) (OR) N-BUTYL ALCOHOL (I)

Hazardous Waste Code: U034
Waste Code Description: ACETALDEHYDE, TRICHLORO- (OR) CHLORAL

Hazardous Waste Code: U035
Waste Code Description: BENZENEBUTANOIC ACID, 4-[BIS(2-CHLOROETHYL)AMINO]- (OR) CHLORAMBUCIL

Hazardous Waste Code: U044
Waste Code Description: CHLOROFORM (OR) METHANE, TRICHLORO-

Hazardous Waste Code: U058
Waste Code Description: 2H-1,3,2-OXAZAPHOSPHORIN-2-AMINE, N,N-BIS(2-CHLOROETHYL)TETRAHYDRO-, 2-OXIDE (OR) CYCLOPHOSPHAMIDE

Hazardous Waste Code: U059
Waste Code Description: 5,12-NAPHTHACENEDIONE, 8-ACETYL-10-[(3-AMINO-2,3,6-TRIDEOXY)-ALPHA-L-LYXO-HEXOPYRANOSYL)OXY]-7,8,9,10-TETRAHYDRO-6,8,11-TRIHYDROXY-1-METHOXY-, (8S-CIS)- (OR) DAUNOMYCIN

Hazardous Waste Code: U070
Waste Code Description: BENZENE, 1,2-DICHLORO- (OR) O-DICHLOROBENZENE

Hazardous Waste Code: U072
Waste Code Description: BENZENE, 1,4-DICHLORO- (OR) P-DICHLOROBENZENE

Hazardous Waste Code: U089
Waste Code Description: DIETHYLSTILBESTEROL (OR) PHENOL, 4,4'-(1,2-DIETHYL-1,2-ETHENEDIYL)BIS, (E)-

Hazardous Waste Code: U122
Waste Code Description: FORMALDEHYDE

Hazardous Waste Code: U129
Waste Code Description: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA, 2ALPHA, 3BETA, 4ALPHA, 5ALPHA, 6BETA)- (OR) LINDANE

Hazardous Waste Code: U132
Waste Code Description: HEXACHLOROPHENE (OR) PHENOL, 2,2'-METHYLENEBIS[3,4,6-TRICHLORO-

Hazardous Waste Code: U150
Waste Code Description: L-PHENYLALANINE, 4-[BIS(2-CHLOROETHYL)AMINO]- (OR) MELPHALAN

Hazardous Waste Code: U151
Waste Code Description: MERCURY

Hazardous Waste Code: U154
Waste Code Description: METHANOL (I) (OR) METHYL ALCOHOL (I)

Hazardous Waste Code: U165
Waste Code Description: NAPHTHALENE

Hazardous Waste Code: U188
Waste Code Description: PHENOL

Hazardous Waste Code: U200
Waste Code Description: RESERPINE (OR) YOHIMBAN-16-CARBOXYLIC ACID, 11,17-DIMETHOXY-18-[(3,4,5-TRIMETHOXYBENZOYL)OXY]-, METHYL ESTER, (3BETA, 16BETA, 17ALPHA, 18BETA, 20ALPHA)-

Hazardous Waste Code: U201
Waste Code Description: 1,3-BENZENEDIOL (OR) RESORCINOL

Hazardous Waste Code: U204
Waste Code Description: SELENIOUS ACID (OR) SELENIUM DIOXIDE

Hazardous Waste Code: U205
Waste Code Description: SELENIUM SULFIDE (OR) SELENIUM SULFIDE SES2 (R,T)

Hazardous Waste Code: U206
Waste Code Description: D-GLUCOSE, 2-DEOXY-2-[[(METHYLNITROSOAMINO)-CARBONYL]AMINO]- (OR) GLUCOPYRANOSE, 2-DEOXY-2-(3-METHYL-3-NITROSOUREIDO)-,D- (OR) STREPTOZOTOCIN

Hazardous Waste Code: U210
Waste Code Description: ETHENE, TETRACHLORO- (OR) TETRACHLOROETHYLENE

Hazardous Waste Code: U279
Waste Code Description: CARBARYL (OR) 1-NAPHTHALENOL, METHYLCARBAMATE

Hazardous Waste Code: U411
Waste Code Description: PHENOL, 2-(1-METHYLETHOXY)-, METHYLCARBAMATE (OR) PROPOXUR

<u>Hazardous Waste Handler Details</u>

Sequence No: 2
Receive Date: 20160826
Handler Name: CVS PHARMACY #9747
Generator Status Universe: Large Quantity Generator
Source Type: Annual/Biennial Report update with Notification

<u>Waste Code Details</u>

Hazardous Waste Code: 122
Waste Code Description: Alkaline solution without metals (pH > 12.5)

Hazardous Waste Code: 214
Waste Code Description: Unspecified solvent mixture

Hazardous Waste Code: 311
Waste Code Description: Pharmaceutical waste

Hazardous Waste Code: 331
Waste Code Description: Off-specification, aged, or surplus organics

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D007
Waste Code Description: CHROMIUM

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Hazardous Waste Code: D010
Waste Code Description: SELENIUM

Hazardous Waste Code: D024
Waste Code Description: M-CRESOL

Hazardous Waste Code: P001
Waste Code Description: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

Hazardous Waste Code: P075
Waste Code Description: NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS

Hazardous Waste Code: U002
Waste Code Description: 2-PROPANONE (I) (OR) ACETONE (I)

Hazardous Waste Code: U129
Waste Code Description: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA, 2ALPHA, 3BETA, 4ALPHA, 5ALPHA, 6BETA)- (OR) LINDANE

Hazardous Waste Code: U205
Waste Code Description: SELENIUM SULFIDE (OR) SELENIUM SULFIDE SES2 (R,T)

Hazardous Waste Handler Details

Sequence No: 3
Receive Date: 20180301
Handler Name: CVS PHARMACY # 9747
Generator Status Universe: Large Quantity Generator
Source Type: Annual/Biennial Report update with Notification

Waste Code Details

Hazardous Waste Code: 122
Waste Code Description: Alkaline solution without metals (pH > 12.5)

Hazardous Waste Code: 141
Waste Code Description: Off-specification, aged, or surplus inorganics

Hazardous Waste Code: 181
Waste Code Description: Other inorganic solid waste

Hazardous Waste Code: 214
Waste Code Description: Unspecified solvent mixture

Hazardous Waste Code: 311
Waste Code Description: Pharmaceutical waste

Hazardous Waste Code: 331
Waste Code Description: Off-specification, aged, or surplus organics

Hazardous Waste Code: 791
Waste Code Description: Liquids with pH < 2

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D007
Waste Code Description: CHROMIUM

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Hazardous Waste Code: D010
Waste Code Description: SELENIUM

Hazardous Waste Code: D024
Waste Code Description: M-CRESOL

Hazardous Waste Code: P001
Waste Code Description: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

Hazardous Waste Code: P075
Waste Code Description: NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS

Hazardous Waste Code: U002
Waste Code Description: 2-PROPANONE (I) (OR) ACETONE (I)

Hazardous Waste Code: U129
Waste Code Description: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA, 2ALPHA, 3BETA, 4ALPHA, 5ALPHA, 6BETA)- (OR) LINDANE

Hazardous Waste Code: U205
Waste Code Description: SELENIUM SULFIDE (OR) SELENIUM SULFIDE SES2 (R,T)

<u>Owner/Operator Details</u>

Owner/Operator Ind:	Current Owner	***Street No:***	79
Type:	Private	***Street 1:***	CHESTNUT ST
Name:	TWOFORTY ASSOCIATES	***Street 2:***	
Date Became Current:	19740515	***City:***	RIDGEWOOD
Date Ended Current:		***State:***	NJ
Phone:	201-670-9270	***Country:***	US
Source Type:	Annual/Biennial Report update with Notification	***Zip Code:***	07450

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Private	***Street 1:***	
Name:	GARFIELD BEACH CVS LLC	***Street 2:***	
Date Became Current:	20060602	***City:***	
Date Ended Current:		***State:***	
Phone:		***Country:***	US
Source Type:	Notification	***Zip Code:***	

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street 1:***	79 CHESTNUT ST
Name:	TWO FORTY ASSOCIATES	***Street 2:***	
Date Became Current:	19740515	***City:***	RIDGEWOOD
Date Ended Current:		***State:***	NJ
Phone:	201-670-9270	***Country:***	US
Source Type:	Notification	***Zip Code:***	07450

Owner/Operator Ind:	Current Owner	***Street No:***	79
Type:	Private	***Street 1:***	CHESTNUT ST
Name:	TWO-FORTY ASSOCIATES	***Street 2:***	
Date Became Current:	19740515	***City:***	RIDGEWOOD
Date Ended Current:		***State:***	NJ
Phone:	201-670-9270	***Country:***	US
Source Type:	Annual/Biennial Report update with Notification	***Zip Code:***	07450

Owner/Operator Ind:	Current Owner	***Street No:***	79
Type:	Private	***Street 1:***	CHESTNUT ST
Name:	TWO-FORTY ASSOCIATES	***Street 2:***	
Date Became Current:	19740515	***City:***	RIDGEWOOD

Date Ended Current:		**State:**	NJ
Phone:	201-670-9270	**Country:**	
Source Type:	Annual/Biennial Report update with Notification	**Zip Code:**	07450

Owner/Operator Ind:	Current Operator	**Street No:**	1
Type:	Private	**Street 1:**	CVS DRIVE
Name:	GARFIELD BEACH CVS, L.L.C.	**Street 2:**	
Date Became Current:	20060602	**City:**	WOONSOCKET
Date Ended Current:		**State:**	RI
Phone:	401-765-1500	**Country:**	US
Source Type:	Annual/Biennial Report update with Notification	**Zip Code:**	02895

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street 1:**	
Name:	GARFIELD BEACH CVS, LLC	**Street 2:**	
Date Became Current:	20060602	**City:**	
Date Ended Current:		**State:**	
Phone:		**Country:**	
Source Type:	Annual/Biennial Report update with Notification	**Zip Code:**	

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street 1:**	
Name:	GARFIELD BEACH CVS, L.L.C.	**Street 2:**	
Date Became Current:	20060602	**City:**	
Date Ended Current:		**State:**	
Phone:		**Country:**	
Source Type:	Annual/Biennial Report update with Notification	**Zip Code:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
18	1 of 1	NW	0.16 / 839.39	298.90 / 0	WALGREENS #9197 191 E YORBA LINDA BLVD PLACENTIA CA 92870	RCRA CESQG

EPA Handler ID:	CAL000323609
Gen Status Universe:	Conditionally Exempt Small Quantity Generator
Contact Name:	KARINA ROMERO
Contact Address:	3207 , GREYHAWK CT , SUITE 200 , CARLSBAD , CA, 92010 , US
Contact Phone No and Ext:	760-602-8700
Contact Email:	REGULATORY@3ECOMPANY.COM
Contact Country:	US
County Name:	ORANGE
EPA Region:	09
Land Type:	Private
Receive Date:	20160406

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20140301
Handler Name: WALGREENS #9197
Generator Status Universe: Conditionally Exempt Small Quantity Generator
Source Type: Annual/Biennial Report update with Notification

Waste Code Details

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D002
Waste Code Description: CORROSIVE WASTE

Hazardous Waste Code: D007
Waste Code Description: CHROMIUM

Hazardous Waste Code: D009
Waste Code Description: MERCURY

Hazardous Waste Code: D010
Waste Code Description: SELENIUM

Hazardous Waste Code: D024
Waste Code Description: M-CRESOL

Hazardous Waste Code: P001
Waste Code Description: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

Hazardous Waste Code: P075
Waste Code Description: NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS

Hazardous Waste Code: U034
Waste Code Description: ACETALDEHYDE, TRICHLORO- (OR) CHLORAL

Hazardous Waste Code: U165
Waste Code Description: NAPHTHALENE

Hazardous Waste Handler Details

Sequence No: 2
Receive Date: 20160406
Handler Name: WALGREENS #9197
Generator Status Universe: Conditionally Exempt Small Quantity Generator
Source Type: Annual/Biennial Report update with Notification

Waste Code Details

Hazardous Waste Code: 122
Waste Code Description: Alkaline solution without metals (pH > 12.5)

Hazardous Waste Code: 131
Waste Code Description: Aqueous solution (2 < pH < 12.5) containing reactive anions (azide, bromate, chlorate, cyanide, fluoride, hypochlorite, nitrite, perchlorate, and sulfide anions)

Hazardous Waste Code: 214
Waste Code Description: Unspecified solvent mixture

Hazardous Waste Code: 311

Waste Code Description:	Pharmaceutical waste
Hazardous Waste Code:	352
Waste Code Description:	Other organic solids
Hazardous Waste Code:	D001
Waste Code Description:	IGNITABLE WASTE
Hazardous Waste Code:	D002
Waste Code Description:	CORROSIVE WASTE
Hazardous Waste Code:	D007
Waste Code Description:	CHROMIUM
Hazardous Waste Code:	D010
Waste Code Description:	SELENIUM
Hazardous Waste Code:	D024
Waste Code Description:	M-CRESOL
Hazardous Waste Code:	P001
Waste Code Description:	2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%
Hazardous Waste Code:	P075
Waste Code Description:	NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street 1:**	
Name:	WALGREEN CO	**Street 2:**	
Date Became Current:	20070515	**City:**	
Date Ended Current:		**State:**	
Phone:		**Country:**	
Source Type:	Annual/Biennial Report update with Notification	**Zip Code:**	

Owner/Operator Ind:	Current Owner	**Street No:**	200
Type:	Private	**Street 1:**	WILMOT RD.
Name:	WALGREEN CO.	**Street 2:**	
Date Became Current:	20060425	**City:**	DEERFIELD
Date Ended Current:		**State:**	IL
Phone:		**Country:**	US
Source Type:	Annual/Biennial Report update with Notification	**Zip Code:**	60015

Owner/Operator Ind:	Current Owner	**Street No:**	200
Type:	Private	**Street 1:**	E BAKER ST STE 100
Name:	PLACENTIA VILLAGE SQUARE LLC	**Street 2:**	
Date Became Current:	20070515	**City:**	COSTA MESA
Date Ended Current:		**State:**	CA
Phone:	714-545-1400	**Country:**	
Source Type:	Annual/Biennial Report update with Notification	**Zip Code:**	92626

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street 1:**	
Name:	WALGREEN CO.	**Street 2:**	
Date Became Current:	20060425	**City:**	
Date Ended Current:		**State:**	
Phone:		**Country:**	
Source Type:	Annual/Biennial Report update with Notification	**Zip Code:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
19	1 of 1	NW	0.16 / 870.24	297.88 / -1	Asfour Family Corporation 183 E YORBA LINDA BLVD PLACENTIA CA 92870	DELISTED HAZ

Siteid: 434490

Latitude: 33.887883
Longitude: -117.863820
Original Source: CHAZ
Record Date: 22-MAR-2018

20	1 of 1	NNW	0.18 / 929.08	303.60 / 5	PLACENTIA VILLAGE PLAZA, LLC 1474 NORTH KRAEMER BLVD PLACENTIA CA 92780	RCRA NON GEN

EPA Handler ID: CAC002991792
Gen Status Universe: No Report
Contact Name: LINDA NETTLES
Contact Address: P.O. BOX 17459 , , ANAHEIM , CA, 92817 ,
Contact Phone No and Ext: 714-340-7849
Contact Email: LNETTLES@BLUESSANDSMANAGEMENT.COM
Contact Country:
County Name: ORANGE
EPA Region: 09
Land Type:
Receive Date: 20181205

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20181205
Handler Name: PLACENTIA VILLAGE PLAZA, LLC
Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	P.O. BOX 17459
Name:	LINDA NETTLES	***Street 2:***	
Date Became Current:		***City:***	ANAHEIM
Date Ended Current:		***State:***	CA
Phone:	714-340-7849	***Country:***	
Source Type:	Implementer	***Zip Code:***	92817

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	1474 NORTH KRAEMER BLVD
Name:	PLACENTIA VILLAGE PLAZA, LLC	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-340-7849	***Country:***	
Source Type:	Implementer	***Zip Code:***	92780

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
21	*1 of 1*	*NE*	*0.18 / 947.55*	*307.91 / 9*	***GLORIA V PIEDILATO TRST 1410 VIA CORTEZ PLACENTIA CA 92870***	***RCRA NON GEN***

EPA Handler ID: CAC002982605
Gen Status Universe: No Report
Contact Name: GLORIA PIEDILATO
Contact Address: 1410 VIA CORTEZ , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext: 951-201-7352
Contact Email: FAVILA@BURNS-ENVIRO.COM
Contact Country:
County Name: ORANGE
EPA Region: 09
Land Type:
Receive Date: 20180928

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20180928
Handler Name: GLORIA V PIEDILATO TRST
Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1410 VIA CORTEZ
Name:	GLORIA PIEDILATO	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	951-201-7352	***Country:***	

Source Type:	Implementer	***Zip Code:***	92870
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	1410 VIA CORTEZ
Name:	GLORIA V PIEDILATO TRST	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	951-201-7352	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

22	***1 of 1***	***N***	***0.20 / 1,054.08***	***307.61 / 9***	***SUNNY SASAJIMA 218 CIMARON AVE PLACENTIA CA 92870***	***RCRA NON GEN***

EPA Handler ID: CAC002968120
Gen Status Universe: No Report
Contact Name: SUNNY SASAJIMA
Contact Address: 218 CIMARON AVE , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext: 323-712-5892
Contact Email: JOE@SIRRIS.BIZ
Contact Country:
County Name: ORANGE
EPA Region: 09
Land Type:
Receive Date: 20180626

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: Yes
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20180626
Handler Name: SUNNY SASAJIMA
Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	218 CIMARON AVE
Name:	SUNNY SASAJIMA	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA

Date Ended Current:		**State:**	CA
Phone:	323-712-5892	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870
Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	218 CIMARON AVE
Name:	SUNNY SASAJIMA	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	323-712-5892	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
23	1 of 1	NW	0.21 / 1,132.02	303.63 / 5	ARCO #6226 102 E YORBA LINDA BLVD PLACENTIA CA 92870	DELISTED TNK

Delisted Storage Tanks

Facility ID:	4595	**Latitude:**	33.8888129
County:	Orange	**Longitude:**	-117.8641627
Permitting Agency:	ORANGE COUNTY		
Original Source:	UST		
Record Date:	30-JAN-2017		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
24	1 of 3	NW	0.22 / 1,178.65	295.67 / -3	VALUE CLEARNERS CORP 127 E YORBA LINDA BLVD PLACENTIA CA 92870	FED DRYCLEANERS

FRS Facility ID:	110006481707
NPDES IDs:	
NAICS Codes:	81232
SIC Codes:	
Latitude:	33.88791
Longitude:	-117.86464

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
24	2 of 3	NW	0.22 / 1,178.65	295.67 / -3	VALUE CLEANERS 127 E YORBA LINDA BLVD PLACENTIA CA 92870	ORANGE ICP

Record ID:	RO0000680	**Status Description:**	CLOSED
Case ID:	98IC007	**Case Closed Date:**	3/6/1998
Released Substance(s):	PERCHLOROETHYLENE		
Type of Closure:	Closure certification issued		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
24	3 of 3	NW	0.22 / 1,178.65	295.67 / -3	VALUE CLEARNERS CORP 127 E YORBA LINDA BLVD PLACENTIA CA 92870	RCRA NON GEN

EPA Handler ID:	CAD983596073
Gen Status Universe:	No Report
Contact Name:	KENNY SINGH
Contact Address:	127 E YORBA LINDA BLVD , , PLACENTIA , CA, 92670 , US
Contact Phone No and Ext:	714-996-9912
Contact Email:	
Contact Country:	US
County Name:	ORANGE
EPA Region:	09
Land Type:	Other
Receive Date:	19990224

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 19990224
Handler Name: VALUE CLEARNERS CORP
Generator Status Universe: No Report
Source Type: Notification

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Private	***Street 1:***	NOT REQUIRED
Name:	NOT REQUIRED	***Street 2:***	
Date Became Current:		***City:***	NOT REQUIRED
Date Ended Current:		***State:***	ME
Phone:	415-555-1212	***Country:***	
Source Type:	Notification	***Zip Code:***	99999

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street 1:***	NOT REQUIRED
Name:	VALUE CLEARNERS CORP	***Street 2:***	
Date Became Current:		***City:***	NOT REQUIRED
Date Ended Current:		***State:***	ME
Phone:	415-555-1212	***Country:***	
Source Type:	Notification	***Zip Code:***	99999

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
25	*1 of 1*	*NE*	*0.23 / 1,204.51*	*310.06 / 11*	***JEWEL HOLLINGWORTH 457 VIA DE LEON PLACENTIA CA 92870-3227***	***RCRA NON GEN***

EPA Handler ID: CAC002996061
Gen Status Universe: No Report
Contact Name: JEWEL HOLLINGWORTH
Contact Address: 1905 ORCHARD LANE , , LA CANADA , CA, 91011-1545 ,
Contact Phone No and Ext: 949-463-6953
Contact Email: GENEVADEGUIRE@ALLIANCE-ENVIRO.COM
Contact Country:
County Name: ORANGE
EPA Region: 09
Land Type:
Receive Date: 20190110

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190110
Handler Name: JEWEL HOLLINGWORTH
Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Other
Name: JEWEL HOLLINGWORTH
Date Became Current:
Date Ended Current:
Phone: 949-463-6953
Source Type: Implementer
Street No:
Street 1: 1905 ORCHARD LANE
Street 2:
City: LA CANADA
State: CA
Country:
Zip Code: 91011-1545

Owner/Operator Ind: Current Operator
Type: Other
Name: JEWEL HOLLINGWORTH
Date Became Current:
Date Ended Current:
Phone: 949-463-6953
Source Type: Implementer
Street No:
Street 1: 1905 ORCHARD LANE
Street 2:
City: LA CANADA
State: CA
Country:
Zip Code: 91011-1545

26	*1 of 2*	*WNW*	*0.23 / 1,210.80*	*294.91 / -4*	*ROSS DRESS FOR LESS #0355 110 E YORBA LINDA BLVD PLACENTIA CA 92870-3327*	*RCRA NON GEN*

EPA Handler ID: CAL000397448
Gen Status Universe: No Report
Contact Name: KATHY HATCH
Contact Address: 5130 HACIENDA DR , 3RD FLOOR , DUBLIN , CA, 94568 ,
Contact Phone No and Ext: 925-965-4015
Contact Email: ERIC.GUARD@ROS.COM
Contact Country:
County Name: ORANGE
EPA Region: 09

Land Type:
Receive Date: 20140605

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	Yes
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20140605
Handler Name:	ROSS DRESS FOR LESS #0355
Generator Status Universe:	No Report
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	5130 HACIENDA DR
Name:	KATHY HATCH	***Street 2:***	3RD FLOOR
Date Became Current:		***City:***	DUBLIN
Date Ended Current:		***State:***	CA
Phone:	925-965-4015	***Country:***	
Source Type:	Implementer	***Zip Code:***	94568

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	5130 HACIENDA DR
Name:	ROSS DRESS FOR LESS INC	***Street 2:***	
Date Became Current:		***City:***	DUBLIN
Date Ended Current:		***State:***	CA
Phone:	925-965-4831	***Country:***	
Source Type:	Implementer	***Zip Code:***	94568

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
26	*2 of 2*	*WNW*	*0.23 / 1,210.80*	*294.91 / -4*	***MARSHALLS 1193 130 E YORBA LINDA BLVD PLACENTIA CA 92870***	***RCRA NON GEN***

EPA Handler ID:	CAL000401942
Gen Status Universe:	No Report
Contact Name:	PAUL KANGAS
Contact Address:	770 COCHITUATE RD , 300.1AN , FRAMINGHAM , MA, 01701 ,
Contact Phone No and Ext:	774-308-3651
Contact Email:	PAUL_KANGAS@TJX.COM
Contact Country:	

County Name: ORANGE
EPA Region: 09
Land Type:
Receive Date: 20141105

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	Yes
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20141105
Handler Name:	MARSHALLS 1193
Generator Status Universe:	No Report
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	770 COCHITUATE RD
Name:	PAUL KANGAS	**Street 2:**	300.1AN
Date Became Current:		**City:**	FRAMINGHAM
Date Ended Current:		**State:**	MA
Phone:	774-308-3651	**Country:**	
Source Type:	Implementer	**Zip Code:**	01701

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	770 COCHITUATE RD
Name:	MARSHALLS OF CA LLC	**Street 2:**	
Date Became Current:		**City:**	FRAMINGHAM
Date Ended Current:		**State:**	MA
Phone:	774-308-3651	**Country:**	
Source Type:	Implementer	**Zip Code:**	01701

27	***1 of 1***	***WNW***	***0.23 / 1,218.53***	***294.91 / -4***	***MARIE CALLENDER'S 126 E YORBA LINDA PLACENTIA CA 92670***	***EMISSIONS***

1990 Criteria Data

Facility ID: 64781 **CERR Code:**

Facility SIC Code:	5812	***TOGT:***	0
CO:	30	***ROGT:***	0
Air Basin:	SC	***COT:***	
District:	SC	***NOXT:***	
COID:	ORA	***SOXT:***	
DISN:	SOUTH COAST AQMD	***PMT:***	.1
CHAPIS:		***PM10T:***	.095

<u>1990 Toxic Data</u>

Facility ID:	64781	***COID:***	ORA
Facility SIC Code:	5812	***DISN:***	SOUTH COAST AQMD
CO:	30	***CHAPIS:***	
Air Basin:	SC	***CERR Code:***	
District:	SC		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

---

[28]	***1 of 1***	***WNW***	***0.24 / 1,259.80***	***295.63 / -3***	***ARCO #6226 102 E YORBA LINDA BLVD PLACENTIA CA 92870***	***UST***

Facility ID:	FA0024085	***Latitude:***	33.88764
CERS ID:	10512685	***Longitude:***	-117.86555
County:	Orange		

Permitting Agency: Orange County Environmental Health

Note: Information related to facilities can be searched on Geo Tracker Website: https://geotracker.waterboards.ca.gov/search

---

[29]	***1 of 1***	***S***	***0.24 / 1,292.79***	***286.71 / -12***	***TODD FARMER 344 FAIRWAY LN PLACENTIA CA 92870***	***RCRA NON GEN***

EPA Handler ID:	CAC002980105
Gen Status Universe:	No Report
Contact Name:	TODD FARMER
Contact Address:	344 FAIRWAY LN , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext:	714-305-7097
Contact Email:	JOE@SIRRIS.BIZ
Contact Country:	
County Name:	ORANGE
EPA Region:	09
Land Type:	
Receive Date:	20180913

<u>Violation/Evaluation Summary</u>

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

<u>Handler Summary</u>

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No

Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20180913
Handler Name: TODD FARMER
Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	344 FAIRWAY LN
Name:	TODD FARMER	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	714-305-7097	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	344 FAIRWAY LN
Name:	TODD FARMER	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	714-305-7097	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870

30	1 of 1	SSE	0.25 / 1,297.67	283.28 / -16	ALICE LEE WU 1107 MONTECITO ST PLACENTIA CA 92870	RCRA NON GEN

EPA Handler ID: CAC002974836
Gen Status Universe: No Report
Contact Name: ALICE AND FRANK LEE
Contact Address: 1107 MONTECITO ST , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext: 714-813-7000
Contact Email: FAVILA@BURNS-ENVIRO.COM
Contact Country:
County Name: ORANGE
EPA Region: 09
Land Type:
Receive Date: 20180808

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: Yes
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No

Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

<u>Hazardous Waste Handler Details</u>

Sequence No: 1
Receive Date: 20180808
Handler Name: ALICE LEE WU
Generator Status Universe: No Report
Source Type: Implementer

<u>Owner/Operator Details</u>

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1107 MONTECITO ST
Name:	ALICE AND FRANK LEE	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-813-7000	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	436 WINDFLOWER LN
Name:	ALICE LEE WU	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-813-7000	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

31	***1 of 1***	***ESE***	***0.25 / 1,303.96***	***287.92 / -11***	***JASON PFEFFERTON 533 MORSE AVE PLACENTIA CA 92870***	***RCRA NON GEN***

EPA Handler ID: CAC002975432
Gen Status Universe: No Report
Contact Name: JASON PFEFFERTON
Contact Address: 533 MORSE AVE , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext: 714-343-2733
Contact Email: JOE@SIRRIS.BIZ
Contact Country:
County Name: ORANGE
EPA Region: 09
Land Type:
Receive Date: 20180813

<u>Violation/Evaluation Summary</u>

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

<u>Handler Summary</u>

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: Yes
Transfer Facility: No
Onsite Burner Exemption: No

Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20180813
Handler Name: JASON PFEFFERTON
Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	533 MORSE AVE
Name:	JASON PFEFFERTON	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	714-343-2733	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	533 MORSE AVE
Name:	JASON PFEFFERTON	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	714-343-2733	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870

32	1 of 9	WNW	0.25 / 1,312.38	294.88 / -4	ARCO #6226 102 E YORBA LINDA BLVD PLACENTIA CA 92870	CERS TANK

Site ID: 92969
Latitude: 33.887825
Longitude: -117.865723
County: Orange County

Regulated Programs

EI ID: 10512685
EI Description: Underground Storage Tank

EI ID: 10512685
EI Description: Chemical Storage Facilities

EI ID: 10512685
EI Description: Hazardous Waste Generator

EI ID: T0605901847
EI Description: Leaking Underground Storage Tank Cleanup Site

Violations

Violation Date: 06/21/2019 **Violation Source:** CERS

Violation Program: UST **Violation Division:** Orange County Environmental Health
Citation: HSC 6.7 Multiple - California Health and Safety Code, Chapter 6.7, Section(s) Multiple
Violation Notes:

DO reports for the months of December 2018, February 2019 and April - June 2019 were not signed. Reports for November 2018, January 2019 and March 2019 were signed by staff on site. Ongoing compliance issues listed on the reports were not addressed. Ensure. going forward, that DO reports are signed by the owner/operator within 48 hours after receiving the report and that compliance issues noted on the reports are addressed. A follow up site visit will be conducted in 60 days to determine compliance. [23CCR 16 2716(3)] **Note: Many records provided by the department have a truncated [Violation Notes] field.

Violation Description:

UST Program -General - Must include violation description, proper statute and regulation citation in the "comment" section.

Violations

Violation Date: 06/20/2018 **Violation Source:** CERS
Violation Program: UST **Violation Division:** Orange County Environmental Health
Citation: HSC 6.7 25284, 25286 - California Health and Safety Code, Chapter 6.7, Section(s) 25284, 25286
Violation Notes:

Returned to compliance on 08/28/2018. CERS review was conducted and corrections were noted on 1/19/18. Facility was given 30 days to make needed corrections and resubmit. To date, there has been no corrections made to CERS data. The following corrections are still needed: CFR - Certification has expired. Submit current financial responsibility. TANK FACILITY OPERATING PERMIT FORM - Tank Owner Type is not STATE AGENCY - this is a privately owned tank. MONITORING PLAN - both tanks - under the pipe monitoring section, change panel model# to TLS350 and leak sensor manufacturer to Veeder Root UST SITE MONITORING MAP - add piping locations to your map. Submit corrections to CERS within 30 days.

Violation Description:

Failure to submit a complete and accurate application for a permit to operate a UST, or for renewal of the permit.

Violations

Violation Date: 06/16/2016 **Violation Source:** CERS
Violation Program: UST **Violation Division:** Orange County Environmental Health
Citation: 23 CCR 16 2712(i) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(i)
Violation Notes:

Returned to compliance on 06/30/2016. Leak response plan was not on site. Obtain a copy and contact this agency within 30 days to conduct a follow up inspection.

Violation Description:

Failure to have a UST Response Plan available on site.

Violations

Violation Date: 10/05/2015 **Violation Source:** CERS
Violation Program: UST **Violation Division:** Orange County Environmental Health
Citation: HSC 6.7 25284 - California Health and Safety Code, Chapter 6.7, Section(s) 25284
Violation Notes:

Returned to compliance on 07/03/2017.

Violation Description:

Failure to obtain and maintain a valid operation permit from the CUPA.

Violations

Violation Date: 06/19/2018 **Violation Source:** CERS

Violation Program: HMRRP **Violation Division:** Orange County Environmental Health
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Notes:

Returned to compliance on 08/28/2018. Remove the C02 gas from your inventory disclosure. Material is not stored above 1,000cf. Submit corrected information to CERS within 30 days.

Violation Description:

Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.

Violations

Violation Date: 06/14/2017 **Violation Source:** CERS
Violation Program: UST **Violation Division:** Orange County Environmental Health
Citation: 23 CCR 16 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(1)
Violation Notes:

Returned to compliance on 07/18/2017. 91 product did not shut down when sensor was tested.

Violation Description:

Failure of the double-walled pressurized piping to be continuously monitored with a system that activates an audible and visual alarm or stops flow at the dispenser when a leak is detected.

Violations

Violation Date: 07/07/2017 **Violation Source:** CERS
Violation Program: UST **Violation Division:** Orange County Environmental Health
Citation: 23 CCR 6.7 25284, 25286 - California Code of Regulations, Title 23, Chapter 6.7, Section(s) 25284, 25286
Violation Notes:

Returned to compliance on 02/14/2018.

Violation Description:

Failure to submit a complete and accurate application for a permit to operate a UST, or for renewal of the permit.

Violations

Violation Date: 06/20/2018 **Violation Source:** CERS
Violation Program: UST **Violation Division:** Orange County Environmental Health
Citation: 23 CCR 16 2715(i) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(i)
Violation Notes:

Returned to compliance on 06/20/2018. Monitoring system certification is past due. It was required to be conducted on/before 6/14/18. Certification is being conducted this date. This violation is corrected.

Violation Description:

Failure to have a properly qualified service technician test leak detection equipment as required every 12 months (vapor, pressure, hydrostatic (VPH) system, sensors, line-leak detectors (LLD), automatic tank gauge (ATG), etc.).

Violations

Violation Date: 06/18/2018 **Violation Source:** CERS
Violation Program: UST **Violation Division:** Orange County Environmental Health
Citation: 23 CCR 16 2715(i) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(i)
Violation Notes:

Returned to compliance on 06/19/2018. Testing was last conducted on 6/14/17 and is now past due.

Violation Description:

Failure to have a properly qualified service technician test leak detection equipment as required every 12 months (vapor, pressure, hydrostatic (VPH) system, sensors, line-leak detectors (LLD), automatic tank gauge (ATG), etc.).

Violations

Violation Date: 06/20/2018
Violation Source: CERS
Violation Program: UST
Violation Division: Orange County Environmental Health
Citation: HSC 6.7 25284.2 - California Health and Safety Code, Chapter 6.7, Section(s) 25284.2
Violation Notes:

Returned to compliance on 06/20/2018. Testing is past due. It was required to be conducted on/before 6/14/18. Certification is being conducted this date. This violation is corrected.

Violation Description:

Failure to test the spill bucket annually.

Violations

Violation Date: 06/18/2018
Violation Source: CERS
Violation Program: UST
Violation Division: Orange County Environmental Health
Citation: HSC 6.7 25284.2 - California Health and Safety Code, Chapter 6.7, Section(s) 25284.2
Violation Notes:

Returned to compliance on 06/19/2018. Testing was last conducted on 6/14/17 and is now past due.

Violation Description:

Failure to test the spill bucket annually.

Violations

Violation Date: 06/14/2017
Violation Source: CERS
Violation Program: UST
Violation Division: Orange County Environmental Health
Citation: 23 CCR 16 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(1)
Violation Notes:

Returned to compliance on 07/18/2017. 91 product did not shut down when UDC sensor was tested.

Violation Description:

Failure of the double-walled pressurized piping to be continuously monitored with a system that activates an audible and visual alarm or stops flow at the dispenser when a leak is detected.

Violations

Violation Date: 09/05/2017
Violation Source: CERS
Violation Program: UST
Violation Division: Orange County Environmental Health
Citation: HSC 6.7 25284 - California Health and Safety Code, Chapter 6.7, Section(s) 25284
Violation Notes:

Returned to compliance on 02/14/2018.

Violation Description:

Failure to obtain a valid permit to operate from the CUPA.

Violations

Violation Date: 06/14/2017
Violation Source: CERS
Violation Program: UST
Violation Division: Orange County Environmental Health
Citation: 23 CCR 16 2631(g), 2632(c)(2)(A) & (B) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2631(g), 2632(c)(2)(A) & (B)
Violation Notes:

Returned to compliance on 07/18/2017. 91 product annular sensor did not shut down turbine when tested.

Violation Description:

Failure of the double-walled interstitial space of the tank to be continuously monitored with an audible and visual alarm.

Violations

Violation Date: 05/18/2015
Violation Source: CERS
Violation Program: HMRRP
Violation Division: Orange County Environmental Health
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Notes:

Returned to compliance on 09/28/2016.

Violation Description:

Failure to complete and electronically submit hazardous material inventory information for all reportable hazardous materials on site at or above reportable quantities.

Violations

Violation Date: 05/18/2015
Violation Source: CERS
Violation Program: UST
Violation Division: Orange County Environmental Health
Citation: HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Notes:

Financial Assurance documents posted electronically have expired. Submit updated forms.

Violation Description:

Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.

Violations

Violation Date: 05/18/2015
Violation Source: CERS
Violation Program: HMRRP
Violation Division: Orange County Environmental Health
Citation: HSC 6.95 25508(d) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(d)
Violation Notes:

Returned to compliance on 09/28/2016.

Violation Description:

Failure to complete and/or electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.

Violations

Violation Date: 06/14/2017
Violation Source: CERS
Violation Program: UST
Violation Division: Orange County Environmental Health
Citation: 23 CCR 16 2715(a) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(a)
Violation Notes:

Returned to compliance on 07/07/2017. Designated operator form is outdated. Obtain a current form and submit to CERS within 30 days.

Violation Description:

Failure to notify the CUPA of the designated operator (DO) identification and/or change of the DO within 30 days.

Violations

Violation Date: 06/17/2015
Violation Source: CERS
Violation Program: HW
Violation Division: Orange County Environmental Health
Citation: 22 CCR 12 66262.20 - California Code of Regulations, Title 22, Chapter 12, Section(s) 66262.20
Violation Notes:

Returned to compliance on 06/16/2016. Manifests 010500970 and 009665726 from August 2013 and manifests 011944578 and 011944577 from August 2014 incorrectly list the generator's EPA ID# as CAR000101683. Facility will need to send a manifest correction letter to the DTSC. Send a copy of the letter to this agency within 30 days.

Violation Description:

Failure to prepare a hazardous waste manifest for the transport of a hazardous waste for off-site transfer, treatment, storage, or disposal.

Violations

Violation Date: 06/14/2017
Violation Source: CERS
Violation Program: UST
Violation Division: Orange County Environmental Health
Citation: 23 CCR 16 2712(i) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(i)
Violation Notes:

Returned to compliance on 01/18/2018. Monitoring plan on site is outdated and contains incorrect information. Obtain a current corrected monitoring plan and maintain on site within 30 days.

Violation Description:

Failure to have a UST Monitoring Plan available on site.

Violations

Violation Date: 06/20/2018
Violation Source: CERS
Violation Program: UST
Violation Division: Orange County Environmental Health
Citation: HSC 6.75 25299.30-25299.34 - California Health and Safety Code, Chapter 6.75, Section(s) 25299.30-25299.34
Violation Notes:

Returned to compliance on 08/28/2018. CFR - Certification has expired. Submit current financial responsibility to CERS within 30 days and maintain a copy on site.

Violation Description:

Failure to submit and maintain complete and current Certification of Financial Responsibility or other mechanism of financial assurance.

Violations

Violation Date: 06/14/2017
Violation Source: CERS
Violation Program: UST
Violation Division: Orange County Environmental Health
Citation: 23 CCR 16 2636(f)(2) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(2)
Violation Notes:

Returned to compliance on 07/18/2017. 87 & 91 product leak detectors failed testing.

Violation Description:

Failure of the line leak detector (LLD) monitoring pressurized piping to meet one or more of the following requirements:Monitor at least hourly.Be capable of detecting a release of 3.0 gallons per hour at 10 p.s.i.g.
Restrict or shut off the flow of product through the piping when a leak is detected.

Violations

Violation Date:	06/19/2018	***Violation Source:***	CERS
Violation Program:	HMRRP	***Violation Division:***	Orange County Environmental Health

Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Notes:

Returned to compliance on 08/28/2018. Corrections are needed to the site map: SITE MAP Make the following corrections to your map: - indicate liquid C02 is stored outside on the east side of the building - remove the "storage" indicated on the map next to the underground storage tanks (no structure present) - remove the "incinerator" indicated on the map to the east of the building (not present) - relocate the restrooms and remove the office, the restroom is located in the space indicated by the office and the office is located downstairs Submit corrections to CERS within 30 days.

Violation Description:

Failure to complete and electronically submit a site map with all required content.

Violations

Violation Date:	06/21/2019	***Violation Source:***	CERS
Violation Program:	UST	***Violation Division:***	Orange County Environmental Health

Citation: 23 CCR 16 2712(i) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(i)
Violation Notes:

Monitoring plan was not on site at the time of the inspection and facility personnel do not have access to CERS. Obtain a copy of the monitoring plan and maintain on site. A follow up inspection will be conducted after 30 days to verify compliance.

Violation Description:

Failure to have current UST Monitoring Plan available on site.

Violations

Violation Date:	06/20/2018	***Violation Source:***	CERS
Violation Program:	UST	***Violation Division:***	Orange County Environmental Health

Citation: 23 CCR 16 2636(f)(2) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(2)
Violation Notes:

Returned to compliance on 08/30/2018. The 91 product leak detector failed initial testing. Immediately repair and re-test this component. If repair requires the installation of a leak detector other than currently installed (not like-for-like), submit plans to this agency for approval prior to the commencement of work. If replacing like-for-like, submit a copy of the repair work order and re-test report to this Agency for review within 30 days.

Violation Description:

Failure of the functional line leak detector (LLD) monitoring pressurized piping to meet one or more of the following requirements: Monitored at least hourly with the capability of detecting a release of 3.0 gallons per hour leak at 10 p.s.i.g. and restrict or shut off the flow of product through the piping when a leak is detected.

Violations

Violation Date:	05/18/2015	***Violation Source:***	CERS
Violation Program:	UST	***Violation Division:***	Orange County Environmental Health

Citation: HSC 6.7 25286(a) - California Health and Safety Code, Chapter 6.7, Section(s) 25286(a)
Violation Notes:

**Note: Many records provided by the department have a truncated [Violation Notes] field.

Violation Description:

Failure to submit an complete and accurate application for a permit to operate an underground storage tank, or for renewal of the permit.

Violations

Violation Date: 06/16/2016
Violation Source: CERS
Violation Program: UST
Violation Division: Orange County Environmental Health
Citation: 23 CCR 16 2712(i) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(i)
Violation Notes:

Returned to compliance on 06/30/2016. Monitoring plan was not on site. Obtain a copy and contact this agency within 30 days to conduct a follow up inspection.

Violation Description:

Failure to have a UST Monitoring Plan available on site.

Enforcements

Enf Action Date: 08/03/2018
Enf Action Program: UNSPEC
Enf Action Type: Notice of Violation (Unified Program)
Enf Action Source: CERS
Enf Action Division: Orange County Environmental Health
Enf Action Description: Notice of Violation Issued by the Inspector at the Time of Inspection
Enf Action Notes:

Evaluations

Eval Date: 06/21/2019
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

On site for a routine hazardous materials inspection. Facility has disclosed 2 chemicals. There were no other materials on site meeting minimum disclosure thresholds. Site map was reviewed and appears to be accurate.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/18/2015
Violations Found: Yes
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

INSPECTOR COMMENTS Certificate of Financial Responsibility expired in January. Submit updated forms within 30 days.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 09/14/2017
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Reviewed and declined UST submittal. The following corrections are still needed: TANK FACILITY OPERATING PERMIT FORM -Tank Owner Type - select something other than State Agency - this is a privately owned tank TANK PAGES - BOTH -Date of Installation - remove Apr 2012 & restore previously reported date (7/21/2000) UST SITE MONITORNG MAP - add piping runs, sensor model information, leak detector model information & location of monitoring panel to your map. ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/13/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Eval Date: 06/14/2017
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

On site for a routine hazardous waste inspection. Observed facility and inspected hazardous waste storage areas. Aly Flores consented to this inspection. Gas station generates the following hazardous wastes: oil contaminated solids and oil contaminated liquids. Containers of hazardous waste were stored closed and properly labeled. Containers appeared to be in good condition. Manifests were available for review. Emergency information is available. Inspected perimeter of facility and dumpster area. ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 08/28/2018
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Reviewed and accepted UST electronic submittal. All corrections have been made. Violations I582 and I583 are abated. Violation I198 for failed leak detectors remains outstanding.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 09/21/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

On site with Claribel to assist with CERS corrections.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 09/21/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

On site with Claribel to assist with CERS UST corrections.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 10/08/2015
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

NOV issued for operating without a permit, due to non-compliance. NOV mailed October 1, 2015.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 04/06/2015
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Monitor cert notification; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/17/2015
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

On site for routine underground storage tank inspection, monitoring system certification, and spill bucket testing. The facility has two double walled tanks monitored by a Veeder Root system. Monitor is operational for audible and visual alarms. The panel reads "all functions normal." Positive shutdown and fail safe programming were verified. All sump and UDC sensors were found to be located at the lowest point of each sump/UDC. All sumps and UDCs appeared to be dry. Fail-safe system functioned properly. Fail-safe system was tested by cutting power to the Veeder Root control panel. Turbine engines shut down when the power was removed. ATGs and an external alarm were installed for overfill protection. ATGs were set to 90% and the external alarm sounded for more than 30 seconds. Spill buckets were visually tested for 30 minutes. At the end of the test period, no indication of leakage was observed. Leak detectors passed testing. Certification stickers were attached to [Truncated]; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/18/2015
Violations Found: Yes
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Inspector Comments: Orange County Environmental Health as the Certified Unified Program Agency (OC CUPA) is the administrating agency for the Hazardous Materials Disclosure and Business Emergency Plan programs (HMD/BEP) previously administered by the Orange County Fire Authority. During the months of August and December of 2013, the OC CUPA sent out letters to regulated businesses requesting them to electronically submit their HMD/BEP forms. Electronic submission of these forms is a legal requirement. Failure to submit HMD/BEP forms is in violation of the California Health & Safety Code Chapter 6.95. According to our records there is no electronic submission for this facility. Please go to www.esubmit.ocgov.com to request a username and password and submit the following HMD/BEP forms within the next 30 days: - Business Activities form - Owner/Operator Identification form - Hazardous Material Chemical Inventory forms - Facility Site Map - Business [Truncated]; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/10/2015
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Monitor cert notification; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/14/2017
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection

Eval Type: Routine done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

On site for routine underground storage tank inspection, monitoring system certification, and spill bucket testing. Tester certifications were verified. The facility has two double walled tanks monitored by a Veeder Root system. Monitor is operational for audible and visual alarms. The panel reads "all functions normal." Positive shutdown and fail safe programming were verified. All sump and UDC sensors were found to be located at the lowest point of each sump/UDC. All sumps and UDCs appeared to be dry. The following components did not pass testing: -91 product tank annular sensor, fill & turbine sump sensors and UDC sensors -87 & 97 leak detectors -fail-safe Make all necessary repairs including the submittal of plans if required and retest these components. Send a copy of the passing test results to this Agency within 30 days. ATGs and an external alarm were installed for overfill protection. ATGs were set to 90% and the external alarm sounded for more than [Truncated]; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 04/16/2015
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Received cancellation notification for monitor certification scheduled for 6/18/15.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 09/22/2017
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Reviewed and declined HMBEP submittal. The following corrections are needed: SITE MAP The site map that you previously submitted was accepted. The map that you now have submitted does not contain the required information. Add the following information to your site map: Site orientation, loading areas, internal roads, adjacent streets, storm drains and sewers, access and exit points, emergency shut-offs (natural gas, water and electrical), evacuation staging areas, hazardous material storage areas, and emergency response equipment. ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 12/07/2015
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Reviewed UST submittal on CERS. Package was declined and an email sent to the facility contact. The following corrections are still needed: UST Monitoring Site Plan - The document that you have submitted is the monitoring plan and not a monitoring Site plan. Submit a site plan which includes tanks, sumps piping, UDCs, monitoring equipment with model numbers and leak detectors. Tank 1 Tank Page - Tank Construction - facility does not have Audible/Visual alarms - flapper valves are used; Piping Construction = Double-walled; Vent Primary Containment = Fiberglass; Vapor Recovery Primary Containment = Fiberglass; Riser Pipe Primary Containment = Steel; Riser Pipe Secondary Containment = Fiberglass; Striker Plat/Bottom Protector = Yes; Containment Sump = Yes Monitoring Plan - Annular Space - you list annular space as liquid filled however the sensor model you have indicated is for a dry interstitial space - either change sensor model or secondary containment system type; [Truncated]; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 09/27/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST

Eval Source: CERS
Eval Notes:

Reviewed UST forms. Package was declined. Claribel was notified via email of the corrections needed to the UST submittals. Facility has been given 15 days to submit corrected documents. the following corrections are needed: -UST Monitoring Site Plan - Submit a map and not the monitoring plan word document. Submit a site map which includes tanks, sumps piping, UDCs, monitoring equipment with model numbers and leak detectors. -Leak Response Plan - complete section "V Monitoring Indicators" - check the boxes that apply and upload the new version -Add the CFO Letter to your submittal. This facility is still operating without a permit. Please upload the correct documents and submit within 15 days. This Agency will move forward with enforcement activities if these corrections are not made within 15 days. ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 08/23/2018
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

On site to conduct follow up activities and assist business with corrections to their CERS submittal. Please be aware, this Agency will begin to charge this business at the rate of $116/hr or part thereof for further reinspection activities conducted to determine compliance or assist with compliance with existing violations.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 09/15/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Reviewed updated UST forms on CERS. PAckage was declined and an email sent to the facility owner. The following corrections are needed: UST Monitoring Site Plan - The document that you have submitted is the monitoring plan and not a monitoring Site plan. Submit a site map which includes tanks, sumps piping, UDCs, monitoring equipment with model numbers and leak detectors. Tank 1 Tank Page - Tank Construction - indicate that tank uses a flapper valve Tank 2 Tank Page - Tank Construction - indicate that tank uses a flapper valve; Containment Sump = Yes Tank 2 Monitoring Plan - electronic Line Leak Detector Performs 0.3 gph Leak Test = Yes and complete this section; List the UDC Leak Sensor Manufacturer (not 208); UDC Leak Sensor Model = 208; UDC Construction = Single-walled; Secondary Containment Testing = Yes Response Plan - complete section "V Monitoring Indicators" CFR - submittal is missing the CFO Letter, attach the letter ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 10/12/2017
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Reviewed and accepted HMBEP submittal. All corrections have been made.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 10/29/2015
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Email sent to facility contacts regarding noncompliance with HMBEP electronic reporting requirements. Facility notified to submit documents as soon as possible to avoid further enforcement action.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/16/2016

Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

On site for a follow up hazardous materials and business emergency plan inspection. The following hazardous materials were observed on site: gasoline and CO2. Facility was sent notification on 12/22/2015 that the electronic disclosure was being declined and corrections were needed. To date, there have been no corrections to the submittal. Submit a corrected HMBEP within 30 days. Violations I292 and !169 remain outstanding.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/08/2017
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Monitor cert notification for 6-15; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/13/2017
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Eval Date: 07/07/2017
Violations Found: Yes
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Reviewed and declined the UST CERS submittal. The following corrections are needed: UST TANK PAGES - there are only 2 tanks at this location - remove the tank that you have added since your last submittal. TANK FACILITY OPERATING PERMIT FORM - please verify your BOE number. The number you have listed is different from the previously recorded number....Tank Owner Type - select something other than State Agency - this is a privately owned tank...Financial Responsibility Mechanism= State Fund & CFO Letter & remove Self-Insured TANK PAGES - BOTH -Date of Installation - remove Apr 2012 & restore previously reported date//Product Piping Construction = Double-walled//Complete Vent, Vap Recovery, Fill Pipe section TANK MONITORING PLAN - BOTH -Tank Secondary Containment = Dry//ELLD Shutdown - change to YES for both automatic & disconnect triggers shutdown//UDC Monitoring - change UDC Monitoring Stops Flow of Product at Dispenser to NO//Recordkeeping - check YES for Equipment [Truncated]; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 07/08/2015
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Reviewed UST submittal on CERS. Facility has provided updated CFR. Violation I583 is abated. All other forms were declined and an email sent to the facility contact. The following corrections are still needed: UST Monitoring Site Plan - The document that you have submitted is the monitoring plan and not a monitoring Site plan. Submit a site plan which includes tanks, sumps piping, UDCs, monitoring equipment with model numbers and leak detectors. Tank 1 Tank Page - Tank Construction - facility does not have Audible/Visual alarms - flapper valves are used; Piping Construction = Double-walled; Vent Primary Containment = Fiberglass; Vapor Recovery Primary Containment = Fiberglass; Riser Pipe Primary Containment = Steel; Riser Pipe Secondary Containment = Fiberglass; Striker Plat/Bottom Protector = Yes; Containment Sump = Yes Monitoring Plan - Annular Space - you list annular space as liquid filled however the sensor model you have indicated is for a dry interstitial [Truncated]; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 09/28/2015
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

NOV issued for failure to comply with hazardous materials reporting requirements.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 09/28/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Reviewed UST forms on CERS. Package was declined and an email sent to the facility contact. The following correction is still needed: UST Monitoring Site Plan - Submit a site map and not the monitoring plan word document. Submit a site map which includes tanks, sumps piping, UDCs, monitoring equipment with model numbers and leak detectors. Response Plan - complete section "V Monitoring Indicators" - check the boxes that apply ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 10/05/2015
Violations Found: Yes
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Violation issued for operating without a permit.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 10/28/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Reviewed UST submittal. Package was declined. The following corrections are needed: Monitoring Plan Site Map - Submit a site map which includes tanks, sumps, piping, UDCs, monitoring equipment with model numbers and leak detectors. Response Plan - complete section "V Monitoring Indicators" - check the boxes that apply ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 07/23/2018
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Reviewed file for outstanding violations and compliance. Request for NOV sent to enforcement group.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date:	06/30/2016
Violations Found:	No
Eval General Type:	Other/Unknown
Eval Type:	Other, not routine, done by local agency
Eval Division:	Orange County Environmental Health
Eval Program:	UST
Eval Source:	CERS
Eval Notes:	

On site to conduct a follow up inspection. Inspection was conducted with Manuel. Monitoring plan and leak response plan are on site. Violations I421 and I673 are abated. ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date:	08/23/2018
Violations Found:	No
Eval General Type:	Other/Unknown
Eval Type:	Other, not routine, done by local agency
Eval Division:	Orange County Environmental Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval Notes:	

On site to conduct follow up activities and assist business with corrections to their CERS submittal. Please be aware, this Agency will begin to charge this business at the rate of $116/hr or part thereof for further reinspection activities conducted to determine compliance or assist with compliance with existing violations.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date:	12/19/2015
Violations Found:	No
Eval General Type:	Other/Unknown
Eval Type:	Other, not routine, done by local agency
Eval Division:	Orange County Environmental Health
Eval Program:	UST
Eval Source:	CERS
Eval Notes:	

Reviewed UST forms on CERS. Package was declined and an email sent to the facility contact. The following corrections are still needed: UST Monitoring Site Plan - The document that you have submitted is the monitoring plan and not a monitoring Site plan. Submit a site plan which includes tanks, sumps piping, UDCs, monitoring equipment with model numbers and leak detectors. Tank 1 Tank Page - Tank Construction - facility does not have Audible/Visual alarms - flapper valves are used; Piping Construction = Double-walled; Vent Primary Containment = Fiberglass; Riser Pipe Primary Containment = Steel; Riser Pipe Secondary Containment = Fiberglass Monitoring Plan - Annular Space is not liquid filled it is dry Tank 2 Tank Page - Tank Construction - facility does not have Audible/Visual alarms - flapper valves are used; Piping Construction = Double-walled; Containment Sump = Yes Monitoring Plan - Annular Space is not liquid filled it is dry; electronic Line Leak Detector [Truncated]; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date:	06/19/2018
Violations Found:	Yes
Eval General Type:	Compliance Evaluation Inspection
Eval Type:	Routine done by local agency
Eval Division:	Orange County Environmental Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval Notes:	

CERS submittal status is being changed to Not Accepted following on site inspection. The following corrections are needed: CHEMICAL INVENTORY Remove the C02 gas - this material is not stored on site above the minimum reporting threshold of 1,000cf. SITE MAP Make the following corrections to your map: - indicate liquid C02 is stored outside on the east side of the building - remove the "storage" indicated on the map next to the underground storage tanks (no structure present) - remove the "incinerator" indicated on the map to the east of the building (not present) - relocate the restrooms and remove the office, the restroom is located in the space indicated by the office and the office is located downstairs. Ensure site map accurately reflects all entrances and exits/doorways. Please indicate the presence of a basement and include the layout on your map.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date:	05/13/2016
Violations Found:	No
Eval General Type:	Other/Unknown
Eval Type:	Other, not routine, done by local agency
Eval Division:	Orange County Environmental Health

Eval Program: UST
Eval Source: CERS
Eval Notes:

Received and reviewed secondary containment testing report dated 3/21/16. The following components were tested and passed: tank annular - 87 & 91 products product piping - 87 & 91 turbine sumps - 87 & 91 full sumps - 87 & 91 UDCs - 6; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 07/22/2015
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Facility's HMBEP package was declined and an email sent to the facility contact on 5/18/15. Violations I169 and I292 remain outstanding. Facility is required to submit an updated HMBEP within 30 days of review. Submit accurate HMBEP documents within 30 days. ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/18/2015
Violations Found: Yes
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Reviewed UST submission package on CERS. Package was DECLINED. The following corrrections are needed: BUSINESS ACTIVITIES Check the box for Hazardous Materials and complete the hazardous materials and business emergency plan sections. Correct your EPA ID number - the correct number is CAL000373547 UST UST Facility form - under Financial Responsibility form - uncheck the box for self-insurance and check the box for State Fund and CFO Letter. Certificate of Financial Responsibility and Letter from Chief Financial Officer - these documents are expired; submit updated documents UST Monitoring Site Plan - submit a site plot plan and not a monitoring plan Tank 1 Tank Page - Piping Construction = Double-walled; Vent Primary Containment = Fiberglass; Vapor Recovery Primary Containment = Fiberglass; Riser Pipe Primary Containment = Steel; Riser Pipe Secondary Containment = Fiberglass; Striker Plat/Bottom Protector = Yes; Containment Sump = Yes Monitoring Plan - [Truncated]; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/16/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

On site for a follow-up hazardous waste inspection. A copy of the manifest correction letter was on site. Violation I475 is abated.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/17/2015
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

On site for a routine hazardous waste inspection. Observed facility and inspected hazardous waste storage areas. Gas station generates the following hazardous wastes: oil contaminated solids and oil contaminated liquids. Containers of hazardous waste were stored closed and properly labeled. Containers appeared to be in good condition. Manifests were available for review. Facility is currently assigned and using active EPA ID Number CAL000373547. Manifests 010500970 and 009665726 from August 2013 and manifests 011944578 and 011944577 from August 2014 incorrectly list the generator's EPA ID# as CAR000101683 (see violation). The EPA ID# assigned to this facility and utilized on manifests dated 8/12/14 correctly list this number. Facility will need to send a manifest correction letter to the DTSC. Send a copy of the correction letter to this Agency within 30 days.

Emergency information is available. Inspected perimeter of facility and dumpster area. ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 12/07/2015
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Reviewed HMBEP submittal on CERS. Package was declined and an email sent to the facility contact. The following corrections are still needed: CONTINGENCY PLAN The telephone number listed for the Local Unified Program Agency is incorrect - change to 714)433-6000 Your plan does not address the following elements: procedures for the mitigation of a release and training plan. Facility is required to provide annual training which is reasonable and appropriate for the size of the business and the nature of the hazardous materials handled. Training must include the following elements: immediate notification to the administering agency (Orange County Healthcare Agency), procedures for the mitigation of a release and evacuation plans and procedures. Your response must include information regarding frequency of training (i.e. upon hire and annually thereafter). BUSINESS ACTIVITIES You have indicated that your facility consolidates hazardous waste at a remote site. This is [Truncated]; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 09/27/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Reviewed HMBEP submittal. Package was declined and an email sent to Claribel. The following corrections are needed: CONTINGENCY PLAN The telephone number listed for the Local Unified Program Agency is incorrect - change to 714)433-6000 ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/16/2016
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

On site for routine underground storage tank inspection, monitoring system certification, and spill bucket testing. The facility has two double walled tanks monitored by a Veeder Root system. Monitor is operational for audible and visual alarms. The panel reads "all functions normal." Positive shutdown and fail safe programming were verified. All sump and UDC sensors were found to be located at the lowest point of each sump/UDC. All sumps and UDCs appeared to be dry. Fail-safe system functioned properly. Fail-safe system was tested by cutting power to the Veeder Root control panel. Turbine engines shut down when the power was removed. ATGs and an external alarm were installed for overfill protection. ATGs were set to 90% and the external alarm sounded for more than 30 seconds. Spill buckets were visually tested for 30 minutes. At the end of the test period, no indication of leakage was observed. Leak detectors were tested after the inspector left. Certification [Truncated]; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 01/19/2018
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Reviewed and declined UST submittal. The following corrections are still needed: TANK FACILITY OPERATING PERMIT FORM - Tank Owner Type is not STATE AGENCY - this is a privately owned tank. UST SITE MONITORING MAP - add piping locations to your map.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/21/2019

Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

On site for a routine inspection. Certifications for Dave Lopez Jr were reviewed. CERS submittal dated 5/10/19 was verified. Secondary containment testing was last conducted on 3/29/19. Overfill inspection was last conducted on 3/29/19. While on site it was noted that DO reports for the months of December 2018, February 2019 and April - June 2019 were not signed. Reports for November 2018, January 2019 and March 2019 were signed by staff on site. Ongoing compliance issues listed on the reports were not addressed. Ensure DO reports are signed by the owner/operator and that compliance issues noted on the reports are addressed. A follow up site visit will be conducted in 60 days to determine compliance.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/29/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Received and reviewed monitoring system, leak detector and spill bucket test reports dated 6/16/2016. All components passed testing.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/17/2015
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

On site for a follow up hazardous materials and business emergency plan inspection. The following hazardous materials were observed on site: gasoline and CO2. Facility was sent notification on 5/18/2015 that it was out of compliance with mandatory Hazardous Materials Disclosure and Business Emergency Plan (HMD/BEP) program requirement for electronic submittal. Electronic submittal of these forms is a legal requirement. Failure to submit HMD/BEP forms is in violation of the California Health & Safety code Chapter 6.95 and may result in the issuance of a Notice of Violation and/or an Administrative Enforcement Order. This business was required to submit electronic forms by June 16, 2015. According to our records, there is no electronic submission for this facility. Submit required forms within 15 days of this inspection to avoid further enforcement action. ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/19/2018
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

There was no hazardous waste stored on site at the time of inspection.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 08/28/2018
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Reviewed and accepted HMBEP submittal. All corrections have been made. Facility has disclosed 2 chemicals. Violations I169 and I632 are abated.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/22/2015
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Change UST status to not get a permit, per Wales.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 07/06/2017
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Received and reviewed monitoring system, leak detector and spill bucket test reports dated 6/14/17. The following components failed testing: - 91 product - all sensors (annular, turbine, fill and UDCs) - leak detectors - both 87 and 91 Facility has scheduled re-testing of these components for 7/13/17.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 09/22/2017
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Reviewed and declined UST submittal. The following corrections are still needed: TANK FACILITY OPERATING PERMIT FORM -Tank Owner Type is not FEDERAL AGENCY - this is a privately owned tank UST SITE MONITORNG MAP - add piping runs, sensor model information, leak detector model information & location of monitoring panel to your map. The map that you have submitted is a hazardous materials site map and not a UST monitoring plan site map. ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 09/28/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Reviewed HMBEP submittal. Facility has disclosed 3 chemicals. All forms were accepted.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/14/2017
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Orange County Environmental Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

On site for a routine hazardous materials and business emergency plan inspection. The following hazardous materials were observed on site: gasoline and CO2 (liquid and gas). There were no other materials observed on site meeting disclosure thresholds. Site map was reviewed and appears to be accurate. Reviewed HMBEP training documents. ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date:	08/30/2018
Violations Found:	No
Eval General Type:	Other/Unknown
Eval Type:	Other, not routine, done by local agency
Eval Division:	Orange County Environmental Health
Eval Program:	UST
Eval Source:	CERS
Eval Notes:	

Received test report dated 8/24/18 for the retest of the 91 leak detector. Leak detector was replaced and passed testing. Violation I198 is abated.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date:	07/23/2018
Violations Found:	No
Eval General Type:	Other/Unknown
Eval Type:	Other, not routine, done by local agency
Eval Division:	Orange County Environmental Health
Eval Program:	UST
Eval Source:	CERS
Eval Notes:	

Reviewed file for outstanding violations and compliance. Request for NOV sent to enforcement group.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date:	08/17/2016
Violations Found:	No
Eval General Type:	Other/Unknown
Eval Type:	Other, not routine, done by local agency
Eval Division:	Orange County Environmental Health
Eval Program:	HW
Eval Source:	CERS
Eval Notes:	

Reviewed complaint details. An on site inspection conducted on 6/17/15 indicated that there was no hazardous waste in the dumpsters. Manifests for hazardous waste disposal were on site. Complaint will be closed.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date:	07/16/2018
Violations Found:	No
Eval General Type:	Other/Unknown
Eval Type:	Other, not routine, done by local agency
Eval Division:	Orange County Environmental Health
Eval Program:	UST
Eval Source:	CERS
Eval Notes:	

Received and reviewed monitoring system, leak detector and spill bucket test reports dated 6/20/18. The 91 leak detector failed testing. All other components passed testing.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date:	08/31/2016
Violations Found:	No
Eval General Type:	Other/Unknown
Eval Type:	Other, not routine, done by local agency
Eval Division:	Orange County Environmental Health
Eval Program:	UST
Eval Source:	CERS
Eval Notes:	

This facility was issued a violation for operating without a permit on 10/5/2015 due to noncompliance with electronic reporting requirements and expired certification of financial responsibility. To date, there has been no corrections made to the documents submitted to CERS, no current certification of financial responsibility submitted to CERS and facility continues to operate without a permit. Facility previously received a Notice of Violation for failure to comply with underground storage tank regulations. Make necessary corrections to the CERS forms and submit a current certificate of financial responsibility to CERS within 30 days to avoid further enforcement action by this Agency. ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date:	06/16/2015

Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Eval Date: 06/18/2018
Violations Found: Yes
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Facility is out of compliance with annual monitoring system certification requirement. All monitoring equipment and spill buckets must be tested annually. This violation will be abated when testing has been conducted. Testing has bee scheduled for 6/19/18. Ensure a copy of the monitoring system certification and spill bucket test reports are sent to this Agency within 30 days of testing.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 07/18/2017
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Received and reviewed monitoring system re-test reports dated 7/13/17. The following components were tested and passed: Leak detectors - 87 & 91 Failsafe and sensor out - 91 tank Violations I198, I801, I195 and I504 are abated.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 08/03/2018
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

NOV: Review NOV File and Letter. Ready for sending.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 08/16/2018
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

NOV: CERTIFIED MAIL RECEIPT RETURNED. NOV SIGNED FOR ON 8/8/18. DEADLINE FOR COMPLIANCE 9/10/18; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 09/05/2017
Violations Found: Yes
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS

Eval Notes:

Facility was previously notified that it would not be receiving a permit to operate due to outstanding violations. Violations I582 (failure to submit accurate electronic facility permit forms) and I421 (failure to maintain an accurate monitoring response plan) remain outstanding. Facility was directed to submit corrected information electronically to CERS. To date, there have been no corrections submitted. The UST permit to operate was not renewed by this Agency on July 1, 2017 due to noncompliance with UST laws and regulations. The facility owner and operator are currently operating the UST(s) without a permit (see violation). Please correct all violations listed on this report immediately. A permit will be issued when the site is in compliance and has paid all applicable UST fees. Immediately correct the outstanding violations in order to receive an operating permit. Failure to comply with the provisions of the underground storage tank laws and regulations may [Truncated]; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/19/2018
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

The facility has two double-walled tanks monitored by a Veeder Root TLS-350 system. The site has double-walled pressurized piping with electronic line leak detectors. Positive shutdown and fail safe programming were verified. ATGs are used for overfill prevention. SB989 testing was last conducted on 3/21/16. Tester certifications for Jimmy Quintanilla were verified. CERS review was conducted and corrections were noted on 1/19/18. Facility was given 30 days to make needed corrections and resubmit. To date, there has been no corrections made to CERS data. The following corrections are still needed: CFR - Certification has expired. Submit current financial responsibility. TANK FACILITY OPERATING PERMIT FORM - Tank Owner Type is not STATE AGENCY - this is a privately owned tank. MONITORING PLAN - both tanks - under the pipe monitoring section, change panel model# to TLS350 and leak sensor manufacturer to Veeder Root UST SITE MONITORING MAP - add piping locations to [Truncated]; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 01/11/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Reviewed electronic submission of UST forms on CERS. Package was declined and an email sent to the facility contact. The following corrections are still needed: UST Monitoring Site Plan - The document that you have submitted is the monitoring plan and not a monitoring Site plan. Submit a site plan which includes tanks, sumps piping, UDCs, monitoring equipment with model numbers and leak detectors. Tank 1 Tank Page - Tank Construction - indicate that tank uses a flapper valve Tank 2 Tank Page - Tank Construction - indicate that tank uses a flapper valve; Containment Sump = Yes Monitoring Plan - Annular Space is not liquid filled it is dry; electronic Line Leak Detector Performs 0.3 gph Leak Test = Yes and complete this section; List the UDC Leak Sensor Manufacturer (not 208); UDC Leak Sensor Model = 208; UDC Construction = Single-walled; Secondary Containment Testing = Yes ; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 01/18/2018
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

On site to conduct a follow up inspection. Inspection was conducted with Aly Flores. Monitoring plan has been added to the UST binder. Violation I421 is abated.; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 03/09/2016
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

SB 989 test notification; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/15/2017
Violations Found: No
Eval General Type: Other/Unknown
Eval Type: Other, not routine, done by local agency
Eval Division: Orange County Environmental Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

CERS submittal declined again and comments left regarding inaccuracies on the monitoring plan and tank forms.; Note: data in [EVAL Notes] field for some records is truncated from the source.

<u>Affiliations</u>

Affil Type Desc: Document Preparer
Entity Name: Martin Vallejo
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone:

Affil Type Desc: Identification Signer
Entity Name: martin vallejo
Entity Title: president
Address:
City:
State:
Country:
Zip Code:
Phone:

Affil Type Desc: UST Property Owner Name
Entity Name: MARTIN VALLEJO
Entity Title:
Address: 13411 imperial hwy
City: WHITTIER
State: CA
Country: United States
Zip Code: 90605
Phone: (562) 755-3071

Affil Type Desc: UST Tank Owner
Entity Name: Martin vallejo
Entity Title:
Address: 102 E YORBALINDA BLVD
City: PLACENTIA
State: CA
Country: United States
Zip Code: 92870
Phone: (562) 755-3071

Affil Type Desc: Legal Owner
Entity Name: Martin vallejo
Entity Title:
Address: 102 E YORBA LINDA BLVD
City: PLACENTIA
State: CA
Country: United States
Zip Code: 92870
Phone: (562) 755-3071

Affil Type Desc:	Property Owner
Entity Name:	Rjm Vallejo mini mart
Entity Title:	
Address:	102 E YORBA LINDA BLVD
City:	PLACENTIA
State:	CA
Country:	United States
Zip Code:	92870
Phone:	(562) 755-3071

Affil Type Desc:	Regional Board Caseworker
Entity Name:	VALERIE JAHN-BULL - SANTA ANA RWQCB (REGION 8)
Entity Title:	
Address:	3737 MAIN STREET, SUITE 500
City:	RIVERSIDE
State:	CA
Country:	
Zip Code:	
Phone:	9517824903

Affil Type Desc:	Parent Corporation
Entity Name:	ARCO AMPM #5213
Entity Title:	
Address:	
City:	
State:	
Country:	
Zip Code:	
Phone:	

Affil Type Desc:	Environmental Contact
Entity Name:	Fast & fair environmental
Entity Title:	
Address:	102 E YORBA LINDA BLVD
City:	PLACENTIA
State:	CA
Country:	
Zip Code:	92870
Phone:	

Affil Type Desc:	UST Tank Operator
Entity Name:	Martin vallejo
Entity Title:	
Address:	102 E YORBALINDA BLVD
City:	PLACENTIA
State:	CA
Country:	United States
Zip Code:	92870
Phone:	(562) 755-3071

Affil Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	
Address:	102 E YORBA LINDA BLVD
City:	PLACENTIA
State:	CA
Country:	
Zip Code:	92870
Phone:	

Affil Type Desc:	CUPA District
Entity Name:	Orange County Env Health
Entity Title:	
Address:	1241 East Dyer RoadSuite 120
City:	Santa Ana
State:	CA
Country:	
Zip Code:	92705-5611
Phone:	(714) 433-6000

Affil Type Desc: Operator
Entity Name: RJM VALLEJO MINI MART
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone: (562) 755-3071

Affil Type Desc: Local Agency Caseworker
Entity Name: JULIE WOZENCRAFT - ORANGE COUNTY LOP
Entity Title:
Address: 1241 EAST DYER ROAD SUITE 120
City: SANTA ANA
State: CA
Country:
Zip Code:
Phone: 7144336252

Coordinates

Env Int Type Code:	HWG	**Longitude:**	-117.865550
Program ID:	10512685	**Coord Name:**	
Latitude:	33.887640	**Ref Point Type Desc:**	Center of a facility or station.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
32	2 of 9	WNW	0.25 / 1,312.38	294.88 / -4	RJM VALLEJO MINI-MART, INC 102 E YORBA LINDA BLVD PLACENTIA CA 92870	EMISSIONS

2016 Toxic Data

Facility ID:	174125	**TS:**	
Facility SIC Code:	5541	**HRA:**	
CERR CODE:		**CH Index:**	
COID:	ORA	**AH Index:**	
CO:	30	**Air Basin:**	SC
DISN:	SOUTH COAST AQMD	**District:**	SC
CHAPIS:			

2017 Toxic Data

Facility ID:	174125	**COID:**	ORA
Facility SIC Code:	5541	**DISN:**	SOUTH COAST AQMD
CO:	30	**CHAPIS:**	
Air Basin:	SC	**CERR Code:**	
District:	SC		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
32	3 of 9	WNW	0.25 / 1,312.38	294.88 / -4	PRESTIGE STATION INC 515 102 E YORBA LINDA PLACENTIA CA 92670	HHSS

County:
Pdf File Url: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002e53e.pdf

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
32	4 of 9	WNW	0.25 / 1,312.38	294.88 / -4	PRESTIGE STATIONS INC #515 102 E YORBA LINDA PLACENTIA CA	HIST TANK

Owner Name: ARCO PETROLEUM PRODUCTS CO.
Owner Street: 515 SOUTH FLOWER STREET
Owner City: LOS ANGELES
Owner State: CA
Owner Zip: 90071
No of Containers: 4
County: ORANGE
Facility State: CA
Facility Zip: 92670

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
32	5 of 9	WNW	0.25 / 1,312.38	294.88 / -4	ARCO #6226 102 E YORBA LINDA BLVD PLACENTIA CA 92870	ORANGE LOP

Record ID: RO0001376
Case ID: 95UT018
Case Closed Date: 2/22/2016
Type of Closure: Closure certification issued
Released Substance: Gasoline-Automotive (motor gasoline and additives), leaded & unleaded

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
32	6 of 9	WNW	0.25 / 1,312.38	294.88 / -4	RJM VALLEJO MIN MART INC 102 E YORBA LINDA BLVD PLACENTIA CA 92870	RCRA NON GEN

EPA Handler ID: CAL000373547
Gen Status Universe: No Report
Contact Name: MARTIN VALLEJO
Contact Address: 102 E YORBA LINDA BLVD , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext: 562-755-3071
Contact Email: MJMJVALLEJO@YAHOO.COM
Contact Country:
County Name: ORANGE
EPA Region: 09
Land Type:
Receive Date: 20120411

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: Yes
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20120411
Handler Name: RJM VALLEJO MIN MART INC

Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Other
Name: RJM VALLEJO MINI MART INC
Date Became Current:
Date Ended Current:
Phone: 562-755-3071
Source Type: Implementer
Street No:
Street 1: 13411 IMPERIAL HWY
Street 2:
City: WHITTIER
State: CA
Country:
Zip Code: 90605

Owner/Operator Ind: Current Operator
Type: Other
Name: MARTIN VALLEJO
Date Became Current:
Date Ended Current:
Phone: 562-755-3071
Source Type: Implementer
Street No:
Street 1: 102 E YORBA LINDA BLVD
Street 2:
City: PLACENTIA
State: CA
Country:
Zip Code: 92870

32	7 of 9	WNW	0.25 / 1,312.38	294.88 / -4	ARCO FACILITY NO 06226 102 E YORBA LINDA BLVD PLACENTIA CA 92870	RCRA SQG

EPA Handler ID: CAR000101683
Gen Status Universe: Small Quantity Generator
Contact Name: JACK OMAN
Contact Address: P O BOX 6038 , , ARTESIA , CA, 90702-6038 , US
Contact Phone No and Ext: 714-690-2425
Contact Email:
Contact Country: US
County Name: ORANGE
EPA Region: 09
Land Type: Private
Receive Date: 20020621

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1

Receive Date: 20020621
Handler Name: ARCO FACILITY NO 06226
Generator Status Universe: Small Quantity Generator
Source Type: Notification

Waste Code Details

Hazardous Waste Code: D000
Waste Code Description: DESCRIPTION

Hazardous Waste Code: D001
Waste Code Description: IGNITABLE WASTE

Hazardous Waste Code: D018
Waste Code Description: BENZENE

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Private	***Street 1:***	P O BOX 6038
Name:	B P WEST COAST PRODUCTS LLC	***Street 2:***	
Date Became Current:		***City:***	ARTESIA
Date Ended Current:		***State:***	CA
Phone:	714-690-2425	***Country:***	
Source Type:	Notification	***Zip Code:***	90702-6038

32	***8 of 9***	***WNW***	***0.25 / 1,312.38***	***294.88 / -4***	***Arco #6226 102 East Yorba Linda Boulevard, Placentia, CA 92870 CA 92870***	***UST CLOSURE***

Claim Case No: Case No. 95UT018
ID: 95UT018
Deadline to Recv Comments: 2015/05/15
Prop UST Case Closure Type: Closure of Underground Storage Tank (UST) Cases - Closure Denials and Approved Orders

Documents

Doc Type: Closure Summary
Documents Link: https://www.waterboards.ca.gov/water_issues/programs/ustcf/docs/prop_closure_cases/95ut018_summary.pdf

Doc Type: Draft Order
Documents Link: https://www.waterboards.ca.gov/water_issues/programs/ustcf/docs/prop_closure_cases/95ut018_do.pdf

Doc Type: Notice
Documents Link: https://www.waterboards.ca.gov/water_issues/programs/ustcf/docs/prop_closure_cases/95ut018_%20notice.pdf

Closur Denial Approved Orders

Doc Title: WQO 2015-0092-UST (06/30/2015)
Denial Link: https://www.waterboards.ca.gov/water_issues/programs/ustcf/../../../board_decisions/adopted_orders/water_quality/2015/wqo2015_0092_ust.pdf

Closure Letter Signed

Letter Title: Uniform Closure Letter (2/22/16)
Letter Link: https://www.waterboards.ca.gov/water_issues/programs/ustcf/docs/prop_closure_cases/95ut018_ucl.pdf

32	***9 of 9***	***WNW***	***0.25 / 1,312.38***	***294.88 / -4***	***RJM VALLEJO #3 102 E YORBA LINDA BLVD PLACENTIA CA 92870***	***UST ORANGE CNTY***

Facility ID: FA0061983
SR No:
Notes:
Data Source: Permitted Underground Storage Tank (UST) Facilities Listing

[33]	***1 of 1***	***WNW***	***0.25 / 1,331.70***	***296.30 / -3***	***ARCO #6226 102 YORBA LINDA PLACENTIA CA 92870***	***LUST***

Global ID: T0605901847
Status: COMPLETED - CASE CLOSED
Status Date: 2016-02-22 00:00:00
Case Type: LUST CLEANUP SITE
Date Source: LUST Cleanup Sites from GeoTracker Search; LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download
County: ORANGE
Latitude: 33.8878246
Longitude: -117.865723

<u>LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities Detail</u>

RB Case No: 083002664T
Local Case No: 95UT018
Begin Date: 1994-09-14 00:00:00
Lead Agency: ORANGE COUNTY LOP
Local Agency: ORANGE COUNTY LOP
CUF Case: YES
Potential COC: Gasoline
How Discovered: Tank Tightness Test
Stop Method: Repair Vent/Vapor Recovery Piping
Stop Description:
Case Worker: JW
File Location: Local Agency
Potential Media of Concern: Other Groundwater (uses other than drinking water)
How Discovered Description:
Calwater Watershed Name: San Gabriel River - Anaheim (845.61)
DWR GW Subbasin Name: Coastal Plain Of Orange County (8-001)
Disadvantaged Community:
Site History:

Please refer to recent Site Documents or Monitoring Reports in GeoTracker for site history. Orange County is not responsible for the accuracy of any professional interpretations provided in reports submitted by consultants for the responsible party.

<u>Regulatory Activity</u>

Action Type: ENFORCEMENT
Date : 2016-02-22 00:00:00
Action: Closure/No Further Action Letter

Action Type: ENFORCEMENT
Date : 2016-01-25 00:00:00
Action: Email Correspondence

Action Type: ENFORCEMENT
Date : 2015-06-30 00:00:00
Action: State Water Board ? Closure Order

Action Type: ENFORCEMENT
Date : 2015-03-06 00:00:00
Action: Notification - Public Participation Document

Action Type: ENFORCEMENT
Date : 2013-07-17 00:00:00
Action: Notice of Responsibility

Action Type: ENFORCEMENT
Date : 2012-08-02 00:00:00
Action: Staff Letter

Action Type: ENFORCEMENT
Date : 2012-04-25 00:00:00
Action: Staff Letter

Action Type: ENFORCEMENT
Date : 2011-09-26 00:00:00
Action: Staff Letter

Action Type: ENFORCEMENT
Date : 2011-03-04 00:00:00
Action: Staff Letter

Action Type: ENFORCEMENT
Date : 2010-08-23 00:00:00
Action: Staff Letter

Action Type: ENFORCEMENT
Date : 2009-07-06 00:00:00
Action: Staff Letter

Action Type: ENFORCEMENT
Date : 2008-01-11 00:00:00
Action: Staff Letter

Action Type: REMEDIATION
Date : 2001-01-08 00:00:00
Action: Soil Vapor Extraction (SVE)

Action Type: REMEDIATION
Date : 2001-01-01 00:00:00
Action: Soil Vapor Extraction (SVE)

Action Type: Other
Date : 1995-03-24 00:00:00
Action: Leak Reported

Action Type: Other
Date : 1994-09-14 00:00:00
Action: Leak Discovery

Regulatory Contacts

Contact Type: Local Agency Caseworker
Contact Name: JULIE WOZENCRAFT
City: SANTA ANA
Organization Name: ORANGE COUNTY LOP
Address: 1241 EAST DYER ROAD SUITE 120
Email: jwozencraft@ochca.com
Phone No: 7144336252

Contact Type: Regional Board Caseworker
Contact Name: VALERIE JAHN-BULL
City: RIVERSIDE
Organization Name: SANTA ANA RWQCB (REGION 8)
Address: 3737 MAIN STREET, SUITE 500
Email: valerie.jahn-bull@waterboards.ca.gov
Phone No: 9517824903

Status History

Status: Completed - Case Closed
Status Date: 2016-02-22 00:00:00

Status: Open - Eligible for Closure
Status Date: 2013-05-15 00:00:00

Status: Open - Verification Monitoring
Status Date: 2006-11-16 00:00:00

Status: Open - Remediation
Status Date: 2003-12-03 00:00:00

Status: Open - Site Assessment
Status Date: 2003-03-15 00:00:00

Status: Open - Case Begin Date

Status Date: 1994-09-14 00:00:00

LUST Sites from GeoTracker Search - Regulatory Profile(as of Oct 31, 2019)

Site Facility Name: ARCO #6226
Site Facility Type: LUST CLEANUP SITE
Cleanup Status: COMPLETED - CASE CLOSED
Project Status:
WDR Place Type:
WDR File:
WDR Order:
CUF Priority Assig: D
CUF Amount Paid:

Potential COC: GASOLINE
Facility Type:
Composting Method:
Address: 102 YORBA LINDA
City: PLACENTIA
Zip: 92870
County: ORANGE
CUF Claim: 15299

File Location: LOCAL AGENCY
Designated Beneficial Use: MUN, AGR, IND, PROC
Project Oversight Agencies:
Report Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=T0605901847
Cleanup Status Detail: COMPLETED - CASE CLOSED AS OF 2/22/2016
Cleanup History Link: https://geotracker.waterboards.ca.gov/profile_report_include?global_id=T0605901847&tabname=regulatoryhistory
Potential Media of Concern: OTHER GROUNDWATER (USES OTHER THAN DRINKING WATER)
User Defined Beneficial Use:
DWR GW Sub Basin: Coastal Plain Of Orange County (8-001)
Calwater Watershed Name: San Gabriel River - Anaheim (845.61)
Post Closure Site Management:
Future Land Use:
Cleanup Oversight Agencies: ORANGE COUNTY LOP (LEAD) - CASE #: 95UT018
CASEWORKER: JULIE WOZENCRAFT
SANTA ANA RWQCB (REGION 8) - CASE #: 083002664T
CASEWORKER: VALERIE JAHN-BULL
Gndwater Monitoring Freque: # OF WELLS MONITORED - SEMI-ANNUALLY : 21
Site History:

Please refer to recent Site Documents or Monitoring Reports in GeoTracker for site history. Orange County is not responsible for the accuracy of any professional interpretations provided in reports submitted by consultants for the responsible party.

LUST Sites from GeoTracker Search - Cleanup Status History(as of Oct 31, 2019)

Status: Completed - Case Closed
Date : 2/22/2016

Status: Open - Eligible for Closure
Date : 5/15/2013

Status: Open - Verification Monitoring
Date : 11/16/2006

Status: Open - Remediation
Date : 12/3/2003

Status: Open - Site Assessment
Date : 3/15/2003

Status: Open - Case Begin Date
Date : 9/14/1994

LUST Sites from GeoTracker Search - Cleanup Action Report (as of Oct 31, 2019)

Action Type: SOIL VAPOR EXTRACTION (SVE)
Phase:
Begin Date: 1/8/2001
End Date: 7/12/2006
Contaminant Mass Removed:
Description:

Action Type: SOIL VAPOR EXTRACTION (SVE)
Phase: Soil
Begin Date: 1/1/2001
End Date: 7/1/2006
Contaminant Mass Removed: 163,339 Pounds

LUST Sites from GeoTracker Search - Regulatory Activities(as of Oct 31, 2019)

Action Type: Other Regulatory Actions
Action Date: 2/22/2016
Received Issue Date: 2/22/2016
Action: Closure/No Further Action Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6276511&temptable=ENFORCEMENT
Title Description Comments:

State Water Board - Uniform Closure Letter

Action Type: Other Regulatory Actions
Action Date: 1/25/2016
Received Issue Date: 1/25/2016
Action: Email Correspondence
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6273785&temptable=ENFORCEMENT
Title Description Comments:

Agency notice to State Water Board Well and Wastes removed

Action Type: Other Regulatory Actions
Action Date: 6/30/2015
Received Issue Date: 6/30/2015
Action: State Water Board - Closure Order
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6252898&temptable=ENFORCEMENT
Title Description Comments:

State Water Board - Closure Order

Action Type: Notices
Action Date: 3/6/2015
Received Issue Date: 3/6/2015
Action: Notification - Public Participation Document
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6237997&temptable=ENFORCEMENT
Title Description Comments:

Notification

Action Type: Notices
Action Date: 7/17/2013
Received Issue Date: 7/17/2013
Action: Notice of Responsibility
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6167767&temptable=ENFORCEMENT
Title Description Comments:

NOTICE OF RESPONSIBILITY

Action Type: Other Regulatory Actions
Action Date: 8/2/2012
Received Issue Date: 8/2/2012
Action: Staff Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6132359&temptable=ENFORCEMENT
Title Description Comments:

CAP ADDENDUM REQUEST

Action Type: Other Regulatory Actions
Action Date: 4/25/2012
Received Issue Date: 4/25/2012
Action: Staff Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6120032&temptable=ENFORCEMENT
Title Description Comments:

CAP ADDENDUM REQUEST

Action Type: Other Regulatory Actions
Action Date: 9/26/2011
Received Issue Date: 9/26/2011
Action: Staff Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6099341&temptable=ENFORCEMENT
Title Description Comments:

WORK PLAN APPROVAL LETTER

Action Type: Other Regulatory Actions
Action Date: 3/4/2011
Received Issue Date: 3/4/2011
Action: Staff Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6079630&temptable=ENFORCEMENT
Title Description Comments:

REVISED WORK PLAN REQUEST

Action Type: Other Regulatory Actions
Action Date: 8/23/2010
Received Issue Date: 8/23/2010
Action: Staff Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6061727&temptable=ENFORCEMENT
Title Description Comments:

WORK PLAN FOR CONFIRMATION BORINGS

Action Type: Other Regulatory Actions
Action Date: 7/6/2009
Received Issue Date: 7/6/2009
Action: Staff Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6020227&temptable=ENFORCEMENT
Title Description Comments:

Reduced Groundwater Monitoring Requirements

Action Type: Other Regulatory Actions
Action Date: 1/11/2008
Received Issue Date: 1/11/2008
Action: Staff Letter
Doc Link:
Title Description Comments:

REQUEST FOR WORK PLAN FOR LATERAL AND VERTIAL DELINEATION

Action Type: Cleanup Action
Action Date: 1/8/2001
Received Issue Date:
Action: Soil Vapor Extraction (SVE)
Doc Link:

Title Description Comments:

Action Type: Cleanup Action
Action Date: 1/1/2001
Received Issue Date:
Action: Soil Vapor Extraction (SVE)
Doc Link:
Title Description Comments:

Action Type: Leak Action
Action Date: 3/24/1995
Received Issue Date:
Action: Leak Reported
Doc Link:
Title Description Comments:

Action Type: Leak Action
Action Date: 9/14/1994
Received Issue Date:
Action: Leak Discovery
Doc Link:
Title Description Comments:

<u>LUST Sites from GeoTracker Search - Site Maps(as of Oct 31, 2019)</u>

Title: SOIL BORING CSB-1 (CSB-1)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/7734252214/T0605901847.PDF
Size : 470 KB
Submitted By: STRATUS ENVIRONMENTAL (CONTRACTOR)
Submitted: 2/3/2012

Title: SOIL BORING CSB-3 (CSB-3)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/6785644471/T0605901847.PDF
Size : 121 KB
Submitted By: STRATUS ENVIRONMENTAL (CONTRACTOR)
Submitted: 2/3/2012

Title: SOIL BORING CSB-2 (CSB-2)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/8841323792/T0605901847.PDF
Size : 469 KB
Submitted By: STRATUS ENVIRONMENTAL (CONTRACTOR)
Submitted: 2/3/2012

Title: B19 (B-19)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/3990511238/T0605901847.PDF
Size : 94 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B28 (B-28)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/6767358243/T0605901847.PDF
Size : 130 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B11 (B-11)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/4608740568/T0605901847.PDF
Size : 82 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B8 (B-8)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/5273577034/T0605901847.PDF
Size : 131 KB

Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B17 (B-17)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/4724572300/T0605901847.PDF
Size : 108 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B25 (B-25)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/8488900303/T0605901847.PDF
Size : 118 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B9B (B-9B)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/7832155525/T0605901847.PDF
Size : 132 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B18 (B-18)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/9626196622/T0605901847.PDF
Size : 136 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B21 (B-21)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/8199940562/T0605901847.PDF
Size : 120 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B22 (B-22)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/2389141261/T0605901847.PDF
Size : 126 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B30 (B-30)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/4840715706/T0605901847.PDF
Size : 130 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B9B (B-9B)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/8692971348/T0605901847.PDF
Size : 138 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B10 (B-10)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/8575792610/T0605901847.PDF
Size : 77 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B21 (B-21)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/4661226570/T0605901847.PDF
Size : 120 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B25 (B-25)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/3281380772/T0605901847.PDF
Size : 118 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B30 (B-30)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/2929754972/T0605901847.PDF
Size : 130 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B10 (B-10)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/6338601231/T0605901847.PDF
Size : 77 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B15 (B-15)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/4043990194/T0605901847.PDF
Size : 115 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B17 (B-17)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/5050940275/T0605901847.PDF
Size : 108 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B20 (B-20)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/1042330086/T0605901847.PDF
Size : 95 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: B24 (B-24)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/5134737312/T0605901847.PDF
Size : 95 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/25/2009*

Title: GEO_MAP
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_map/5740293741/T0605901847.pdf
Size : 33 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 1/13/2006

Title: GEO_MAP
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_map/2162458121/T0605901847.pdf
Size : 38 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 9/22/2005*

Title: GEO_BORE (B-38)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/2262983024/T0605901847.pdf
Size : 118 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 9/12/2005*

Title: GEO_BORE (B-40)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/3573750138/T0605901847.pdf
Size : 130 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 9/12/2005*

Title: GEO_BORE (B-39)
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_bore/6972076237/T0605901847.pdf
Size : 126 KB
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 9/12/2005*

Title: GEO_MAP
Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_map/8112928628/T0605901847.pdf
Size : 115 KB

Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Submitted: 6/21/2005*

LUST Sites from GeoTracker Search - Documents(as of Oct 31, 2019)

Document Type: Site Documents **Size :** 50 KB
Document Date: 2/24/2016* **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: OTHER REPORT / DOCUMENT **Submitted:**
Title: CHANGE OF TSO PM-OCLOP
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1737749099/T0605901847.PDF

Document Type: Site Documents **Size :**
Document Date: 2/22/2016 **Submitted By:** (REGULATOR)
Type: CLOSURE/NO FURTHER ACTION LETTER **Submitted:**
Title: STATE WATER BOARD - UNIFORM CLOSURE LETTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6276511

Document Type: Site Documents **Size :**
Document Date: 1/25/2016 **Submitted By:** GEORGE W. LOCKWOOD (REGULATOR)
Type: EMAIL CORRESPONDENCE **Submitted:**
Title: AGENCY NOTICE TO STATE WATER BOARD WELL AND WASTES REMOVED
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6273785

Document Type: Site Documents **Size :** 3,951 KB
Document Date: 12/31/2015 **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: WELL DESTRUCTION REPORT **Submitted:**
Title: WELL DESTRUCTION REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3579447150/T0605901847.PDF

Document Type: Site Documents **Size :**
Document Date: 6/30/2015 **Submitted By:** (REGULATOR)
Type: STATE WATER BOARD - CLOSURE ORDER **Submitted:**
Title: STATE WATER BOARD - CLOSURE ORDER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6252898

Document Type: Monitoring Reports **Size :** 6,212 KB
Document Date: 4/9/2015 **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY **Submitted:**
Title: SEMI-ANNUAL STATUS REPORT-FIRST HALF 2015
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4144843399/T0605901847.PDF

Document Type: Site Documents **Size :**
Document Date: 3/6/2015 **Submitted By:** VIVIAN GOMEZ-LATINO (REGULATOR)
Type: NOTIFICATION - PUBLIC PARTICIPATION DOCUMENT **Submitted:**
Title: NOTIFICATION
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6237997

Document Type: Monitoring Reports **Size :** 6,706 KB
Document Date: 10/10/2014 **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - SEMI-ANNUALLY **Submitted:**
Title: SEMI-ANNUAL MONITORING REPORT-SECOND PERIOD 2014
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7947700262/T0605901847.PDF

Document Type: Monitoring Reports **Size :** 6,040 KB
Document Date: 4/10/2014 **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - SEMI-ANNUALLY **Submitted:**
Title: SEMI-ANNUAL MONITORING REPORT, FIRST PERIOD 2014
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3210181534/T0605901847.PDF

Document Type: Monitoring Reports **Size :** 5,464 KB
Document Date: 10/14/2013 **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)

Type: MONITORING REPORT - SEMI-ANNUALLY **Submitted:**
Title: SEMI-ANNUAL MONITORING IREPORT-SECOND PERIOD 2013
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3077933609/T0605901847.PDF

Document Type: Site Documents **Size :**
Document Date: 7/17/2013 **Submitted By:** KEVIN LAMBERT (REGULATOR)
Type: NOTICE OF RESPONSIBILITY **Submitted:**
Title: NOTICE OF RESPONSIBILITY
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6167767

Document Type: Site Documents **Size :** 77 KB
Document Date: 7/3/2013* **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: CORRESPONDENCE **Submitted:**
Title: TRANSFER OF OVERSIGHT - OCHCA
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7238358974/T0605901847.PDF

Document Type: Site Documents **Size :** 64 KB
Document Date: 7/3/2013* **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: CORRESPONDENCE **Submitted:**
Title: TRANSFER OF OVERSIGHT - SARWQCB
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3297718107/T0605901847.PDF

Document Type: Monitoring Reports **Size :** 6,905 KB
Document Date: 4/10/2013 **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - SEMI-ANNUALLY **Submitted:**
Title: SEMI-ANNUAL GW MONITORING REPORT-FIRST PERIOD 2013
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5146717131/T0605901847.PDF

Document Type: Monitoring Reports **Size :** 6,265 KB
Document Date: 10/30/2012* **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - SEMI-ANNUALLY **Submitted:**
Title: SEMI-ANNUAL MONITORING REPORT, SECOND PERIOD 2012
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6690612733/T0605901847.PDF

Document Type: Site Documents **Size :** 5,408 KB
Document Date: 10/29/2012* **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: OTHER REPORT / DOCUMENT **Submitted:**
Title: RESPONSE LETTER
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6545002043/T0605901847.PDF

Document Type: Site Documents **Size :**
Document Date: 8/2/2012 **Submitted By:** TAMARA ESCOBEDO (REGULATOR)
Type: STAFF LETTER **Submitted:**
Title: CAP ADDENDUM REQUEST
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6132359

Document Type: Site Documents **Size :** 7,507 KB
Document Date: 7/13/2012* **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: OTHER REPORT / DOCUMENT **Submitted:**
Title: CORRECTIVE ACTION PLAN ADDENDUM
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3300643861/T0605901847.PDF

Document Type: Site Documents **Size :**
Document Date: 4/25/2012 **Submitted By:** TAMARA ESCOBEDO (REGULATOR)
Type: STAFF LETTER **Submitted:**
Title: CAP ADDENDUM REQUEST
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6120032

Document Type: Monitoring Reports **Size :** 6,283 KB
Document Date: 4/17/2012 **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - SEMI-ANNUALLY **Submitted:**
Title: GW MONITORING REPORT-FIRST HALF 2012

Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6019590020/T0605901847.PDF

Document Type: Site Documents **Size :** 8,402 KB
Document Date: 2/6/2012 **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: OTHER REPORT / DOCUMENT **Submitted:**
Title: CONFIRMATION SOIL BORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4414520204/T0605901847.PDF

Document Type: Monitoring Reports **Size :** 5,766 KB
Document Date: 10/14/2011 **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - SEMI-ANNUALLY **Submitted:**
Title: 3Q11 SEMI-ANNUAL REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2090192437/T0605901847.PDF

Document Type: Site Documents **Size :**
Document Date: 9/26/2011 **Submitted By:** TAMARA ESCOBEDO (REGULATOR)
Type: STAFF LETTER **Submitted:**
Title: WORK PLAN APPROVAL LETTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6099341

Document Type: Site Documents **Size :** 346 KB
Document Date: 4/29/2011* **Submitted By:** INNOVEX (CONTRACTOR)
Type: SENSITIVE RECEPTOR SURVEY REPORT **Submitted:**
Title: ARCO 6226 AREA WELL SURVEY
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5854932427/T0605901847.PDF

Document Type: Monitoring Reports **Size :** 5,797 KB
Document Date: 4/18/2011 **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - SEMI-ANNUALLY **Submitted:**
Title: SEMI-ANNUAL MONITORING REPORT-FIRST PERIOD 2011
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4138392150/T0605901847.PDF

Document Type: Site Documents **Size :** 443 KB
Document Date: 3/21/2011* **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: OTHER REPORT / DOCUMENT **Submitted:**
Title: RESPONSE LETTER
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9101338207/T0605901847.PDF

Document Type: Site Documents **Size :**
Document Date: 3/4/2011 **Submitted By:** TAMARA ESCOBEDO (REGULATOR)
Type: STAFF LETTER **Submitted:**
Title: REVISED WORK PLAN REQUEST
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6079630

Document Type: Site Documents **Size :** 1,245 KB
Document Date: 2/28/2011 **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: OTHER REPORT / DOCUMENT **Submitted:**
Title: UPDATED WORKPLAN FOR CONFIRMATION SOIL BORINGS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5696400463/T0605901847.PDF

Document Type: Monitoring Reports **Size :** 3,135 KB
Document Date: 10/21/2010* **Submitted By:** STRATUS ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - SEMI-ANNUALLY **Submitted:**
Title: SEMI-ANNUAL MONITORING REPORT-SECOND PERIOD 2010
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9815576136/T0605901847.PDF

Document Type: Site Documents **Size :**
Document Date: 8/23/2010 **Submitted By:** TAMARA ESCOBEDO (REGULATOR)
Type: STAFF LETTER **Submitted:**
Title: WORK PLAN FOR CONFIRMATION BORINGS
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6061727

Document Type: Monitoring Reports **Size :** 8,816 KB

Document Date:	4/7/2010	**Submitted By:**	STRATUS ENVIRONMENTAL (CONTRACTOR)
Type:	MONITORING REPORT - SEMI-ANNUALLY	**Submitted:**	
Title:	1Q10 SEMI-ANNUAL REPORT FIRST PERIOD 2010		
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8794531583/T0605901847.PDF		

Document Type:	Monitoring Reports	**Size :**	3,407 KB
Document Date:	9/29/2009	**Submitted By:**	DELTA ENVIRONMENTAL (CONTRACTOR)
Type:	MONITORING REPORT - QUARTERLY	**Submitted:**	
Title:	3Q09 GWM		
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8234778165/T0605901847.PDF		

Document Type:	Site Documents	**Size :**	
Document Date:	7/6/2009	**Submitted By:**	(REGULATOR)
Type:	STAFF LETTER	**Submitted:**	
Title:	REDUCED GROUNDWATER MONITORING REQUIREMENTS		
Title Link:	https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901847&enforcement_id=6020227		

Document Type:	Site Documents	**Size :**	64 KB
Document Date:	6/24/2009*	**Submitted By:**	DELTA ENVIRONMENTAL (CONTRACTOR)
Type:	CORRESPONDENCE	**Submitted:**	
Title:	OCHCA NAMW CORRESPONDENCE		
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8032418370/T0605901847.PDF		

Document Type:	Site Documents	**Size :**	103 KB
Document Date:	6/24/2009*	**Submitted By:**	DELTA ENVIRONMENTAL (CONTRACTOR)
Type:	CORRESPONDENCE	**Submitted:**	
Title:	OCHCA DAW CORRESPONDENCE		
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3779049098/T0605901847.PDF		

Document Type:	Monitoring Reports	**Size :**	3,253 KB
Document Date:	6/19/2009	**Submitted By:**	DELTA ENVIRONMENTAL (CONTRACTOR)
Type:	MONITORING REPORT - QUARTERLY	**Submitted:**	
Title:	2Q09 GWM		
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/8427788853/T0605901847.PDF		

Document Type:	Monitoring Reports	**Size :**	2,648 KB
Document Date:	3/13/2009	**Submitted By:**	DELTA ENVIRONMENTAL (CONTRACTOR)
Type:	MONITORING REPORT - QUARTERLY	**Submitted:**	
Title:	1Q09 GW MONITORING REPORT		
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1339372932/T0605901847.PDF		

Document Type:	Monitoring Reports	**Size :**	4,719 KB
Document Date:	1/22/2009	**Submitted By:**	DELTA ENVIRONMENTAL (CONTRACTOR)
Type:	MONITORING REPORT - QUARTERLY	**Submitted:**	
Title:	4Q08 GW MONITORING REPORT		
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5865660727/T0605901847.PDF		

Document Type:	Monitoring Reports	**Size :**	4,517 KB
Document Date:	9/22/2008	**Submitted By:**	DELTA ENVIRONMENTAL (CONTRACTOR)
Type:	MONITORING REPORT - QUARTERLY	**Submitted:**	
Title:	3Q08 MONITORING REPORT		
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6908537924/T0605901847.PDF		

Document Type:	Site Documents	**Size :**	396 KB
Document Date:	6/30/2008	**Submitted By:**	DELTA ENVIRONMENTAL (CONTRACTOR)
Type:	REPORTS - OTHER	**Submitted:**	
Title:	REVISED WP FOR CONFIRMATION SOIL BORINGS		
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7217776238/T0605901847.PDF		

Document Type:	Monitoring Reports	**Size :**	9,155 KB
Document Date:	6/27/2008	**Submitted By:**	DELTA ENVIRONMENTAL (CONTRACTOR)
Type:	MONITORING REPORT - QUARTERLY	**Submitted:**	
Title:	2Q08 MONITORING REPORT		
Title Link:	https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6283512949/T0605901847.PDF		

Document Type:	Monitoring Reports	**Size :**	8,498 KB
Document Date:	4/16/2008	**Submitted By:**	DELTA ENVIRONMENTAL (CONTRACTOR)
Type:	MONITORING REPORT - QUARTERLY	**Submitted:**	

Title: 1Q08 MONITORING REPORT - REVISED
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/7970503866/T0605901847.PDF

Document Type: Monitoring Reports | **Size :** 8,558 KB
Document Date: 1/3/2008 | **Submitted By:** DELTA ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY | **Submitted:**
Title: 4Q07 MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5863006412/T0605901847.PDF

Document Type: Site Documents | **Size :** 4,681 KB
Document Date: 12/20/2007 | **Submitted By:** DELTA ENVIRONMENTAL (CONTRACTOR)
Type: WORKPLANS - OTHER WP | **Submitted:**
Title: WP FOR CONFIRMATION SOIL BORINGS
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/2496127068/T0605901847.PDF

Document Type: Monitoring Reports | **Size :** 6,022 KB
Document Date: 10/15/2007 | **Submitted By:** DELTA ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY | **Submitted:**
Title: 3Q07 MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6651966929/T0605901847.PDF

Document Type: Monitoring Reports | **Size :** 6,846 KB
Document Date: 7/2/2007 | **Submitted By:** DELTA ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY | **Submitted:**
Title: SECOND QUARTER 2007 QUARTERLY MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5017901360/T0605901847.PDF

Document Type: Monitoring Reports | **Size :** 6,125 KB
Document Date: 4/30/2007 | **Submitted By:** DELTA ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY | **Submitted:**
Title: FIRST QUARTER 2007 QUARTERLY MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3956059336/T0605901847.PDF

Document Type: Monitoring Reports | **Size :** 5,028 KB
Document Date: 2/5/2007 | **Submitted By:** DELTA ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY | **Submitted:**
Title: 4TH QUARTER 2006 MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5513646006/T0605901847.PDF

Document Type: Monitoring Reports | **Size :** 7,614 KB
Document Date: 9/28/2006 | **Submitted By:** DELTA ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY | **Submitted:**
Title: 3RD QUARTER 2006 MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3707410514/T0605901847.PDF

Document Type: Monitoring Reports | **Size :** 11,071 KB
Document Date: 6/30/2006* | **Submitted By:** DELTA ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY | **Submitted:**
Title: 2ND QUARTER 2006 MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1252378702/T0605901847.PDF

Document Type: Monitoring Reports | **Size :** 8,349 KB
Document Date: 3/31/2006 | **Submitted By:** DELTA ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY | **Submitted:**
Title: 1ST QUARTER 2006 MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9650053262/T0605901847.PDF

Document Type: Site Documents | **Size :** 4,403 KB
Document Date: 1/13/2006* | **Submitted By:** DELTA ENVIRONMENTAL (CONTRACTOR)
Type: REPORTS - INVESTIGATION RPT. | **Submitted:**
Title: REPORT OF PRELIMINARY FINDINGS, 12/27/05
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9275006949/T0605901847.PDF

Document Type: Monitoring Reports | **Size :** 8,010 KB
Document Date: 1/2/2006 | **Submitted By:** DELTA ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY | **Submitted:**
Title: 4TH QUARTER 2005 MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6933643937/T0605901847.PDF

Document Type: Site Documents
Size : 33 KB
Document Date: 12/16/2005*
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Type: CORRESPONDENCE - OTHER
Submitted:
Title: NOTIFICATION OF INTENT TO IMPLEMENT WORK PLAN DATED 5/2/05, 10/19/05
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/4386855900/T0605901847.PDF

Document Type: Monitoring Reports
Size : 7,275 KB
Document Date: 10/21/2005*
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY
Submitted:
Title: 3RD QUARTER 2005 MONITORING REPORT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1465650796/T0605901847.PDF

Document Type: Monitoring Reports
Size : 8,202 KB
Document Date: 7/15/2005
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY
Submitted:
Title: SECOND QUARTER 2005 QMR
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3486447989/T0605901847.PDF

Document Type: Site Documents
Size : 243 KB
Document Date: 5/4/2005*
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Type: WORKPLANS - INVESTIGATION WP
Submitted:
Title: WORK PLAN FOR CONTINUED LATERAL GROUNDWATER ASSESSMENT
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6806653678/T0605901847.PDF

Document Type: Site Documents
Size : 17,425 KB
Document Date: 5/4/2005*
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Type: REPORTS - INVESTIGATION RPT.
Submitted:
Title: REPORT OF PRELIMINARY FINDINGS - WELLS B-38, B-39 AND B-40
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/3157270133/T0605901847.PDF

Document Type: Monitoring Reports
Size : 7,937 KB
Document Date: 4/13/2005*
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Type: MONITORING REPORT - QUARTERLY
Submitted:
Title: FIRST QUARTER 2005 QMR
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9710477530/T0605901847.PDF

Document Type: Site Documents
Size : 35 KB
Document Date: 2/28/2005*
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Type: CORRESPONDENCE - OTHER
Submitted:
Title: NOTIFICATION OF INTENT TO IMPLEMENT WORK PLAN FOR CONTINUED LATERAL GW ASSESSMENT, DATED 8/27/04, 1/25/05
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/5583463370/T0605901847.pdf

Document Type: Site Documents
Size : 6,521 KB
Document Date: 2/28/2005*
Submitted By: DELTA ENVIRONMENTAL (CONTRACTOR)
Type: REPORTS - OTHER
Submitted:
Title: 4Q04 QMR
Title Link: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/9347791373/T0605901847.pdf

---

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
34	1 of 1	WNW	0.28 / 1,453.52	295.88 / -3	TEXACO SERVICE STATION 3370 E YORBA LINDA BLVD FULLERTON CA 92631	LUST

Global ID: T0605901729
County: ORANGE
Status: COMPLETED - CASE CLOSED
Latitude: 33.887796
Status Date: 2000-07-12 00:00:00
Longitude: -117.866293
Case Type: LUST CLEANUP SITE
Date Source: LUST Cleanup Sites from GeoTracker Search; LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download

LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities Detail

RB Case No: 083002418T
Potential COC: Gasoline
Local Case No:
How Discovered: Tank Closure
Begin Date: 1995-07-10 00:00:00
Stop Method:
Lead Agency: SANTA ANA RWQCB (REGION 8)
Stop Description:
Local Agency: FULLERTON, CITY OF
Case Worker: MAO

CUF Case: YES
File Location:
Potential Media of Concern: Aquifer used for drinking water supply
How Discovered Description:
Calwater Watershed Name: San Gabriel River - Anaheim (845.61)
DWR GW Subbasin Name: Coastal Plain Of Orange County (8-001)
Disadvantaged Community:
Site History:

Regulatory Activity

Action Type: ENFORCEMENT
Date : 2000-06-12 00:00:00
Action: Closure/No Further Action Letter

Action Type: Other
Date : 1996-02-14 00:00:00
Action: Leak Stopped

Action Type: Other
Date : 1996-02-14 00:00:00
Action: Leak Discovery

Action Type: Other
Date : 1995-07-10 00:00:00
Action: Leak Reported

Regulatory Contacts

Contact Type: Regional Board Caseworker
Contact Name: MIGUEL OVIEDO
City: RIVERSIDE
Organization Name: SANTA ANA RWQCB (REGION 8)
Address: 3737 Main Street, Suite 500
Email: miguel.oviedo@waterboards.ca.gov
Phone No: 9517823238

Contact Type: Local Agency Caseworker
Contact Name: STEPHEN LONG
City: FULLERTON
Organization Name: FULLERTON, CITY OF
Address: 312 E. COMMONWEALTH AVE.
Email: stevel@fullertonfire.org
Phone No: 7147383160

Status History

Status: Completed - Case Closed
Status Date: 2000-07-12 00:00:00

Status: Open - Remediation
Status Date: 1997-04-16 00:00:00

Status: Open - Site Assessment
Status Date: 1996-02-06 00:00:00

Status: Open - Case Begin Date
Status Date: 1995-07-10 00:00:00

LUST Sites from GeoTracker Search - Regulatory Profile(as of Oct 31, 2019)

Site Facility Name: TEXACO SERVICE STATION
Site Facility Type: LUST CLEANUP SITE
Cleanup Status: COMPLETED - CASE CLOSED
Project Status:
WDR Place Type:
WDR File:
WDR Order:
CUF Priority Assig: D
CUF Amount Paid:
Potential COC: GASOLINE
Facility Type:
Composting Method:
Address: 3370 E YORBA LINDA BLVD
City: FULLERTON
Zip: 92631
County: ORANGE
CUF Claim: 12500

File Location:	
Designated Beneficial Use:	MUN, AGR, IND, PROC
Project Oversight Agencies:	
Report Link:	https://geotracker.waterboards.ca.gov/profile_report?global_id=T0605901729
Cleanup Status Detail:	COMPLETED - CASE CLOSED AS OF 7/12/2000
Cleanup History Link:	https://geotracker.waterboards.ca.gov/profile_report_include?global_id=T0605901729&tabname=regulatoryhistory
Potential Media of Concern:	AQUIFER USED FOR DRINKING WATER SUPPLY
User Defined Beneficial Use:	
DWR GW Sub Basin:	Coastal Plain Of Orange County (8-001)
Calwater Watershed Name:	San Gabriel River - Anaheim (845.61)
Post Closure Site Management:	
Future Land Use:	
Cleanup Oversight Agencies:	SANTA ANA RWQCB (REGION 8) (LEAD) - CASE #: 083002418T CASEWORKER: MIGUEL OVIEDO FULLERTON, CITY OF CASEWORKER: STEPHEN LONG
Gndwater Monitoring Freque:	
Site History:	

No site history available

<u>LUST Sites from GeoTracker Search - Cleanup Status History(as of Oct 31, 2019)</u>

Status: Completed - Case Closed
Date : 7/12/2000

Status: Open - Remediation
Date : 4/16/1997

Status: Open - Site Assessment
Date : 2/6/1996

Status: Open - Case Begin Date
Date : 7/10/1995

<u>LUST Sites from GeoTracker Search - Regulatory Activities(as of Oct 31, 2019)</u>

Action Type: Other Regulatory Actions
Action Date: 6/12/2000
Received Issue Date: 6/12/2000
Action: Closure/No Further Action Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901729&enforcement_id=6101400&temptable=ENFORCEMENT
Title Description Comments:

Closure Statement Texaco Service Station Fullerton

Action Type: Leak Action
Action Date: 2/14/1996
Received Issue Date:
Action: Leak Discovery
Doc Link:
Title Description Comments:

Action Type: Leak Action
Action Date: 2/14/1996
Received Issue Date:
Action: Leak Stopped
Doc Link:
Title Description Comments:

Action Type: Leak Action
Action Date: 7/10/1995
Received Issue Date:

Action: Leak Reported
Doc Link:
Title Description Comments:

LUST Sites from GeoTracker Search - Documents(as of Oct 31, 2019)

Document Type: Site Documents
Document Date: 6/12/2000
Type: CLOSURE/NO FURTHER ACTION LETTER
Size :
Submitted By: (REGULATOR)
Submitted:
Title: CLOSURE STATEMENT TEXACO SERVICE STATION FULLERTON
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901729&enforcement_id=6101400

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
35	1 of 1	SSE	0.29 / 1,509.25	280.85 / -18	MARC CARREN 520 PINEHURST AVE PLACENTIA CA 92870	RCRA TSD

EPA Handler ID: CAC003006827
Gen Status Universe: No Report
Contact Name: MARC CARREN
Contact Address: 520 PINEHURST AVE , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext: 714-334-3847
Contact Email: ERNIE@SIRRIS.BIZ
Contact Country:
Land Type:
County Name: ORANGE
EPA Region: 09
Receive Date: 20190322

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: Yes
Transfer Facility: No
Onsite Burner Exemption: No
Smelting, Melting and Refining: No
Underground Injection Control: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190322
Handler Name: MARC CARREN
Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	520 PINEHURST AVE
Name:	MARC CARREN	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-334-3847	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	520 PINEHURST AVE
Name:	MARC CARREN	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-334-3847	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

36	***1 of 1***	***ENE***	***0.32 / 1,682.44***	***307.11 / 8***	***RICHARD WOZNICHAK 1425 AVENIDA ALVARADO PLACENTIA CA 92870***	***RCRA TSD***

EPA Handler ID:	CAC003019672
Gen Status Universe:	No Report
Contact Name:	RICHARD WOZNICHAK
Contact Address:	1425 AVENIDA ALVARADO , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext:	714-889-9385
Contact Email:	ADMIN@VIKINGENVIRO.COM
Contact Country:	
Land Type:	
County Name:	ORANGE
EPA Region:	09
Receive Date:	20190613

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	Yes
Transfer Facility:	No
Onsite Burner Exemption:	No
Smelting, Melting and Refining:	No
Underground Injection Control:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20190613
Handler Name:	RICHARD WOZNICHAK
Generator Status Universe:	No Report
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1425 AVENIDA ALVARADO
Name:	RICHARD WOZNICHAK	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-889-9385	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	1425 AVENIDA ALVARADO
Name:	RICHARD WOZNICHAK	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-889-9385	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

37	*1 of 1*	*ESE*	*0.34 / 1,818.05*	*286.40 / -13*	*ILSE BAIRD 613 MORSE AVE PLACENTIA CA 92876*	*RCRA TSD*

EPA Handler ID: CAC003011440
Gen Status Universe: No Report
Contact Name: ILSE BAIRD
Contact Address: 613 MORSE AVE , , PLACENTIA , CA, 92876 ,
Contact Phone No and Ext: 714-993-7743
Contact Email: KC@AQHIINC.COM
Contact Country:
Land Type:
County Name: ORANGE
EPA Region: 09
Receive Date: 20190423

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: Yes
Transfer Facility: No
Onsite Burner Exemption: No
Smelting, Melting and Refining: No
Underground Injection Control: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190423
Handler Name: ILSE BAIRD
Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	613 MORSE AVE
Name:	ILSE BAIRD	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-993-7743	***Country:***	
Source Type:	Implementer	***Zip Code:***	92876

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	613 MORSE AVE
Name:	ILSE BAIRD	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-993-7743	***Country:***	
Source Type:	Implementer	***Zip Code:***	92876

38	***1 of 1***	***WSW***	***0.39 / 2,057.38***	***277.46 / -22***	***RC BRIARWOOD APARTMENTS 3300 QUARTZ LANE FULLERTON CA 92831***	***RCRA TSD***

EPA Handler ID:	CAC003017884
Gen Status Universe:	No Report
Contact Name:	MIKE PARTAIN
Contact Address:	8 EXECTUIVE CIRCLE , , IRVINE , CA, 92653 ,
Contact Phone No and Ext:	949-862-6200
Contact Email:	KRISTINE.RAMOS@PEAS1.COM
Contact Country:	
Land Type:	
County Name:	ORANGE
EPA Region:	09
Receive Date:	20190603

Violation/Evaluation Summary

Note:	NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	Yes
Transfer Facility:	No
Onsite Burner Exemption:	No
Smelting, Melting and Refining:	No
Underground Injection Control:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20190603
Handler Name:	RC BRIARWOOD APARTMENTS

Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	8 EXECTUIVE CIRCLE
Name:	WESTERN NATIONAL PROPERTY	**Street 2:**	
Date Became Current:		**City:**	IRVINE
Date Ended Current:		**State:**	CA
Phone:	949-862-6200	**Country:**	
Source Type:	Implementer	**Zip Code:**	92653

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	8 EXECTUIVE CIRCLE
Name:	MIKE PARTAIN	**Street 2:**	
Date Became Current:		**City:**	IRVINE
Date Ended Current:		**State:**	CA
Phone:	949-862-6200	**Country:**	
Source Type:	Implementer	**Zip Code:**	92653

39	1 of 2	SSE	0.39 / 2,060.43	277.04 / -22	CHEVRON/KRAEMER LEASE 842 ALTA VISTA PLACENTIA CA 92670	LUST

Global ID:	T0605901208	**County:**	ORANGE
Status:	COMPLETED - CASE CLOSED	**Latitude:**	33.8800138
Status Date:	1990-09-26 00:00:00	**Longitude:**	-117.8574846
Case Type:	LUST CLEANUP SITE		

Date Source: LUST Cleanup Sites from GeoTracker Search; LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download

LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities Detail

RB Case No:	083001589T	**Potential COC:**	Gasoline
Local Case No:	89UT116	**How Discovered:**	Tank Closure
Begin Date:	1989-05-23 00:00:00	**Stop Method:**	Close and Remove Tank
Lead Agency:	ORANGE COUNTY LOP	**Stop Description:**	
Local Agency:	ORANGE COUNTY LOP	**Case Worker:**	TE
CUF Case:	NO	**File Location:**	Local Agency

Potential Media of Concern: Soil
How Discovered Description:
Calwater Watershed Name: San Gabriel River - Anaheim (845.61)
DWR GW Subbasin Name: Coastal Plain Of Orange County (8-001)
Disadvantaged Community:
Site History:

Regulatory Activity

Action Type: ENFORCEMENT
Date : 1991-09-26 00:00:00
Action: Closure/No Further Action Letter

Action Type: Other
Date : 1989-05-23 00:00:00
Action: Leak Discovery

Action Type: Other
Date : 1989-05-23 00:00:00
Action: Leak Reported

Action Type: REMEDIATION
Date : 1989-05-23 00:00:00
Action: Excavation

Regulatory Contacts

Contact Type:	Regional Board Caseworker	***Address:***	3737 MAIN STREET, SUITE 500
Contact Name:	ROSE SCOTT	***Email:***	rose.scott@waterboards.ca.gov
City:	RIVERSIDE	***Phone No:***	9513206375
Organization Name:	SANTA ANA RWQCB (REGION 8)		

Contact Type:	Local Agency Caseworker	***Address:***	1241 EAST DYER ROAD SUITE 120
Contact Name:	TAMARA ESCOBEDO	***Email:***	tescobedo@ochca.com
City:	SANTA ANA	***Phone No:***	7144336251
Organization Name:	ORANGE COUNTY LOP		

Status History

Status: Completed - Case Closed
Status Date: 1990-09-26 00:00:00

Status: Open - Case Begin Date
Status Date: 1989-05-23 00:00:00

LUST Sites from GeoTracker Search - Regulatory Profile(as of Oct 31, 2019)

Site Facility Name:	CHEVRON/KRAEMER LEASE	***Potential COC:***	GASOLINE
Site Facility Type:	LUST CLEANUP SITE	***Facility Type:***	
Cleanup Status:	COMPLETED - CASE CLOSED	***Composting Method:***	
Project Status:		***Address:***	842 ALTA VISTA
WDR Place Type:		***City:***	PLACENTIA
WDR File:		***Zip:***	92670
WDR Order:		***County:***	ORANGE
CUF Priority Assig:		***CUF Claim:***	
CUF Amount Paid:			

File Location: LOCAL AGENCY
Designated Beneficial Use: MUN, AGR, IND, PROC
Project Oversight Agencies:
Report Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=T0605901208
Cleanup Status Detail: COMPLETED - CASE CLOSED AS OF 9/26/1990
Cleanup History Link: https://geotracker.waterboards.ca.gov/profile_report_include?global_id=T0605901208&tabname=regulatoryhistory
Potential Media of Concern: SOIL
User Defined Beneficial Use:
DWR GW Sub Basin: Coastal Plain Of Orange County (8-001)
Calwater Watershed Name: San Gabriel River - Anaheim (845.61)
Post Closure Site Management:
Future Land Use:
Cleanup Oversight Agencies: ORANGE COUNTY LOP (LEAD) - CASE #: 89UT116
CASEWORKER: TAMARA ESCOBEDO
SANTA ANA RWQCB (REGION 8) - CASE #: 083001589T
CASEWORKER: ROSE SCOTT
Gndwater Monitoring Freque:
Site History:

No site history available

LUST Sites from GeoTracker Search - Cleanup Status History(as of Oct 31, 2019)

Status: Completed - Case Closed
Date : 9/26/1990

Status: Open - Case Begin Date
Date : 5/23/1989

LUST Sites from GeoTracker Search - Cleanup Action Report (as of Oct 31, 2019)

Action Type: EXCAVATION
Phase:
Contaminant Mass Removed:
Description:
Begin Date: 5/23/1989
End Date: 9/26/1990

LUST Sites from GeoTracker Search - Regulatory Activities(as of Oct 31, 2019)

Action Type: Other Regulatory Actions
Action Date: 9/26/1991
Received Issue Date: 9/26/1991
Action: Closure/No Further Action Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901208&enforcement_id=6102492&temptable=ENFORCEMENT
Title Description Comments:

CHEVRON/KRAEMER LEASE NO FURTHER ACTION LETTER

Action Type: Leak Action
Action Date: 5/23/1989
Received Issue Date:
Action: Leak Discovery
Doc Link:
Title Description Comments:

Action Type: Leak Action
Action Date: 5/23/1989
Received Issue Date:
Action: Leak Reported
Doc Link:
Title Description Comments:

Action Type: Cleanup Action
Action Date: 5/23/1989
Received Issue Date:
Action: Excavation
Doc Link:
Title Description Comments:

LUST Sites from GeoTracker Search - Documents(as of Oct 31, 2019)

Document Type: Site Documents
Document Date: 9/26/1991
Type: CLOSURE/NO FURTHER ACTION LETTER
Size :
Submitted By: (REGULATOR)
Submitted:
Title: CHEVRON/KRAEMER LEASE NO FURTHER ACTION LETTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605901208&enforcement_id=6102492

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
39	2 of 2	SSE	0.39 / 2,060.43	277.04 / -22	KRAMER TRUST PROPERTY 230 ANGELINA PLACENTIA CA 92670	LUST

Global ID: T0605900710
Status: COMPLETED - CASE CLOSED
Status Date: 1994-09-15 00:00:00
Case Type: LUST CLEANUP SITE
County: ORANGE
Latitude: 33.8800138
Longitude: -117.8574846
Date Source: LUST Cleanup Sites from GeoTracker Search; LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download

LUST Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities Detail

RB Case No: 083000896T
Potential COC: Gasoline

Local Case No:	88UT088	***How Discovered:***	Tank Closure
Begin Date:	1988-04-13 00:00:00	***Stop Method:***	Close and Remove Tank
Lead Agency:	ORANGE COUNTY LOP	***Stop Description:***	
Local Agency:	ORANGE COUNTY LOP	***Case Worker:***	TE
CUF Case:	NO	***File Location:***	Local Agency

Potential Media of Concern: Soil
How Discovered Description:
Calwater Watershed Name: San Gabriel River - Anaheim (845.61)
DWR GW Subbasin Name: Coastal Plain Of Orange County (8-001)
Disadvantaged Community:
Site History:

<u>Regulatory Activity</u>

Action Type: ENFORCEMENT
Date : 1988-09-15 00:00:00
Action: Closure/No Further Action Letter

Action Type: Other
Date : 1988-04-13 00:00:00
Action: Leak Reported

Action Type: Other
Date : 1988-04-13 00:00:00
Action: Leak Discovery

<u>Regulatory Contacts</u>

Contact Type:	Regional Board Caseworker	***Address:***	3737 MAIN STREET, SUITE 500
Contact Name:	PATRICIA HANNON	***Email:***	patricia.hannon@waterboards.ca.gov
City:	RIVERSIDE	***Phone No:***	
Organization Name:	SANTA ANA RWQCB (REGION 8)		

Contact Type:	Local Agency Caseworker	***Address:***	1241 EAST DYER ROAD SUITE 120
Contact Name:	TAMARA ESCOBEDO	***Email:***	tescobedo@ochca.com
City:	SANTA ANA	***Phone No:***	7144336251
Organization Name:	ORANGE COUNTY LOP		

<u>Status History</u>

Status: Completed - Case Closed
Status Date: 1994-09-15 00:00:00

Status: Open - Case Begin Date
Status Date: 1988-04-13 00:00:00

<u>LUST Sites from GeoTracker Search - Regulatory Profile(as of Oct 31, 2019)</u>

Site Facility Name:	KRAMER TRUST PROPERTY	***Potential COC:***	GASOLINE
Site Facility Type:	LUST CLEANUP SITE	***Facility Type:***	
Cleanup Status:	COMPLETED - CASE CLOSED	***Composting Method:***	
Project Status:		***Address:***	230 ANGELINA
WDR Place Type:		***City:***	PLACENTIA
WDR File:		***Zip:***	92670
WDR Order:		***County:***	ORANGE
CUF Priority Assig:		***CUF Claim:***	
CUF Amount Paid:			

File Location: LOCAL AGENCY
Designated Beneficial Use: MUN, AGR, IND, PROC
Project Oversight Agencies:
Report Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=T0605900710
Cleanup Status Detail: COMPLETED - CASE CLOSED AS OF 9/15/1994
Cleanup History Link: https://geotracker.waterboards.ca.gov/profile_report_include?global_id=T0605900710&tabname=regulatoryhistory

Potential Media of Concern: SOIL
User Defined Beneficial Use:
DWR GW Sub Basin: Coastal Plain Of Orange County (8-001)
Calwater Watershed Name: San Gabriel River - Anaheim (845.61)
Post Closure Site Management:
Future Land Use:
Cleanup Oversight Agencies: ORANGE COUNTY LOP (LEAD) - CASE #: 88UT088
CASEWORKER: TAMARA ESCOBEDO
SANTA ANA RWQCB (REGION 8) - CASE #: 083000896T
CASEWORKER: PATRICIA HANNON
Gndwater Monitoring Freque:
Site History:

No site history available

LUST Sites from GeoTracker Search - Cleanup Status History(as of Oct 31, 2019)

Status: Completed - Case Closed
Date : 9/15/1994

Status: Open - Case Begin Date
Date : 4/13/1988

LUST Sites from GeoTracker Search - Regulatory Activities(as of Oct 31, 2019)

Action Type: Other Regulatory Actions
Action Date: 9/15/1988
Received Issue Date: 9/15/1988
Action: Closure/No Further Action Letter
Doc Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605900710&enforcement_id=6102493&temptable=ENFORCEMENT
Title Description Comments:

KRAMER TRUST PROPERTY NO FURTHER ACTION LETTER

Action Type: Leak Action
Action Date: 4/13/1988
Received Issue Date:
Action: Leak Discovery
Doc Link:
Title Description Comments:

Action Type: Leak Action
Action Date: 4/13/1988
Received Issue Date:
Action: Leak Reported
Doc Link:
Title Description Comments:

LUST Sites from GeoTracker Search - Documents(as of Oct 31, 2019)

Document Type: Site Documents ***Size :***
Document Date: 9/15/1988 ***Submitted By:*** (REGULATOR), SANGAVI PARI (REGULATOR)
Type: CLOSURE/NO FURTHER ACTION LETTER ***Submitted:***
Title: KRAMER TRUST PROPERTY NO FURTHER ACTION LETTER
Title Link: https://geotracker.waterboards.ca.gov/view_documents?global_id=T0605900710&enforcement_id=6102493

40	1 of 1	N	0.45 / 2,365.51	319.07 / 20	SUAREZ AARON S M & AMY E 1631 SALMON RIV PLACENTIA CA 92870	RCRA TSD

EPA Handler ID: CAC003012560
Gen Status Universe: No Report
Contact Name: AARON AND AMY SUAREZ
Contact Address: 1631 SALMON RIV , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext: 949-981-1463
Contact Email: FAVILA@BURNS-ENVIRO.COM
Contact Country:
Land Type:
County Name: ORANGE
EPA Region: 09
Receive Date: 20190429

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: Yes
Transfer Facility: No
Onsite Burner Exemption: No
Smelting, Melting and Refining: No
Underground Injection Control: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190429
Handler Name: SUAREZ AARON S M & AMY E
Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	1631 SALMON RIV
Name:	AARON AND AMY SUAREZ	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	949-981-1463	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870
Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	1631 SALMON RIV
Name:	SUAREZ AARON S M & AMY E	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	949-981-1463	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870

41	1 of 1	SSW	0.47 / 2,504.81	277.60 / -21	STEVE STOUGH 232 BRETING WAY	RCRA TSD

EPA Handler ID: CAC003013847
Gen Status Universe: No Report
Contact Name: STEVE STOUGH
Contact Address: 232 BRETING WAY , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext: 951-207-0072
Contact Email: KRISTINAR@PWSEI.COM
Contact Country:
Land Type:
County Name: ORANGE
EPA Region: 09
Receive Date: 20190507

Violation/Evaluation Summary

Note: NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: Yes
Transfer Facility: No
Onsite Burner Exemption: No
Smelting, Melting and Refining: No
Underground Injection Control: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190507
Handler Name: STEVE STOUGH
Generator Status Universe: No Report
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	232 BRETING WAY
Name:	STEVE STOUGH	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	951-207-0072	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	232 BRETING WAY
Name:	STEVE STOUGH	**Street 2:**	
Date Became Current:		**City:**	PLACENTIA
Date Ended Current:		**State:**	CA
Phone:	951-207-0072	**Country:**	
Source Type:	Implementer	**Zip Code:**	92870

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
42	1 of 1	SE	0.48 / 2,528.78	273.53 / -26	ALMORADI, MOHAMAD 1049 MAGNOLIA AVE PLACENTIA CA 92870	RCRA TSD

EPA Handler ID:	CAC003011506
Gen Status Universe:	No Report
Contact Name:	ALMORADI, MOHAMAD
Contact Address:	1049 MAGNOLIA AVE , , PLACENTIA , CA, 92870 ,
Contact Phone No and Ext:	714-986-9516
Contact Email:	MOHAMAD1310@ATT.NET
Contact Country:	
Land Type:	
County Name:	ORANGE
EPA Region:	09
Receive Date:	20190423

Violation/Evaluation Summary

Note:	NO RECORDS: As of August 2019, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	Yes
Transfer Facility:	No
Onsite Burner Exemption:	No
Smelting, Melting and Refining:	No
Underground Injection Control:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20190423
Handler Name:	ALMORADI, MOHAMAD
Generator Status Universe:	No Report
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	1049 MAGNOLIA AVE
Name:	ALMORADI, MOHAMAD	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-986-9516	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1049 MAGNOLIA AVE
Name:	ALMORADI, MOHAMAD	***Street 2:***	
Date Became Current:		***City:***	PLACENTIA
Date Ended Current:		***State:***	CA
Phone:	714-986-9516	***Country:***	
Source Type:	Implementer	***Zip Code:***	92870

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
43	1 of 1	W	0.85 / 4,481.50	271.19 / -28	FULLERTON UNIVERSITY SHOPPING CENTER 2940/2948 YORBA LINDA BLVD. FULLERTON CA 92831	ENVIROSTOR

Estor/EPA ID:	30590006	***Permit Renewal Lead:***	
Site Code:		***Project Manager:***	
Nat Priority List:	NO	***Supervisor:***	
Acres:	NONE SPECIFIED	***Public Partici Spclst:***	
Special Program:		***Census Tract:***	6059011504
Funding:	NOT APPLICABLE	***County:***	ORANGE
Assembly District:	72	***Latitude:***	33.8873737
Senate District:		***Longitude:***	-117.8765461
School District:			

APN:	NONE SPECIFIED
Cleanup Status:	REFER: 1248 LOCAL AGENCY AS OF 6/10/2004
Cleanup Oversight Agencies:	NONE SPECIFIED
Site Type:	EVALUATION
Office:	CLEANUP CYPRESS
Past Use that Caused Contam:	NONE SPECIFIED
Potential Media Affected:	NONE SPECIFIED
Potential Contamin of Concern:	

NONE SPECIFIED

Site History:

Status:	REFER: 1248 LOCAL AGENCY
Program Type:	EVALUATION
CalEnviroScreen Score:	66-70%
Summary Link:	http://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=30590006

Unplottable Summary

Total: 0 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID

No unplottable records were found that may be relevant for the search criteria.

Unplottable Report

No unplottable records were found that may be relevant for the search criteria.

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13, Section 8.1.8 Sources of Standard Source Information:

"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."

Standard Environmental Record Sources

Federal

National Priority List: NPL

National Priorities List (Superfund)-NPL: EPA's (United States Environmental Protection Agency) list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action.

Government Publication Date: Nov 25, 2019

National Priority List - Proposed: PROPOSED NPL

Includes sites proposed (by the EPA, the state, or concerned citizens) for addition to the NPL due to contamination by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment.

Government Publication Date: Nov 25, 2019

Deleted NPL: DELETED NPL

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Government Publication Date: Nov 25, 2019

SEMS List 8R Active Site Inventory: SEMS

The Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted.

Government Publication Date: Aug 20, 2019

SEMS List 8R Archive Sites: SEMS ARCHIVE

The Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time.

Government Publication Date: Aug 20, 2019

Inventory of Open Dumps, June 1985: ODI

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

Government Publication Date: Jun 1985

Comprehensive Environmental Response, Compensation and Liability Information System - CERCLIS: CERCLIS

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

Government Publication Date: Oct 25, 2013

EPA Report on the Status of Open Dumps on Indian Lands: IODI

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

Government Publication Date: Dec 31, 1998

CERCLIS - No Further Remedial Action Planned: CERCLIS NFRAP

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Government Publication Date: Oct 25, 2013

CERCLIS Liens: CERCLIS LIENS

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Jan 30, 2014

RCRA CORRACTS-Corrective Action: RCRA CORRACTS

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

Government Publication Date: Aug 26, 2019

RCRA non-CORRACTS TSD Facilities: RCRA TSD

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Government Publication Date: Aug 26, 2019

RCRA Generator List: RCRA LQG

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Government Publication Date: Aug 26, 2019

RCRA Small Quantity Generators List: RCRA SQG

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

Government Publication Date: Aug 26, 2019

RCRA Conditionally Exempt and Very Small Quantity Generators List: RCRA CESQG

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Conditionally Exempt and Very Small Quantity Generators (VSQG and CESQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG and CESQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

Government Publication Date: Aug 26, 2019

RCRA Non-Generators: RCRA NON GEN

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

Government Publication Date: Aug 26, 2019

Federal Engineering Controls-ECs: FED ENG

Engineering controls (ECs) encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Jun 11, 2019

Federal Institutional Controls- ICs: FED INST

Institutional controls are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's (United States Environmental Protection Agency) expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site.

Government Publication Date: Jun 11, 2019

Emergency Response Notification System: ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1982-1986

Emergency Response Notification System: ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1987-1989

Emergency Response Notification System: ERNS

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Mar 21, 2019

The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database: FED BROWNFIELDS

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Sep 3, 2019

FEMA Underground Storage Tank Listing: FEMA UST

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

Government Publication Date: Dec 31, 2017

Petroleum Refineries: REFN

List of petroleum refineries from the U.S. Energy Information Administration (EIA) Refinery Capacity Report. Includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Survey locations adjusted using public data.

Government Publication Date: Oct 8, 2019

Petroleum Product and Crude Oil Rail Terminals: BULK TERMINAL

List of petroleum product and crude oil rail terminals made available by the U.S. Energy Information Administration (EIA). Includes operable bulk petroleum product terminals located in the 50 States and the District of Columbia with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil that were active between 2017 and 2018. Petroleum product terminals comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings. Survey locations adjusted using public data.

Government Publication Date: Jan 18, 2019

LIEN on Property: SEMS LIEN

The EPA Superfund Enterprise Management System (SEMS) provides LIEN information on properties under the EPA Superfund Program.

Government Publication Date: Aug 20, 2019

Superfund Decision Documents: SUPERFUND ROD

This database contains a listing of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD), along with other associated memos and files. This information is maintained and made available by the US EPA (Environmental Protection Agency).

Government Publication Date: Oct 25, 2019

State

State Response Sites: RESPONSE

A list of identified confirmed release sites where the Department of Toxic Substances Control (DTSC) is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. This database is state equivalent NPL.

Government Publication Date: Oct 1, 2019

EnviroStor Database: ENVIROSTOR

The EnviroStor Data Management System is made available by the Department of Toxic Substances Control (DTSC). Includes Corrective Action sites, Tiered Permit sites, Historical Sites and Evaluation/Investigation sites. This database is state equivalent CERCLIS.

Government Publication Date: Oct 1, 2019

Delisted State Response Sites: DELISTED ENVS

Sites removed from the list of State Response Sites made available by the EnviroStor Data Management System, Department of Toxic Substances Control (DTSC).

Government Publication Date: Oct 1, 2019

Solid Waste Information System (SWIS): SWF/LF

The Solid Waste Information System (SWIS) database made available by the Department of Resources Recycling and Recovery (CalRecycle) contains information on solid waste facilities, operations, and disposal sites throughout the State of California. The types of facilities found in this database include landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal sites.

Government Publication Date: Nov 13, 2019

EnviroStor Hazardous Waste Facilities: HWP

A list of hazardous waste facilities including permitted, post-closure and historical facilities found in the Department of Toxic Substances Control (DTSC) EnviroStor database.

Government Publication Date: Oct 1, 2019

Sites Listed in the Solid Waste Assessment Test (SWAT) Program Report: SWAT

In a 1993 Memorandum of Understanding, the State Water Resources Control Board (SWRCB) agreed to submit a comprehensive report on the Solid Waste Assessment Test (SWAT) Program to the California Integrated Waste Management Board (CIWMB). This report summarizes the work completed to date on the SWAT Program, and addresses both the impacts that leakage from solid waste disposal sites (SWDS) may have upon waters of the State and the actions taken to address such leakage.
Government Publication Date: Dec 31, 1995

Land Disposal Sites: LDS

Land Disposal Sites in GeoTracker, the State Water Resources Control Board (SWRCB)'s data management system. The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units. Waste management units include waste piles, surface impoundments, and landfills.
Government Publication Date: Nov 14, 2019

Leaking Underground Fuel Tank Reports: LUST

List of Leaking Underground Storage Tanks within the Cleanup Sites data in GeoTracker database. GeoTracker is the State Water Resources Control Board's (SWRCB) data management system for managing sites that impact groundwater, especially those that require groundwater cleanup (Underground Storage Tanks, Department of Defense and Site Cleanup Program) as well as permitted facilities such as operating Underground Storage Tanks. The Leak Prevention Program that overlooks LUST sites is the SWRCB in California's Environmental Protection Agency.
Government Publication Date: Nov 14, 2019

Delisted Leaking Storage Tanks: DELISTED LST

List of Leaking Underground Storage Tanks (LUST) cleanup sites removed from GeoTracker, the State Water Resources Control Board (SWRCB)'s database system, as well as sites removed from the SWRCB's list of UST Case closures.
Government Publication Date: Nov 14, 2019

Solid Waste Disposal Sites with Waste Constituents Above Hazardous Waste Levels: SWRCB SWF

This is a list of solid waste disposal sites identified by California State Water Resources Control Board with waste constituents above hazardous waste levels outside the waste management unit.
Government Publication Date: Sep 20, 2006

Permitted Underground Storage Tank (UST) in GeoTracker: UST

List of Permitted Underground Storage Tank (UST) sites made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA).
Government Publication Date: Nov 14, 2019

Proposed Closure of Underground Storage Tank Cases: UST CLOSURE

List of UST cases that are being considered for closure by either the California Environmental Protection Agency, State Water Resources Control Board or the Executive Director that have been posted for a 60-day public comment period.
Government Publication Date: Oct 8, 2019

Historical Hazardous Substance Storage Information Database: HHSS

The Historical Hazardous Substance Storage database contains information collected in the 1980s from facilities that stored hazardous substances. The information was originally collected on paper forms, was later transferred to microfiche, and recently indexed as a searchable database. When using this database, please be aware that it is based upon self-reported information submitted by facilities which has not been independently verified. It is unlikely that every facility responded to the survey and the database should not be expected to be a complete inventory of all facilities that were operating at that time. This database is maintained by the California State Water Resources Control Board's (SWRCB) Geotracker.
Government Publication Date: Aug 27, 2015

Aboveground Storage Tanks: AST

A statewide list from 2009 of aboveground storage tanks (ASTs) made available by the Cal FIRE Office of the State Fire Marshal (OSFM). This list is no longer maintained or updated by the Cal FIRE OSFM.
Government Publication Date: Aug 31, 2009

Delisted Storage Tanks: DELISTED TNK

This database contains a list of storage tank sites that were removed by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA) and the Cal FIRE Office of State Fire Marshal (OSFM).
Government Publication Date: Nov 15, 2019

California Environmental Reporting System (CERS) Tanks: CERS TANK

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: Nov 18, 2019

Site Mitigation and Brownfields Reuse Program Facility Sites with Land Use Restrictions: LUR

The Department of Toxic Substances Control (DTSC) Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents land use restrictions that are active. Some sites have multiple land use restrictions.

Government Publication Date: Oct 1, 2019

Hazardous Waste Management Program Facility Sites with Deed / Land Use Restrictions: HLUR

The Department of Toxic Substances Control (DTSC) Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Government Publication Date: Sep 23, 2019

Deed Restrictions and Land Use Restrictions: DEED

List of Deed Restrictions, Land Use Restrictions and Covenants in GeoTracker made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency. A deed restriction (land use covenant) may be required to facilitate the remediation of past environmental contamination and to protect human health and the environment by reducing the risk of exposure to residual hazardous materials.

Government Publication Date: Nov 14, 2019

Voluntary Cleanup Program: VCP

List of sites in the Voluntary Cleanup Program made available by the Department of Toxic Substances and Control (DTSC). The Voluntary Cleanup Program was designed to respond to lower priority sites. Under the Voluntary Cleanup Program, DTSC enters site-specific agreements with project proponents for DTSC oversight of site assessment, investigation, and/or removal or remediation activities, and the project proponents agree to pay DTSC's reasonable costs for those services.

Government Publication Date: Oct 1, 2019

GeoTracker Cleanup Program Sites: CLEANUP SITES

A list of Cleanup Program sites in the state of California made available by The State Water Resources Control Board (SWRCB) of the California Environmental Protection Agency (EPA). SWRCB tracks leaking underground storage tank cleanups as well as other water board cleanups.

Government Publication Date: Nov 14, 2019

Delisted County Records: DELISTED COUNTY

Records removed from county or CUPA databases. Records may be removed from the county lists made available by the respective county departments because they are inactive, or because they have been deemed to be below reportable thresholds.

Government Publication Date: Nov 27, 2019

Delisted California Environmental Reporting System (CERS) Tanks: DELISTED CTNK

This database contains a list of Aboveground Petroleum Storage and Underground Storage Tank sites that were removed from in the California Environmental Protection Agency (CalEPA) Regulated Site Portal.

Government Publication Date: Nov 18, 2019

Historical Hazardous Substance Storage Container Information - Facility Summary: HIST TANK

The State Water Resources Control Board maintained the Hazardous Substance Storage Containers listing and inventory in th 1980s. This facility summary lists historic tank sites where the following container types were present: farm motor vehicle fuel tanks; waste tanks; sumps; pits, ponds, lagoons, and others; and all other product tanks. This set, published in May 1988, lists facility and owner information, as well as the number of containers. This data is historic and will not be updated.

Government Publication Date: May 27, 2019

Tribal

Leaking Underground Storage Tanks (LUSTs) on Indian Lands: INDIAN LUST

LUSTs on Tribal/Indian Lands in Region 9, which includes California.

Government Publication Date: Apr 8, 2019

Underground Storage Tanks (USTs) on Indian Lands: INDIAN UST

USTs on Tribal/Indian Lands in Region 9, which includes California.

Government Publication Date: Apr 8, 2019

Delisted Tribal Leaking Storage Tanks: DELISTED ILST

Leaking Underground Storage Tank facilities which have been removed from the Regional Tribal LUST lists made available by the EPA.

Government Publication Date: May 2, 2019

Delisted Tribal Underground Storage Tanks: DELISTED IUST

Underground Storage Tank facilities which have been removed from the Regional Tribal UST lists made available by the EPA.

Government Publication Date: May 2, 2019

County

Orange County - Industrial Cleanup Program Cases Listing: ORANGE ICP

Orange County Health Care Agency's Environmental Health Division has an Industrial Cleanup (IC) program which oversees the voluntary cleanup of contaminated property. This is a list of cases (by city) which the IC program has overseen in the past, or is currently overseeing.

Government Publication Date: Oct 4, 2019

Orange County - LOP Lead Cases List: ORANGE LOP

The Local Oversight Program of the County of Orange provides regulatory cleanup oversight for cleanup of leaking underground storage tanks (USTs). This dataset is provided by the Orange County Health Care Agency.

Government Publication Date: Oct 4, 2019

Orange County - Underground Storage Tanks Listing: UST ORANGE CNTY

A list of registered Underground Storage Tank (UST) sites in Orange County. This list is made available by Orange County Health Care Agency (OCHCA), Environmental Health Division which oversees the underground storage tank inspection program in most of the cities of Orange County, with the exception of Anaheim, Fullerton, and Orange.

Government Publication Date: Oct 4, 2019

Orange County - Aboveground Petroleum Storage Tank Listing: ORANGE AST

A list of Aboveground Petroleum Storage Tank (APST) facilities inspected by Orange County Certified Unified Program Agency (CUPA) Under the Aboveground Petroleum Storage Act (APSA). This list is made available by the Environmental Health Division of Orange County Health Care Agency.

Government Publication Date: Oct 4, 2019

Orange County - Anaheim City UST Cleanup Cases: UST CLEANUP

A list of UST Cleanup Cases in the City of Anaheim in Orange County. As part of its Groundwater Protection Program, the City of Anaheim managed the UST Cleanup Oversight Program from April 1991 to June 2014. This list is published by the City of Anaheim Underground Storage Tank Cleanup Program.

Government Publication Date: May 26, 2015

Orange County - Anaheim City UST List: ANAHEIM UST

A list of Underground Storage Tanks in Anaheim City, Orange County. This list is made available by Anaheim Fire & Rescue Department.

Government Publication Date: Sep 17, 2019

Orange County - Anaheim City AST List: ANAHEIM AST

List of Aboveground Storage Tanks (ASTs) in Anaheim City, Orange County made available by Anaheim Fire & Rescue.

Government Publication Date: Sep 17, 2019

Additional Environmental Record Sources

Federal

PFOA/PFOS Contaminated Sites: PFAS NPL

List of sites where PFOA or PFOS contaminants have been found in drinking water or soil. Made available by the Federal Environmental Protection Agency (EPA).

Government Publication Date: Nov 15, 2019

Facility Registry Service/Facility Index: FINDS/FRS

The US Environmental Protection Agency (EPA)'s Facility Registry System (FRS) is a centrally managed database that identifies facilities, sites or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, data collected from EPA's Central Data Exchange registrations and data management personnel.

Government Publication Date: Aug 12, 2019

Toxics Release Inventory (TRI) Program: TRIS

The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

Government Publication Date: Dec 31, 2017

Perfluorinated Alkyl Substances (PFAS) Releases: PFAS TRI

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a Per- or polyfluorinated alkyl substance (PFAS) included in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances. The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment.

Government Publication Date: Dec 31, 2017

Hazardous Materials Information Reporting System: HMIRS

US DOT - Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Incidents Reports Database taken from Hazmat Intelligence Portal, U.S. Department of Transportation.

Government Publication Date: Jan 8, 2019

National Clandestine Drug Labs: NCDL

The U.S. Department of Justice ("the Department") provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

Government Publication Date: Sep 26, 2019

Toxic Substances Control Act: TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI).

Government Publication Date: Jun 30, 2017

Hist TSCA: HIST TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.

Government Publication Date: Dec 31, 2006

FTTS Administrative Case Listing: FTTS ADMIN

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

FTTS Inspection Case Listing: FTTS INSP

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

Potentially Responsible Parties List: PRP

Early in the cleanup process, the Environmental Protection Agency (EPA) conducts a search to find the potentially responsible parties (PRPs). EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site.

Government Publication Date: Oct 25, 2019

State Coalition for Remediation of Drycleaners Listing: SCRD DRYCLEANER

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Government Publication Date: Nov 08, 2017

Integrated Compliance Information System (ICIS): ICIS

The Integrated Compliance Information System (ICIS) is a system that provides information for the Federal Enforcement and Compliance (FE&C) and the National Pollutant Discharge Elimination System (NPDES) programs. The FE&C component supports the Environmental Protection Agency's (EPA) Civil Enforcement and Compliance program activities. These activities include Compliance Assistance, Compliance Monitoring and Enforcement. The NPDES program supports tracking of NPDES permits, limits, discharge monitoring data and other program reports.

Government Publication Date: Nov 18, 2016

Drycleaner Facilities: FED DRYCLEANERS

A list of drycleaner facilities from the Integrated Compliance Information System (ICIS). The Environmental Protection Agency (EPA) tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

Government Publication Date: May 29, 2018

Delisted Drycleaner Facilities: DELISTED FED DRY

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).

Government Publication Date: May 29, 2018

Formerly Used Defense Sites: FUDS

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DoD) is responsible for an environmental restoration. This list is published by the U.S. Army Corps of Engineers.

Government Publication Date: Oct 23, 2018

Material Licensing Tracking System (MLTS): MLTS

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

Government Publication Date: Nov 1, 2018

Historic Material Licensing Tracking System (MLTS) sites: HIST MLTS

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

Government Publication Date: Jan 31, 2010

Mines Master Index File: MINES

The Master Index File (MIF) contains mine identification numbers issued by the Department of Labor Mine Safety and Health Administration (MSHA) for mines active or opened since 1971. Note that addresses may or may not correspond with the physical location of the mine itself.

Government Publication Date: May 3, 2019

Alternative Fueling Stations: ALT FUELS

List of alternative fueling stations made available by the US Department of Energy's Office of Energy Efficiency & Renewable Energy. Includes Biodiesel stations, Ethanol (E85) stations, Liquefied Petroleum Gas (Propane) stations, Ethanol (E85) stations, Natural Gas stations, Hydrogen stations, and Electric Vehicle Supply Equipment (EVSE). The National Renewable Energy Laboratory (NREL) obtains information about new stations from trade media, Clean Cities coordinators, a Submit New Station form on the Station Locator website, and through collaborating with infrastructure equipment and fuel providers, original equipment manufacturers (OEMs), and industry groups.

Government Publication Date: Oct 1, 2019

Registered Pesticide Establishments: SSTS

List of active EPA-registered foreign and domestic pesticide-producing and device-producing establishments based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that facilities producing pesticides, active ingredients, or devices be registered. The list of establishments is made available by the EPA.

Government Publication Date: May 31, 2019

Polychlorinated Biphenyl (PCB) Notifiers: PCB

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

Government Publication Date: Mar 20, 2019

State

Dry Cleaning Facilities: DRYCLEANERS

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial, linen supply, commercial laundry, dry cleaning and pressing machines - Coin Operated Laundry and Dry Cleaning. This is provided by the Department of Toxic Substance Control.

Government Publication Date: Oct 25, 2019

Delisted Drycleaners: DELISTED DRYCLEANERS

Sites removed from the list of drycleaner related facilities that have EPA ID numbers, made available by the California Department of Toxic Substance Control.

Government Publication Date: Oct 25, 2019

Non-Toxic Dry Cleaning Incentive Program: DRYC GRANT

A list of grant recipients of the Non-Toxic Dry Cleaning Incentive Program made available by the California Air Resources Board (CARB). The program provides grants to eligible dry cleaning businesses to assist them in transitioning away from PERC machines to alternative non-toxic and non-smog forming technologies.

Government Publication Date: Feb 28, 2018

Per- and Polyfluoroalkyl Substances (PFAS): PFAS

List of sites from the State Water Resources Control Board (SWRCB)'s GeoTracker at which one or more of the potential contaminants of concern are in the PFAS Master List of PFAS Substances made available by the Environmental Protection Agency (US EPA).

Government Publication Date: Jul 17, 2019

PFOA/PFOS Groundwater: PFAS GW

A list of water wells from the Groundwater Ambient Monitoring and Assessment Program (GAMA) Groundwater Information System with the groundwater chemical perfluorooctanoic acid (PFOA) (NL = 0.014 UG/L) or perfluorooctanoic sulfonate (PFOS) (NL = 0.013 UG/L). The GAMA Groundwater Information System search is made available by California Water Boards.Y

Government Publication Date: Oct 17, 2019

Hazardous Waste and Substances Site List - Site Cleanup: HWSS CLEANUP

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. This list is published by California Department of Toxic Substance Control.

Government Publication Date: Nov 26, 2019

List of Hazardous Waste Facilities Subject to Corrective Action: DTSC HWF

This is a list of hazardous waste facilities identified in Health and Safety Code (HSC) § 25187.5. These facilities are those where Department of Toxic Substances Control (DTSC) has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action in an order issued under HSC § 25187, or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment.

Government Publication Date: Jul 18, 2016

EnviroStor Inspection, Compliance, and Enforcement: INSP COMP ENF

A list of permitted facilities with inspections and enforcements tracked in the Department of Toxic Substance Control (DTSC) EnviroStor.

Government Publication Date: Jul 16, 2019

School Property Evaluation Program Sites: SCH

A list of sites registered with The Department of Toxic Substances Control (DTSC) School Property Evaluation and Cleanup (SPEC) Division. SPEC is responsible for assessing, investigating and cleaning up proposed school sites. The Division ensures that selected properties are free of contamination or, if the properties were previously contaminated, that they have been cleaned up to a level that protects the students and staff who will occupy the new school.

Government Publication Date: Oct 1, 2019

California Hazardous Material Incident Report System (CHMIRS): CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS). This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Jul 15, 2019

Hazardous Waste Manifest Data: HAZNET

A list of hazardous waste manifests received each year by Department of Toxic Substances Control (DTSC). The volume of manifests is typically 900,000 - 1,000,000 annually, representing approximately 450,000 - 500,000 shipments.

Government Publication Date: Oct 24, 2016

Historical California Hazardous Material Incident Report System (CHMIRS): HIST CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS) prior to 1993. This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Jan 1, 1993

Historical Hazardous Waste Manifest Data: HIST MANIFEST

A list of historic hazardous waste manifests received by the Department of Toxic Substances Control (DTSC) from year the 1980 to 1992. The volume of manifests is typically 900,000 - 1,000,000 annually, representing approximately 450,000 - 500,000 shipments.

Government Publication Date: Dec 31, 1992

Historical Cortese List: HIST CORTESE

List of sites which were once included on the Cortese list. The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements for providing information about the location of hazardous sites.

Government Publication Date: Nov 13, 2008

Cease and Desist Orders and Cleanup and Abatement Orders: CDO/CAO

The California Environment Protection Agency "Cortese List" of active Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO). This list contains many CDOs and CAOs that do NOT concern the discharge of wastes that are hazardous materials. Many of the listed orders concern, as examples, discharges of domestic sewage, food processing wastes, or sediment that do not contain hazardous materials, but the Water Boards' database does not distinguish between these types of orders.

Government Publication Date: Feb 16, 2012

California Environmental Reporting System (CERS) Hazardous Waste Sites: CERS HAZ

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.
Government Publication Date: Nov 18, 2019

Delisted Environmental Reporting System (CERS) Hazardous Waste Sites: DELISTED HAZ

This database contains a list of sites that were removed from the California Environmental Protection Agency (CalEPA) in the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator.
Government Publication Date: Nov 29, 2018

Sites in GeoTracker: GEOTRACKER

GeoTracker is the State Water Resource Control Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. This is a list of sites in GeoTracker that aren't otherwise categorized as LUST, Land Disposal Sites (LDS), Cleanup Sites, or sites having Waste Discharge Requirements (WDR). This listing includes program types such as Underground Injection Control (UIC), Confined Animal Facilities (CAF), Irrigated Lands Regulatory Program, plans, and non-case information.
Government Publication Date: Nov 14, 2019

Waste Discharge Requirements: WASTE DISCHG

List of sites in California State Water Resources Control Board (SWRCB) Waste Discharge Requirements (WDRs) Program in California, made available by the SWRCB via GeoTracker. The WDR program regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.
Government Publication Date: Nov 14, 2019

Toxic Pollutant Emissions Facilities: EMISSIONS

A list of criteria and toxic pollutant emissions data for facilities in California made available by the California Environmental Protection Agency - Air Resources Board (ARB). Risk data may be based on previous inventory submittals. The toxics data are submitted to the ARB by the local air districts as requirement of the Air Toxics "Hot Spots" Program. This program requires emission inventory updates every four years.
Government Publication Date: Dec 31, 2017

Clandestine Drug Lab Sites: CDL

The Department of Toxic Substances Control (DTSC) maintains a listing of drug lab sites. DTSC is responsible for removal and disposal of hazardous substances discovered by law enforcement officials while investigating illegal/clandestine drug laboratories.
Government Publication Date: Jun 30, 2018

Tribal

No Tribal additional environmental record sources available for this State.

County

Orange County - Hazardous Waste Facilities: ORANGE HW

A list of Hazardous Waste Facilities in Orange County. This list is made available by Orange County Environmental Health Department.
Government Publication Date: Oct 4, 2019

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

Appendix F - OCFA Guide-
C03-Combustible Gas

ORANGE COUNTY FIRE AUTHORITY

Community Risk Reduction

1 Fire Authority Road, Building A, Irvine, CA 92602, www.ocfa.org 714-573-6100

Combustible Soil Gas Hazard Mitigation

Guideline C-03

Serving the Cities of: Aliso Viejo, Buena Park • Cypress • Dana Point • Irvine • Laguna Hills • Laguna Niguel • Laguna Woods • Lake Forest • La Palma • Los Alamitos • Mission Viejo • Placentia • Rancho Santa Margarita • San Clemente • San Juan Capistrano • Santa Ana • Seal Beach • Stanton • Tustin • Villa Park • Westminster • Yorba Linda • and Unincorporated Areas of Orange County

Combustible Soil Gas Hazard Mitigation

PURPOSE

This document is intended to serve as Orange County Fire Authority (OCFA) guidance for the scientific investigation, remediation, and/or mitigation of potentially hazardous concentrations of combustible soil gases associated with the construction and occupancy of a building or structure located within the areas specified herein.

SCOPE

These guidelines shall apply to all of the following locations:

1. Any location within an administrative boundary or a distance less than or equal to 100 feet beyond the administrative boundary of any oil/gas field that has been defined by the Division of Oil, Gas, and Geothermal Resources (D.O.G.G.R.). An administrative boundary can be determined by visiting the website for D.O.G.G.R. or by contacting the City in which your project is proposed or by contacting OCFA.
2. A distance less than or equal to 100 feet from any active or abandoned oil/gas well that is not located within the administrative boundary of an oil field as defined by the D.O.G.G.R. *Exception: This guideline shall not apply to any Hydrocarbon Free Oil/Gas Well as defined in these guidelines when complete surface to total depth data has been provided to D.O.G.G.R. for review and certification and such certification is provided to the OCFA.*
3. A distance of less than or equal to 300 feet from any gas seepage zone.
4. For locations within the city of Yorba Linda, refer to *Yorba Linda Policy 26: Methane Gas Investigation and Mitigation for Existing Homes Undergoing Expansion* or OCFA Informational Bulletin 05-03.
5. A distance less than or equal to 1000 feet from the refuse footprint of any existing or new disposal site or Class II or III Municipal Solid Waste Landfill Unit described in Title 27 CCR, Chapter 2. The landfill or disposal site may be operating or closed, abandoned or inactive.
6. Any other location identified by the OCFA as being subject to gas migration from a potential source of a combustible gas.

The following definitions are provided to facilitate the consistent application of this guideline:

Abandoned Oil/Gas Well - A well that has been plugged and abandoned to D.O.G.G.R. standards.

Active Methane Detection - A system of components designed to detect specified concentrations of combustible gas within a structure and to warn the occupants via

audible/visual alarms when such concentrations are detected.
Administrative Boundary - The boundary delineating the surface area which is underlain or reasonably appears to be underlain by one or more oil and/or gas pools as defined by the State of California, Division of Oil, Gas, and Geothermal Resources (D.O.G.G.R.).

Forced Air Venting System - A mechanically operated ventilation system designed to provide the necessary number of air changes/hour for the purpose of maintaining combustible gas concentrations at a safe level within a building.

Gas Membrane Barrier - A barrier installed beneath a structure's slab foundation for the purpose of minimizing the intrusion of combustible soil gas.

Gas Seepage Zone – Any location where natural gas emerges at the surface from a subsurface source.

Hydrocarbon Free Oil/Gas Well - Any well drilled with the expectation of, but not finding, hydrocarbon accumulations in any quantity.

Mitigation Plan - A site specific plan prepared by a Registered Professional Engineer for the purpose of defining measures necessary for construction to take place within a location presenting a potential hazard due to the presence of combustible soil gases.

Registered Professional - A California Registered Professional Engineer or Registered Professional Geologist or other credentialed professional with demonstrated proficiency in the subject of soil gas investigation and mitigation and found acceptable to OCFA.

Soil Gas Investigation - A scientific investigation reviewed and approved by OCFA, conducted by a Registered Professional for the purpose of determining the locations and concentrations of combustible soil gas.

Sub-Slab Passive Venting - A non-powered system of components located beneath and/or within a structure and designed to vent accumulations of combustible soil gas to the atmosphere.

Well - Any well defined in California Public Resources Code Division 3, Chapter 1, section 3008(a)(b) and Chapter 4, section 3703, as described below:

> *3008 (a): "Well" means any oil or gas well or well for the discovery of oil or gas; any well on lands producing or reasonably presumed to contain oil or gas; any well drilled for the purpose of injecting fluids or gas for stimulating oil or gas recovery, repressuring or pressure maintenance of oil or gas reservoirs, or disposing of waste fluids from an oil or gas field; any well used to inject or withdraw gas from an underground storage facility; or any well drilled within or adjacent to an oil or gas pool for the purpose of obtaining water to be used in production stimulation or repressuring operations. (b): "Prospect well" or "exploratory well" means any well drilled to extend a field or explore a new, potentially productive reservoir. 3703.*

"Well" means any well for the discovery of geothermal resources or any well on lands producing geothermal resources or reasonably presumed to contain geothermal resources, or any special well, converted producing well or reactivated or converted abandoned well employed for reinjecting geothermal resources or the residue thereof.

PLAN SUBMITTAL REQUIREMENTS

1. Building Restriction Zone
   To the ***maximum*** extent feasible, the slab or foundation for a proposed building shall not be constructed over or within 10 feet of an abandoned oil/gas well. If specific site characteristics make such a setback unfeasible, construction of structures ***may*** be allowed within the Building Restriction Zone provided that the following mitigation measures are incorporated. The proposed construction of one- or two-family dwellings within the Building Restriction Zone shall be subject to further evaluation and/or mitigation.
   A. A Methane work plan shall be submitted by a Registered Professional. OCFA has a list of 'approved' methane specialists who are familiar with OCFA policies and plan submittal procedures. This list is not an endorsement of these companies. The companies on the list have submitted their qualifications to OCFA and have the necessary qualifications and experience to provide the service required. This list is available by contacting our OCFA Planning and Development section at (714) 573-6100.
   B. Once the methane work plan is approved, the methane testing can be performed. Once the soil gas investigation is complete, a report, meeting the criteria contained herein, shall be conducted in the immediate vicinity (25 foot radius) of any abandoned oil/gas well that will be located within the Building Restriction Zone. The report shall be submitted to OCFA.
   C. The Mandatory Procedures for Mitigation specified in Section 4 of this guideline shall be applied.
   D. A Registered Professional shall review the soil gas investigation report and building plan and recommend soil gas mitigation measures, if any, that may be required for the site beyond those contained in this guideline. Any additional mitigation measures recommended shall be included in the Mitigation Plan.
   E. The abandonment of oil/gas wells located within the Building Restriction Zone shall have the current approval of the D.O.G.G.R. The current approval shall meet the requirements applied by D.O.G.G.R. at the time the Mitigation Plan is submitted for review to OCFA.

***** THE OCFA ADVISES AGAINST THE CONSTRUCTION OF ANY STRUCTURE OVER ANY WELL *****

2. Soil Gas Investigation
   A proposed building located within the areas specified in this guideline shall be approved only after a soil gas investigation has been completed and a report submitted to OCFA for review and approval.
   A. The investigation and report shall be prepared by and conducted under the direct supervision of a Registered Professional.
   B. The report shall contain a detailed description of the site investigation including the methodology and the data collection techniques utilized.
   C. To the degree possible, the source(s) of any anomalous levels of methane shall be identified.
   D. The soil gas investigation report shall be subject to review and approval by a third party Registered Professional, if deemed necessary by OCFA. The applicant shall pay fees charged for the third party review.
3. Soil Gas Concentrations
   A. If the soil gas investigation report identifies combustible soil gas concentrations of 5,000 ppm or greater at any location(s), the Mandatory Procedures for Mitigation, as contained herein, shall be applied to all buildings within 300 feet of the affected location(s).
   B. If combustible soil gas concentrations in excess of 12,500 ppm are identified at any location(s), all buildings within 300 feet of the affected location(s) shall have a specific soil gas mitigation plan approved by a Registered Professional.
   C. The Mandatory Procedures for Mitigation pertaining to buildings located within the prescribed distances from abandoned oil/gas wells are required to be implemented regardless of the combustible soil gas concentrations identified during the soil gas investigation.
   D. Mitigation plans shall be subject to review and approval by third party Registered Professional, if deemed necessary by OCFA as stated above.
4. Mandatory Procedures for Mitigation
   Design and installation criteria for soil gas mitigation systems have been established and are detailed below. However, these criteria are not intended to limit the engineered design for any specific site (see Attachments 2 through 8 for examples). Prior to the installation of a soil gas mitigation system, plans shall be submitted to the OCFA for review/approval. All proposed designs shall be reviewed/stamped by a California Registered Professional Engineer. Proposed designs that vary significantly from the criteria below may be subject to review by a third party California Registered Professional Engineer.
   A. Source Removal: If all sources of combustible soil gas, such as crude oil impacted soil or oil field sumps, have been removed, isolated, or remediated such that no potential threat to buildings due to methane generation or migration remains, then no further mitigation in that area shall be mandatory unless recommended by a Registered Professional. All remediation shall be under the oversight and approval of Orange County Health Care Agency, Environmental Health.
   B. Passive Venting of Abandoned Oil/Gas Wells: All abandoned oil/gas wells

within 25 feet of any proposed building shall be vented. All wells within 300 feet of a proposed building that are also under or within five feet of a paved road, paved parking lot, or other continuous impermeable surface barrier where the continuous impermeable surface barrier is within 25 feet of the proposed building, shall be vented. In the event sufficient findings are made that well venting is not feasible, the OCFA (with D.O.G.G.R. concurrence) may allow a waiver of the venting requirement provided that additional mitigation measures described in section 4.F be made a part of the mitigation plan. *NOTE: Mitigation systems may not be installed within the public right of way without prior approval from the City/County Engineer or Public Works Department. See Section 5 of this guideline.*

C. Sub-slab Passive Venting: A passive venting system shall be installed beneath the slab or foundation of a proposed building that is within:
   1) 25 feet of an abandoned oil/gas well.
   2) 25 feet of a continuous impermeable surface barrier (e.g., paved road or parking lot) covering an abandoned oil/gas well that is located less than 300 feet from the building.
   3) 300 feet of an active gas seep zone.
   4) 300 feet of other anomalous combustible soil gas areas as identified in the Soil Gas Investigation Report, except as mitigated by source removal or remediation or except as identified in the Soil Gas Investigation Report as not posing a safety threat to occupied buildings due to its characteristics.

D. The design for the sub-slab venting system shall be approved by a California Registered Professional Engineer. The design and installation shall be in accordance with the California Building, Mechanical, and Plumbing Codes and meet the following criteria:
   1) Ventilation trenches shall be placed such that no portion of the foundation is more than 25 feet from a ventilation trench. Trench cross section dimensions shall not be less than 12 inches by 12 inches. Ventilation trenches shall be back filled with pea gravel (approximately 3/8 inch in diameter) or other material of similar size and porosity.
   2) Ventilation trenches shall be provided with perforated pipe of not less than 4 inches in diameter. The total pipe perforation area shall be at least equal to 5% of the total surface area of the pipe. Perforated pipe shall be located a minimum of 4 inches beneath the foundation.
   3) Where piping transitions through building footings, the penetration shall be accomplished in compliance with the California Building Code and with the approval of the Building Official.
   4) Perforated pipe shall be connected to vertical ventilation pipe. Vertical ventilation pipe shall be not less than 3 inches in diameter and shall be constructed of materials specified by the California Plumbing and Mechanical Codes. All joints shall be tightly sealed with approved materials. Ventilation pipe may be located within walls/chases or shall be similarly protected from physical damage. Ventilation pipe shall be constructed in a manner that will allow it to be connected to an active

venting system, if necessary, without modification or damage to the structure (e.g. Capped TEE fitting located near the foundation). Ventilation pipes shall terminate at a height determined acceptable by the designing engineer but not less than 18” above the adjacent level. Ventilation pipes shall be located at least three feet from a parapet wall. Ventilation pipes shall terminate at a distance of at least 10 feet from any building opening or air intake and at least four feet from any property line. Any ventilation pipe located within an open yard shall terminate at a height of not less than 10 feet above adjacent grade.

5) The termination of all ventilation pipes shall be provided with a “T” connection or other approved rain cap to prevent the intrusion of rainwater.
6) Ventilation pipe shall be clearly marked to indicate that the pipe may contain combustible gas. This may be accomplished through stencils, labels or other methods. Pipes shall be marked near their termination point and at five-foot intervals along the remainder of the ventilation pipe. This includes sections encased within walls or other enclosures. An acceptable identifier would be the words “METHANE GAS” printed in two-inch letters.
7) All underground electrical conduit penetrating the slab or foundation of the building shall be provided with a seal-off device as normally found on classified electrical installations. This device is intended to prevent the travel of gas into the occupied portion of the structure through conduit runs. Any device installed shall meet the applicable requirements of the California Electrical Code.

E. Active Methane Detection/Forced Air Venting: A structure that will be built over an abandoned oil/gas well and where the ground floor is not naturally vented may be required to have an active interior methane detection system equipped with an audible alarm and/or additional mitigation measures based on the recommendation of the Registered Professional conducting the site specific soil gas mitigation review, which may include an active interior methane detection/forced air venting system capable of providing a minimum of four air changes per hour in the event methane concentrations within the building exceed 20% of the methane Lower Explosive Limit (LEL).

F. Gas Membrane Barrier: Any building to be constructed in the areas specified by item #1 below shall be provided with a gas membrane barrier. Gas membrane barriers may be required for locations specified in items #2 through #4 unless a review and recommendation by the Registered Professional states that a gas membrane barrier is not necessary. *Exception: The building is of a structural design that provides natural ventilation to prevent the accumulation of combustible gas (e.g. an open parking garage at grade level).*

1) 10 feet of an abandoned oil or gas well.
2) 25 feet of a continuous impermeable surface barrier (e.g. paved road or parking lot) that covers an abandoned oil/gas well that is less than 300 feet from the building.

3) 300 feet of an active gas seepage zone.
4) 300 feet of other anomalous combustible soil gas level areas identified in the Soil Gas Investigation Report except as mitigated by source removal or remediation or except as identified in the Soil Gas Investigation Report as not posing a safety threat to occupied buildings due to its characteristics.

5. Mitigation Plan Approval
All reports, work plans, and mitigation plans shall be subject to the approval of the OCFA. Any methane mitigation system located within a public right of way shall also be subject to the approval of the City or County Engineer or Public Works Department. Many local agencies will restrict or prohibit the installation of methane mitigation systems within a public right of way. A public right of way includes any street, parkway, sidewalk, open space or similar area that has been or will be dedicated to a city or county.
6. Well Abandonment
Oil and gas wells to be abandoned or re-abandoned shall be done so in accordance with the current requirements of the D.O.G.G.R. The abandonment requirements will be those applied by D.O.G.G.R. at the time the mitigation plan is submitted for review to the OCFA. Documentation of final abandonment approval from the D.O.G.G.R. shall be provided to the OCFA and the building department before occupancy is approved.
7. Construction Inspection Responsibility
A Registered Professional Engineer shall perform the inspection of all gas control measures. In order to document the inspection process properly, the following signed and stamped certification shall be submitted to the OCFA prior to use of the building or OCFA's final approval of the project:
A. I am a Registered Professional Engineer in the State of California and I am knowledgeable in the field of combustible soil gas control and mitigation systems.
B. The soil gas control and mitigation systems installed within this project have been constructed under my direct supervision and in accordance with the plans reviewed by the OCFA. As-built plans are included with this statement.
C. The building has been tested and determined to be free from any concentration of gases that the control system was designed to mitigate. A copy of the test results is included with this statement.

In order to facilitate the construction approval process, periodic correspondence may be required to be provided to the field inspector representing OCFA or to the respective building department of the city in which the project is located. Such correspondence shall be provided at intervals required by the inspector and provide updated information regarding the status of inspection activities completed by the engineer responsible for the gas control system.

8. Gas Control System Maintenance and Testing
The maintenance of all soil gas control systems shall remain the responsibility of the property owner. All systems shall be maintained as installed and as

recommended by the manufacturer and/or system designer. The owner of the property shall be provided with written instructions stating the required service maintenance and testing for the soil gas mitigation systems installed. For systems requiring specialized testing to ensure proper operation, the property owner shall obtain the services of qualified personnel to accomplish such tests. Written documentation verifying that such tests were accomplished shall be retained by the property owner for a period of not less than five years and made available to the OCFA upon request. The OCFA may require any property owner to accomplish additional tests when there is reason to believe that the concentration of gas within or near the structure is elevated above the levels recorded at the time of the original soils gas investigation.

9. Additional Requirements of the California Fire Code
   This document is not intended to address the requirements of the California Fire Code pertaining to the location of a building in relation to an active oil/gas well. These requirements are found in Chapter 57, Section 57006 of the California Fire Code. The OCFA Planning & Development Services Section may be contacted for additional information.

ATTACHMENT 1
COMBUSTIBLE GAS STUDY CHECKLIST
(to be completed by applicant)

PROJECT INFORMATION

Project Name: ____

Primary Contact:__________________________________ Phone Number: __________

Site Address (if available):_________________________ City:__________________

Tract/Map #:____________________________ Lots:______________________________

Parcel Map Number:______________________ Assessor's Parcel #:_________________

DEVELOPMENT AREA

Development Density:______________________ Area (acres):__________________

Open Space:______________________________ Paved Area:___________________

GEOLOGY/HYDROLOGY

Oil Field Name: ____

Groundwater Basin/Recharge Area Name:____

Number of Wells in Development Area:

Producers:_____ Steam Injectors:______ Water Injectors:_____ Idle:_____

Abandoned:_____ Abandoned to Current Regulations:_____

Depth (ft. BGS) of:

Shallowest producing zone:_______ Shallowest Oil or Gas Zone:_____

Shallowest groundwater:_____ Shallowest drinking water:_____

Number of surface expressions of fault zones:_____ (Show on map)

Number of oil/gas seep zones:____ (Show on map)

1. Has a hazardous gas assessment been completed? YES / NO
2. Is the hazardous gas assessment attached hereto? YES / NO
3. Has the hazardous gas assessment included soil probes? YES / NO
4. If yes, to what depth have the soil probes penetrated? _____ feet
5. Has the hazardous gas assessment included soil borings? YES / NO
6. If yes, to what depths have the soil boring penetrated? _____ feet
7. The highest soil gas methane concentration identified was: _____ ppm (v/v)
8. The background soil gas methane concentration identified was _____ ppm (v/v)
9. Is the applicant requesting any waivers from required mitigation? YES / NO
10. If yes, what waiver(s) is being requested: _______________________________

COMBUSTIBLE GAS STUDY CHECKLIST (Continued)

(to be completed by applicant)

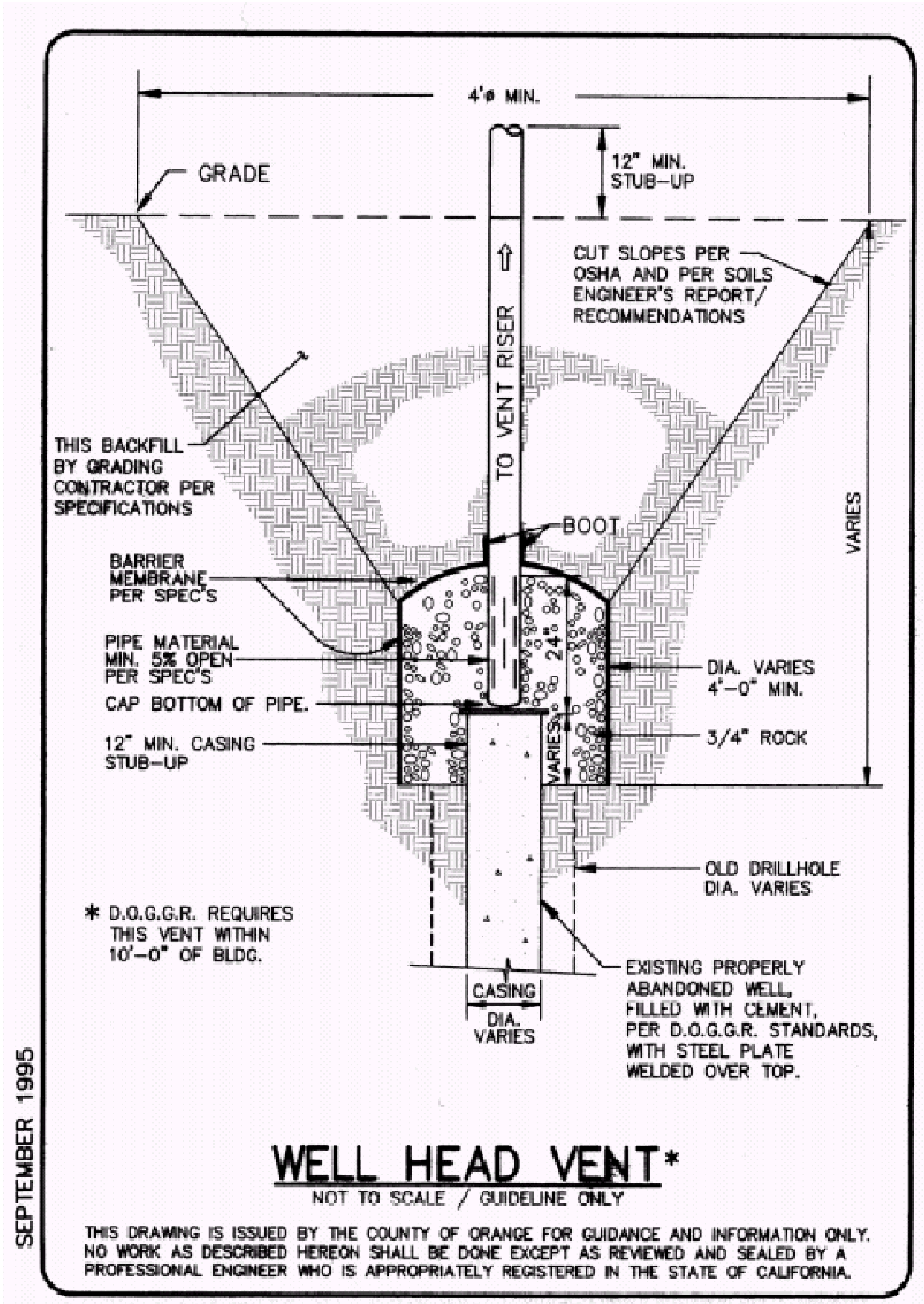
Summary of Gas Assessment Conclusions

Area (Correlate to Map)	**Methane Level** (ppm v/v range)	**Source**	**Potential to Migrate** (Yes/No)	**Migration** (Note required actions)	
				Source	**Structure s**

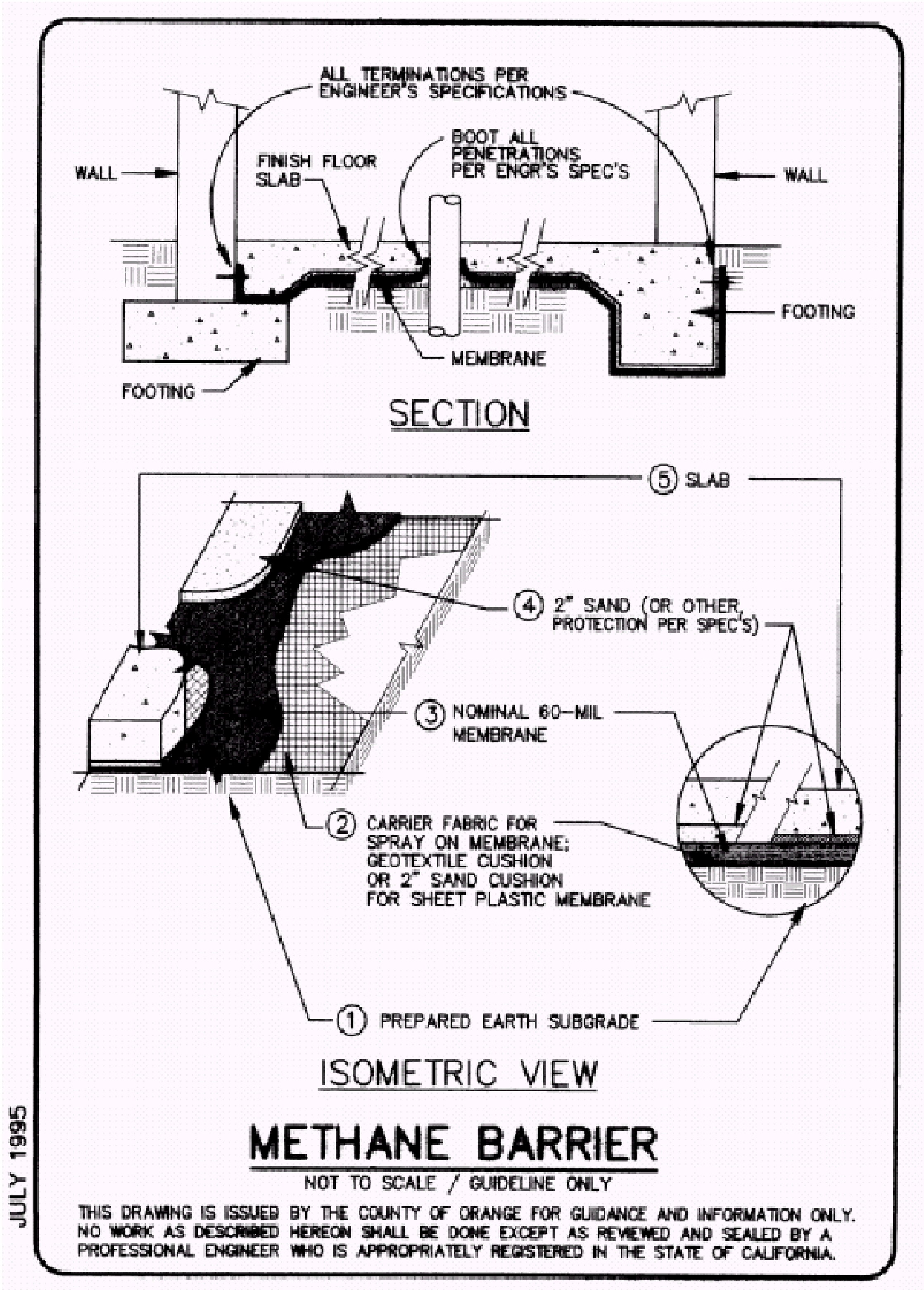
Date

Applicant

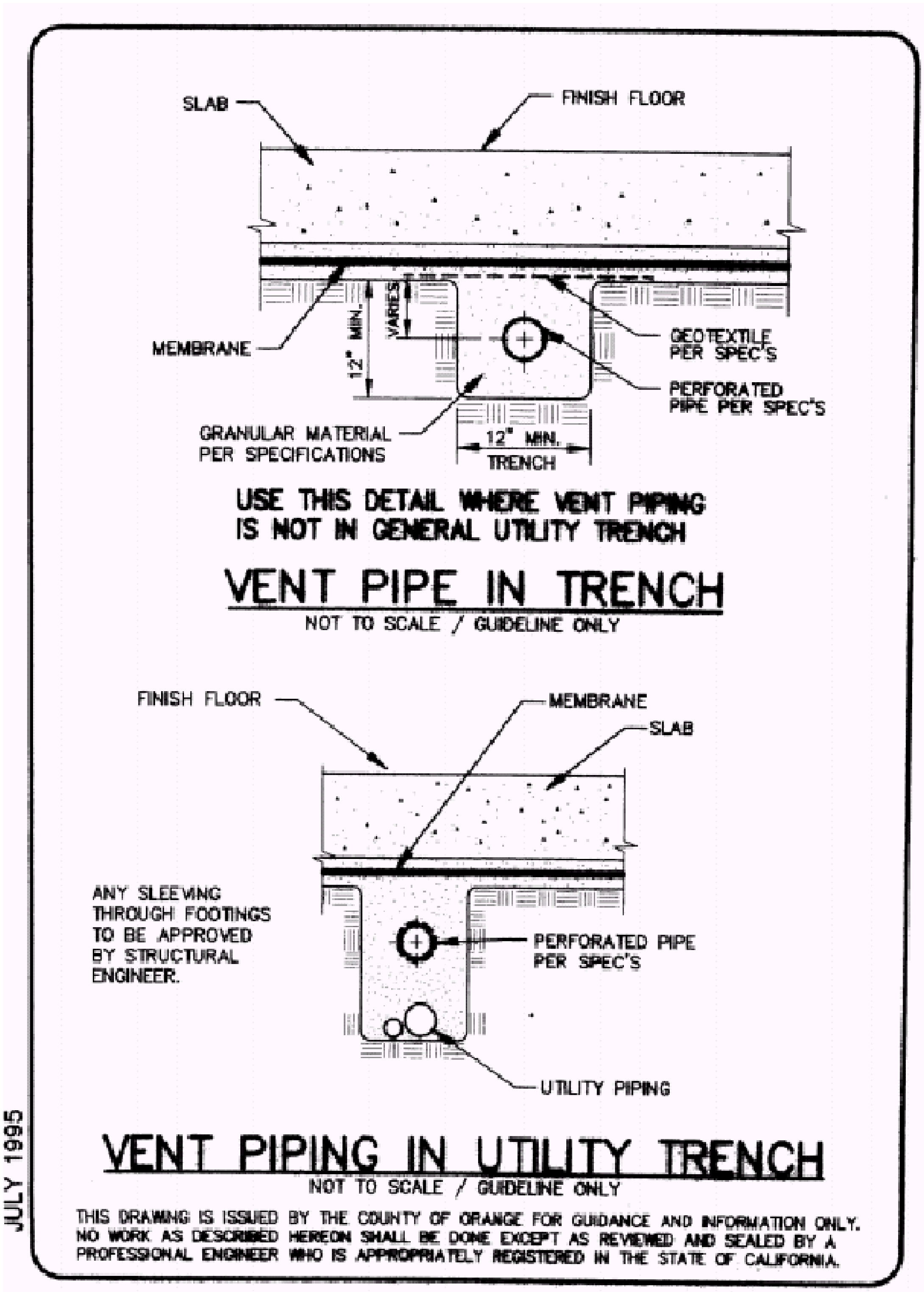
ATTACHMENT 2



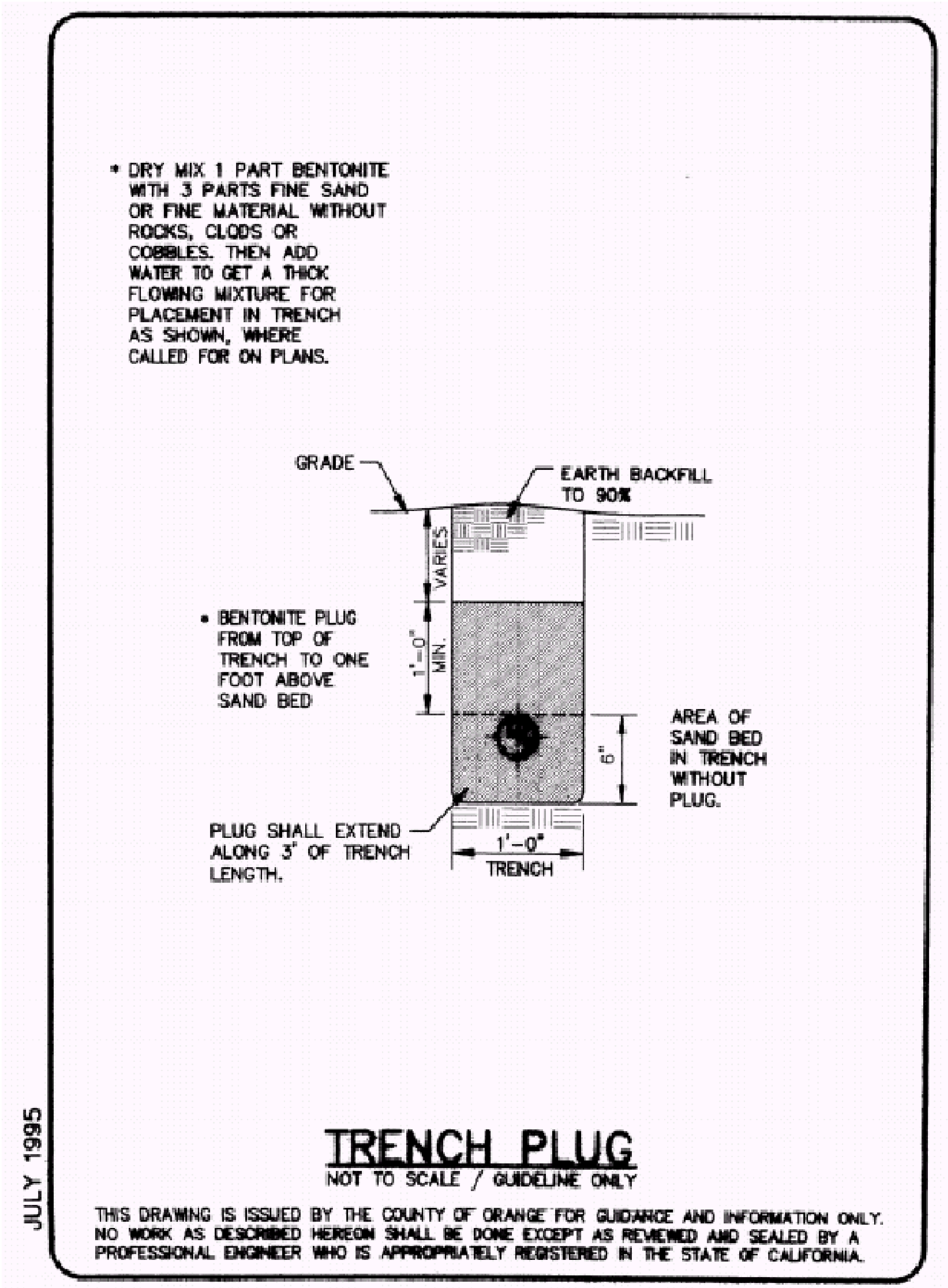
ATTACHMENT 3



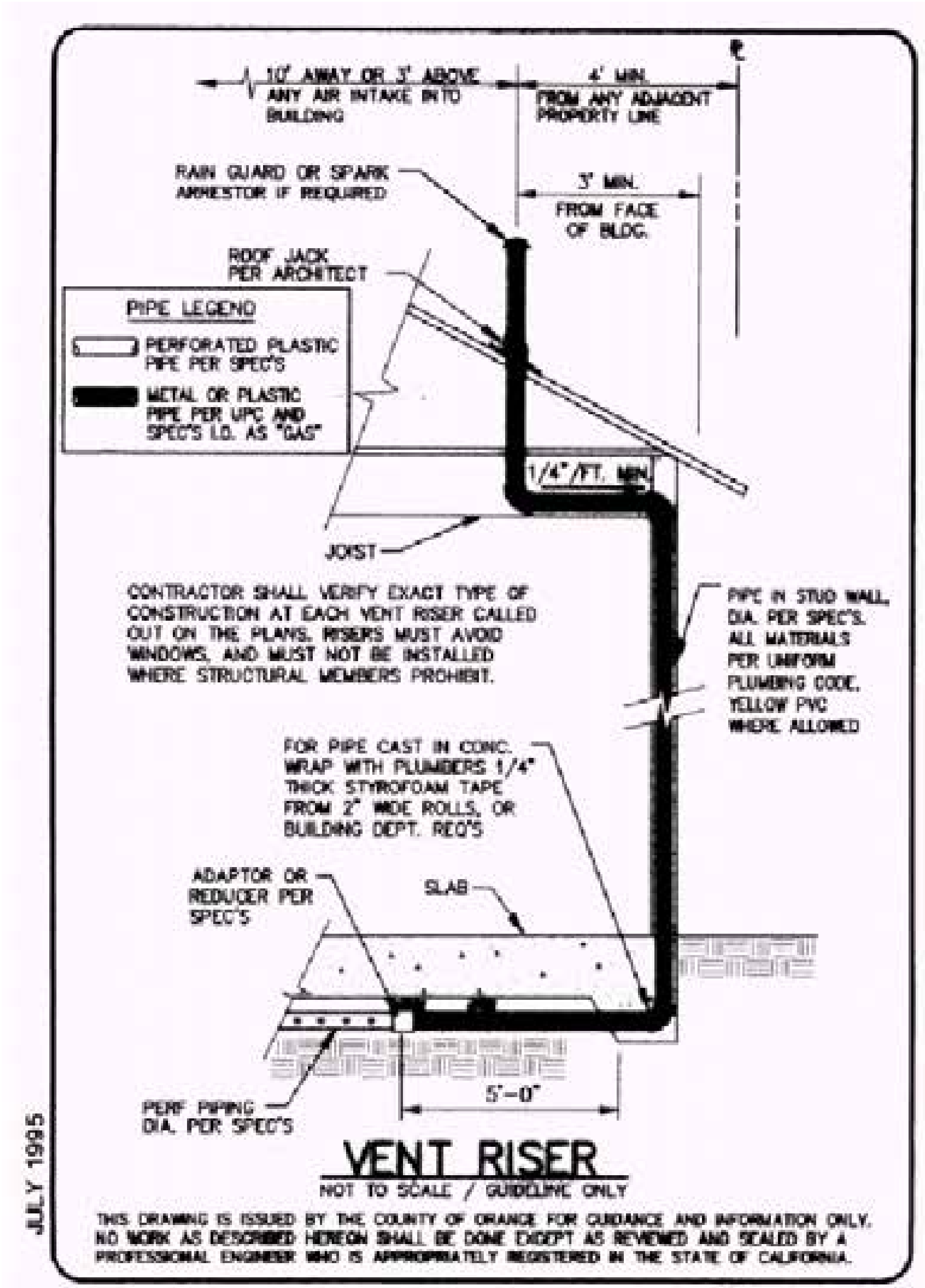
ATTACHMENT 4



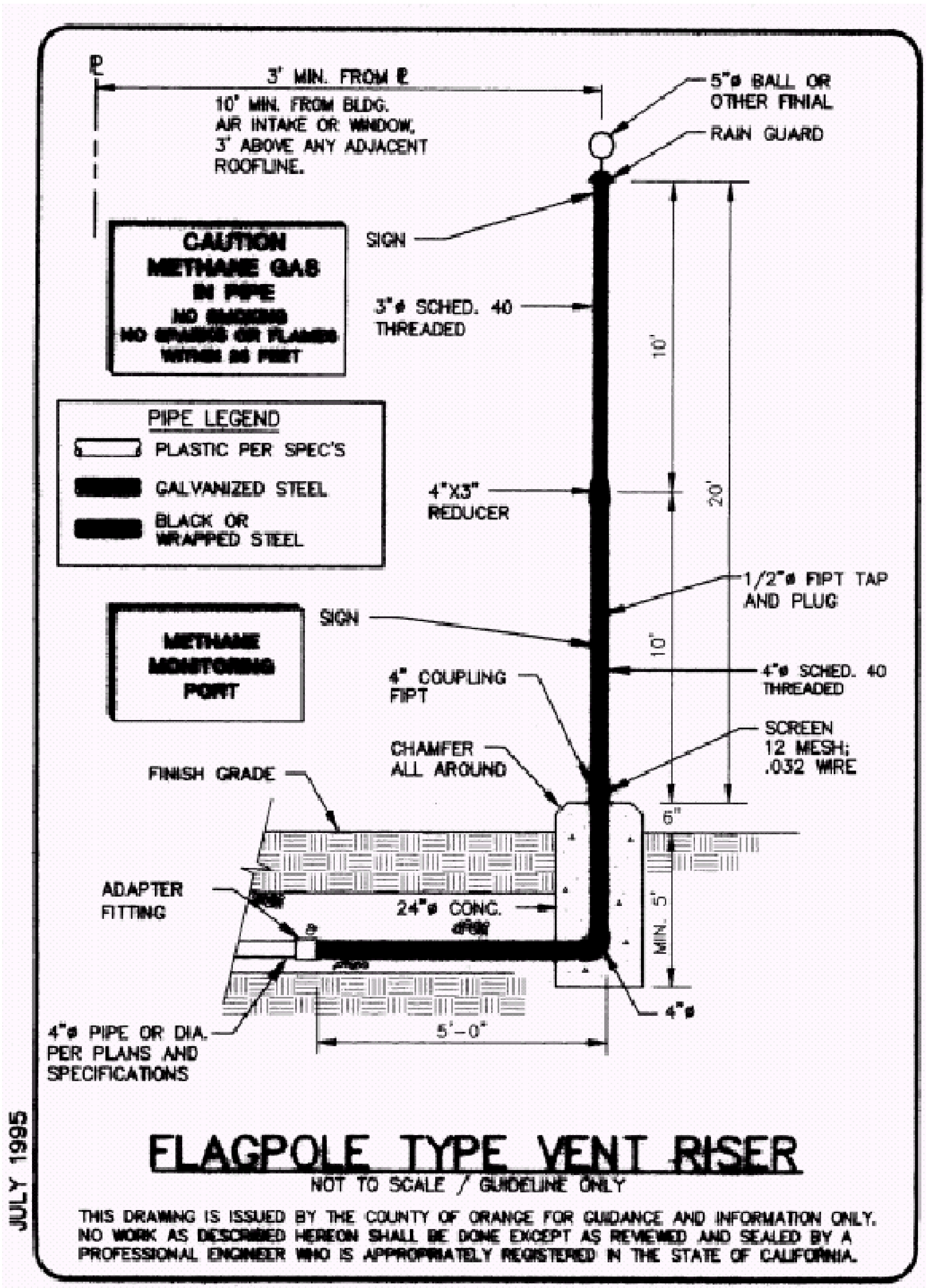
ATTACHMENT 5



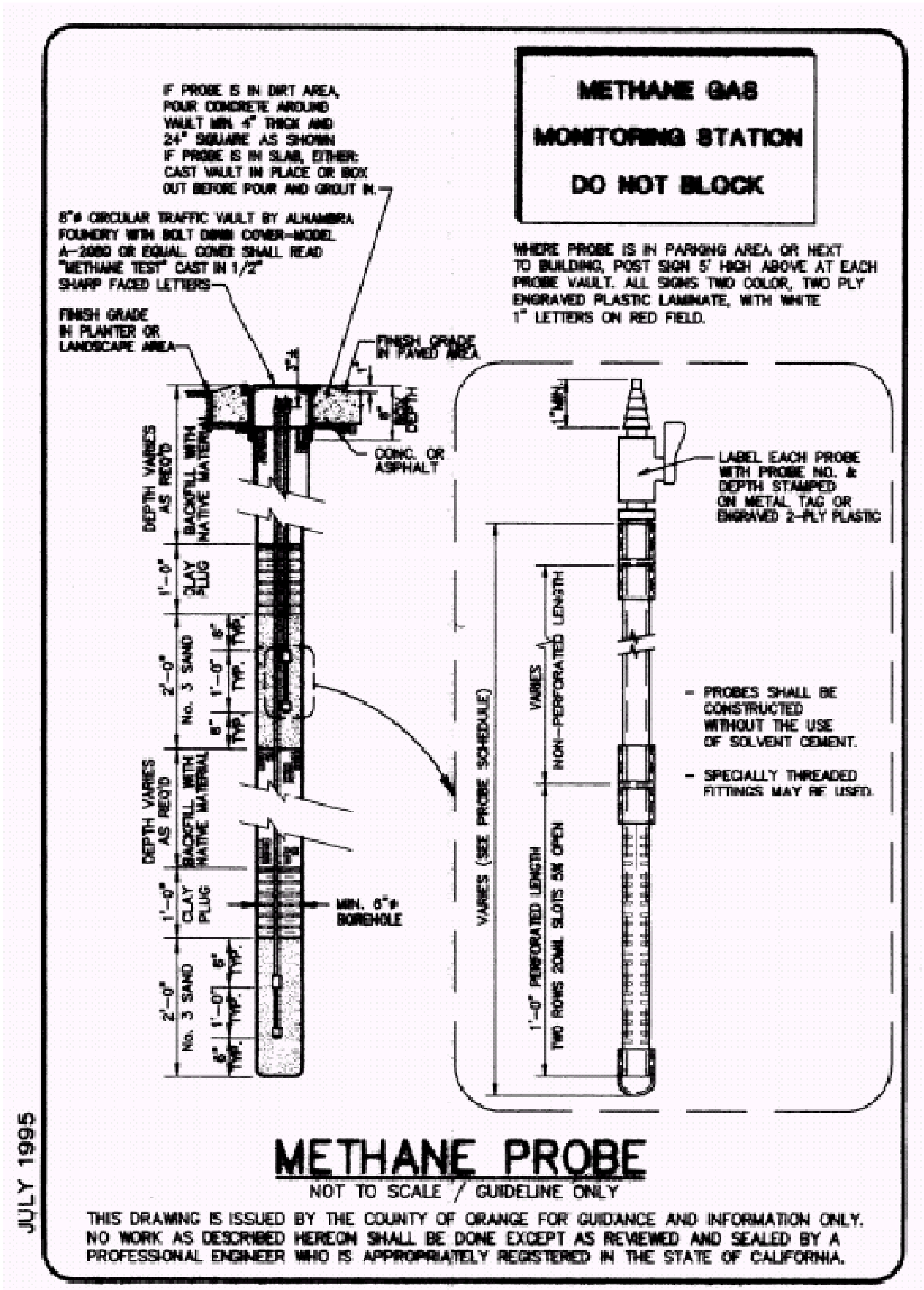
ATTACHMENT 6



ATTACHMENT 7



ATTACHMENT 8



APPENDIX B – SITE TESTING FOR METHANE

Converse Consultants

Geotechnical Engineering, Environmental & Groundwater Science, Inspection & Testing Services

April 22, 2020

Ms. Sarah Walker
Planning Project Manager
National Community Renaissance of CA
9421 Haven Avenue
Rancho Cucamonga, California 91730

Subject: **REPORT - SITE TESTING FOR METHANE**
1314 North Angelina Drive
Placentia, California
Converse Project No. 19-42-206-02

Ms. Walker:

Converse Consultants (Converse) appreciates this opportunity to present our report of the methane testing that was conducted at 1314 North Angelina in the city of Placentia, California herein referred to as the Site. The Site location is indicated on **Figure 1** attached. The work was conducted in accordance with our proposal dated January 28, 2020 and Purchase Order PO01-0920pbs.1.

Background

The Site, located at 1314 North Angelina Drive, Placentia, California, is owned by the Archdiocese of Los Angeles, and is currently occupied by the Blessed Sacrament Church, which utilizes the Site as a church and kindergarten.

The Site consists of one (1), rectangular shaped parcel and is approximately 3.6-acres in area. The Orange County Assessor's Parcel Number (APN) for the Site is 340-273-25. The Site is generally level and is developed with three (3), single-story buildings; an 8,000 square-foot (sf) church and parish hall, and a 4,000-sf classroom building. The remainder of the Site is covered with asphalt-paved parking and landscaped areas.

The Site is located approximately 300 feet above mean sea level with surface topography sloping towards the east/southeast (United States Geological Survey [USGS] Topographic Map, Yorba Linda, California, 2015). The Site is underlain by unconsolidated and semi-consolidated alluvium, lake, playa, and terrace deposits (Division of Mines and Geology, Geologic Map of California, 2010).

The Site is located in the Richfield Oil Field and will require compliance with Orange County Fire Authority (OCFA) Guideline C-03 for assessment and mitigation of combustible soil gas.

The location of the Site in the Richfield Oil Field was identified in a Phase I Environmental Site Assessment (ESA) Report dated January 6, 2020 as an environmental concern (A copy of the Phase I ESA can be provided upon request). The nearest identified oil well (identified as 1-BC Chevron USA) was reported to be located approximately 450 feet south west of the southwest corner of the Site. See **Figure 2** for proximity of oil well 1-BC Chevron to the location of the Site.

Proposed Project

Converse understands that the currently proposed project is to provide affordable senior apartments, a community room, church sanctuary, parish hall, office and classrooms.

The proposed development of the Site consists of the removal of the existing parish hall and the construction of:

- 24,198-sf building housing 32 dwelling units
- 30,152-sf building housing 33 dwelling units
- 3,960-sf community building

In addition, landscaping, parking and recreational areas will be provided.

The proposed buildings will be slab on grade construction. See **Figure 3** for the plan of the proposed project.

Scope of Work

Based on the location of the Site in the Richfield Oil Field, and the proposed redevelopment of the Site, a soil gas investigation was determined to be required. A soil gas investigation was conducted to evaluate the Site for the presence of oil field gasses.

The investigation consisted of nine (9) borings advanced at the Site. Borings were advanced using direct push technology to maximum depths of 20-feet below ground surface (bgs). Vapor probes were placed in each boring at three (3) depths; 5 feet, 10 feet, and at the maximum achievable depth of each boring (between 15 and 20 feet) bgs. Vapor probes were installed in general accordance with the Joint DTSC Water Board Soil Gas Advisory dated June 2015. See **Figure 4** for the current Site configuration and boring locations.

Probe Installation

Proposed probe locations were marked 72 hours prior to installation, and Underground Service Alert was notified. On April 15, 2020, nine (9) borings (M1 through M9) were advanced using a direct-push (Geoprobe) drill rig operated by Interphase Environmental. Boring locations are indicated on **Figure 4**. Probes were installed in these boreholes as follows:

- Probes M1 through M4 and M6 were advanced to a depth of 20-feet bgs with probes set at depths of 20, 10 and 5-feet bgs.

- Probe M-5 was advanced to a depth of 17.5-feet bgs due to refusal. Probes were set at depths of 17, 10 and 5-feet bgs.

- Probes M-7 and M-8 were advanced to a depth of 15-feet bgs due to refusal. Probes were installed at depths of 5, 10 and 15-feet bgs.

- Probe M-9 was advanced to a depth of 19-feet bgs due to refusal. Probes were set at depths of 19, 10 and 5-feet bgs.

Probes consisted of a ½-inch long stainless-steel probe tip attached to ¼-inch diameter nylaflow tubing. Six (6)-inches of sand was initially placed in the bottom of the borehole and then the probe tip was placed in the borehole followed by another 6-inches of sand. 12-inches of granular bentonite was then placed, followed by hydrated bentonite chips up to the next probe interval where the process was repeated. The borehole was sealed with hydrated bentonite chips up to 2 feet bgs. The probes were marked to identify the depth and boring number.

Monitoring

Soil gas was evaluated for methane, hydrogen sulfide, oxygen, and carbon dioxide gas concentrations. Vapor pressure within the probes was also measured. Two sets of measurements were taken a minimum of 24 hours apart. Probes were allowed to equilibrate a minimum 2-hours after installation before the initial readings were taken.

Field monitoring was conducted using a LANDTEC GEM 5000 Gas Analyzer. The GEM 5000 is an infrared gas analyzer that measures methane, carbon dioxide and oxygen in percent by volume (%), hydrogen sulfide in parts per million volume (ppmv), static pressure in inches of water (In-H2O), and differential pressure in inches of mercury (In-Hg).

Monitoring was conducted by connecting the GEM 5000 directly to the probe tubing. The differential pressure in the tubing (between the subsurface and atmosphere) was measured when the three-way valve on the tubing was opened. After recording the pressure in each of the probes in the borehole, the pump of the meter was activated and allowed to run until the gas readings stabilized, indicating that the tubing had been purged and the readings were representative of the subsurface conditions.

Monitoring Results

Monitoring of the probes was conducted on April 15 and 16, 2020. During the first round of measuring, differential pressure ranged from -1.86 to 0.08 to In-H2O. Methane was detected at the detection limit of 0.1% (1,000 ppmv) in 16 of the 27 probes. No sample was obtained from the 5 and 10-foot probes at location M4 due to no flow. Hydrogen sulfide was detected in 6 of the 27 probes at the detection limit of 1 ppmv.

During the second round of measuring, differential pressures ranged from -1.29 to 0.06 In-H2O. Methane was not detected at the detection limit of 0.1% (1,000 ppmv) in any of the probes. As in the initial round, no sample was obtained from the 5 and 10-foot probes at location M4. Hydrogen sulfide was detected at a detection limit of 1 ppmv in 3 of the 27 probes.

The monitored soil gas parameters are presented on **Table 1**.

Recommendations

Based upon the measured concentration of methane less than or equal to 1,000 ppm and the location of the Site outside of the 300-foot prescribed distance from a plugged oil and gas well, no further action is recommended.

Per OCFA Guideline C-03 this report should be submitted to the OCFA for their review and approval that no further mitigation efforts are required.

Closure/Reliance

This report is for the sole benefit and exclusive use of National Community Renaissance of CA in accordance with the terms and conditions that are presented in our proposal dated January 28, 2020 and Purchase Order PO01-0920pbs.1 under which these services have been provided. The preparation of this report has been in accordance with generally accepted environmental practices. No other warranty, either express or implied, is made. This report should not be regarded as a guarantee that no further contamination beyond that which could be detected within the scope of this assessment is present at the Site.

This report should not be regarded as a guarantee that no further contamination, beyond that which could be detected within the scope of this assessment, is present at the Site. Converse makes no warranties or guarantees as to the accuracy or completeness of information provided or compiled by others. It is possible that information exists beyond the scope of this assessment. It is not possible to absolutely confirm that no hazardous materials and/or substances exist at the Site. If none are identified as part of a limited scope of work, such a conclusion should not be construed as a guaranteed absence of such materials, but merely the results of the evaluation of the Site at the time of the assessment. Also, events may occur after the Site visit, which may result in contamination of the Site. Additional information, which was not found or available to Converse at the time of report preparation, may result in a modification of the conclusions and recommendations presented.

Any reliance on this report by Third Parties shall be at the Third Party's sole risk. Should National Community Renaissance of California wish to identify any additional relying parties not previously identified, a completed Application of Authorization to Use (see following page) must be submitted to Converse Consultants.

Thank you for this opportunity to be of service. Should you have questions regarding this confirmation of services letter, please contact either John Ziegler at (626) 930-1234.

Sincerely,

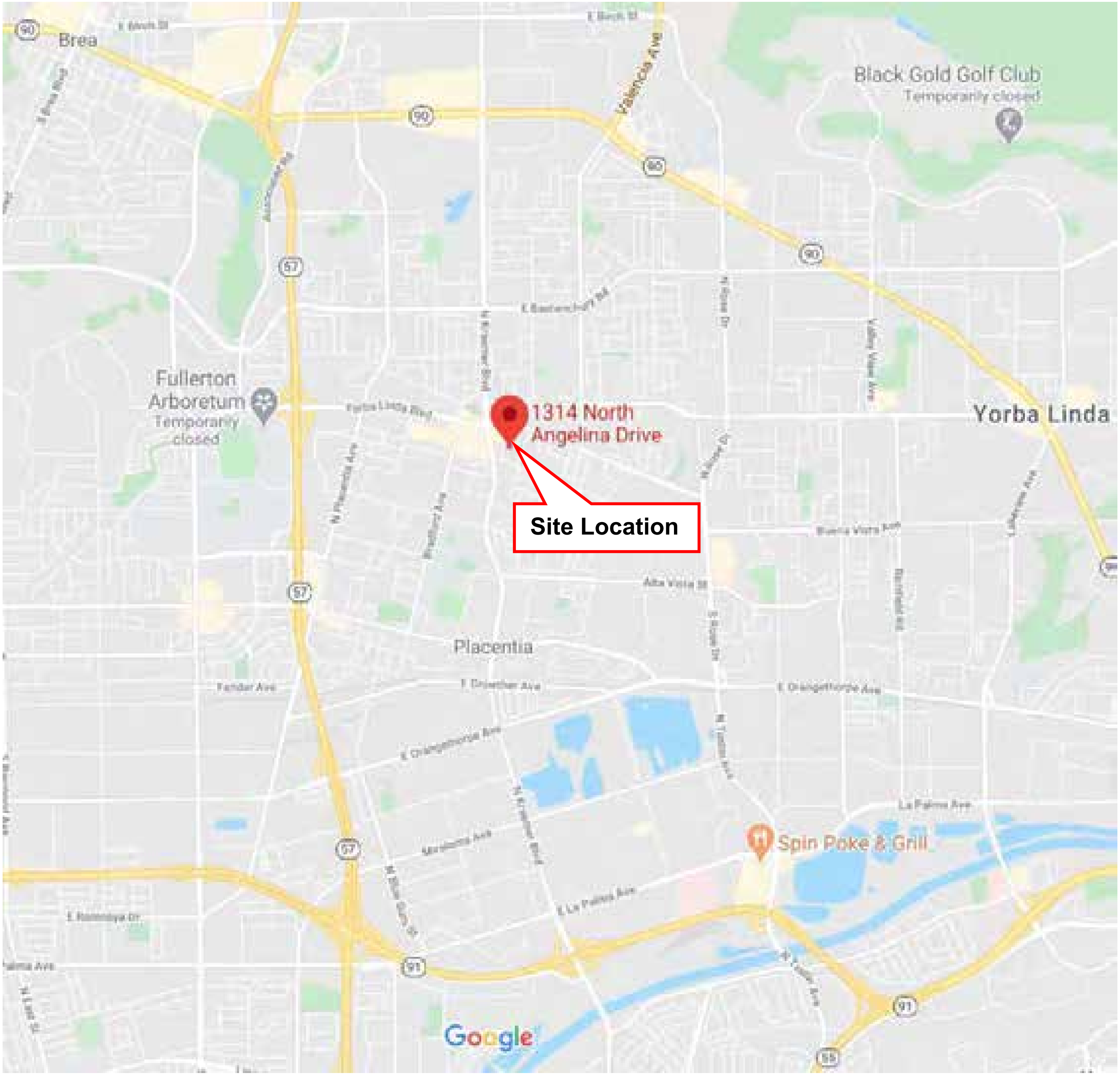
CONVERSE CONSULTANTS

John Ziegler, RA
Senior Professional

Michael Van Fleet, PG
Senior Geologist

Attch: Figures 1, 2, 3 and 4
Table 1 – Field Monitored Soil Gas Parameters

Dist: 2/Addressee



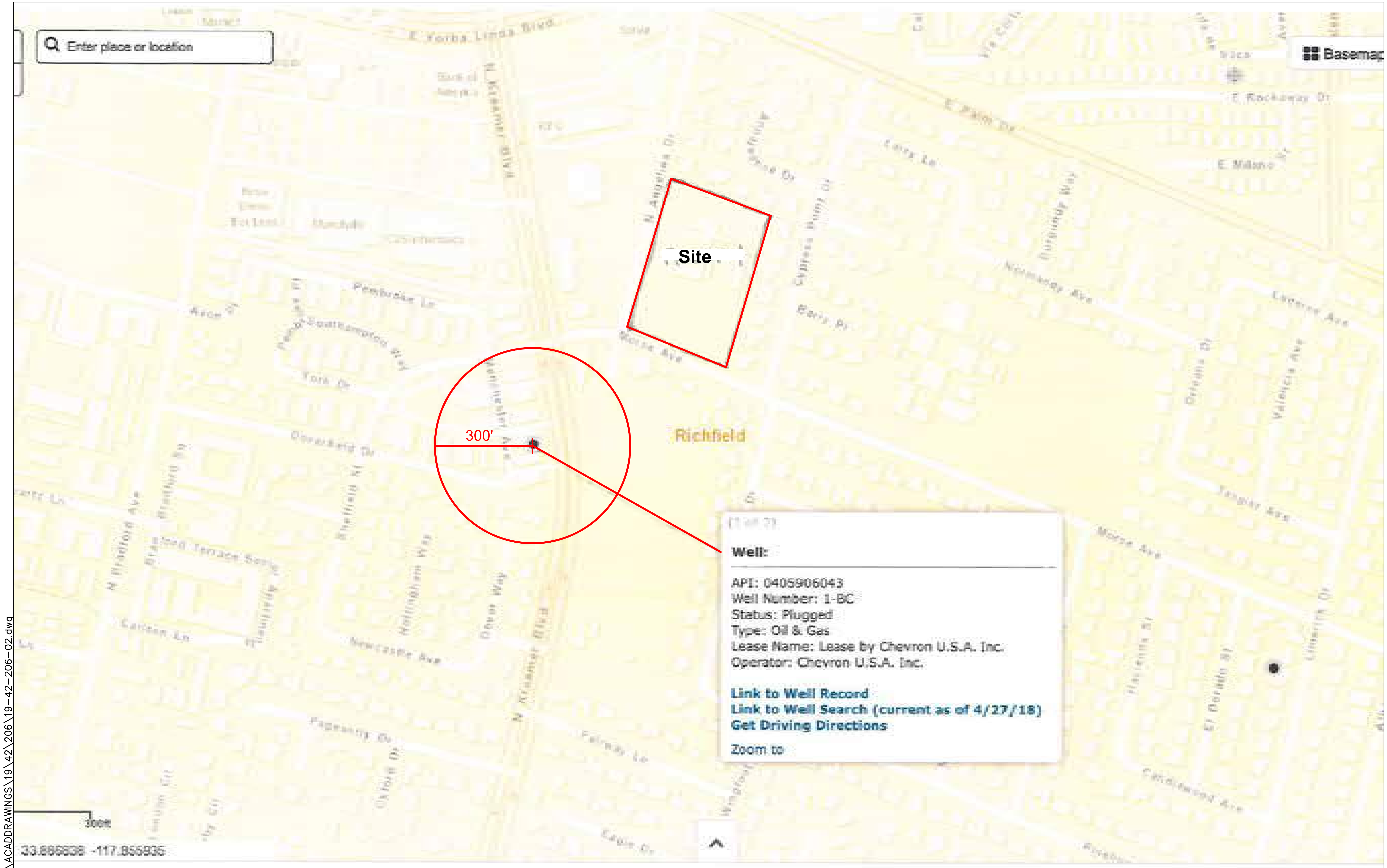
SITE LOCATION MAP

National Community Renaissance of CA
1314 N. Angelina Drive
Placentia, California 92870

Project No:
19-42-206-02

Converse Consultants

FIGURE 1



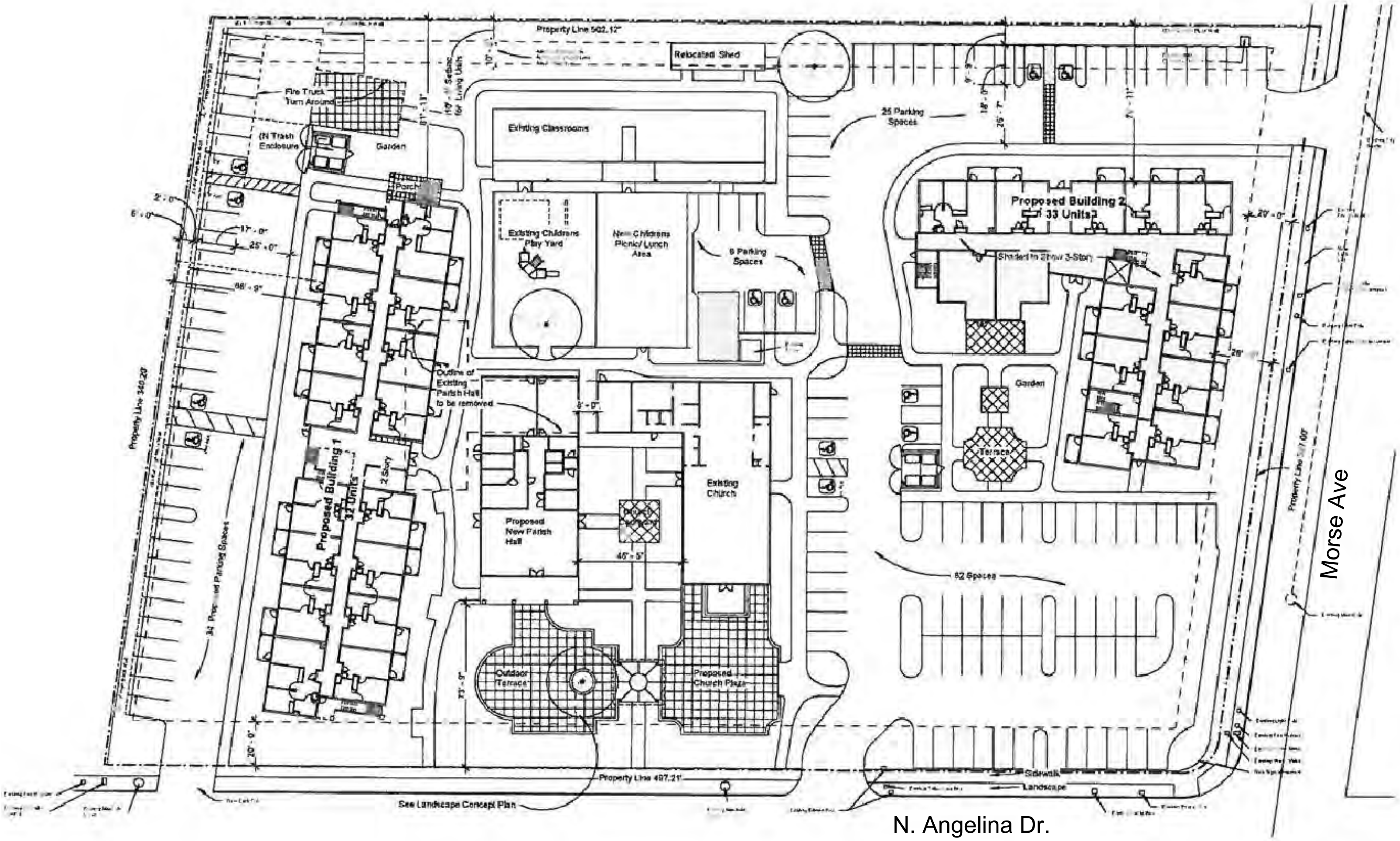
:\ACADDRAWINGS\19\42\206\19-42-206-02.dwg

SITE AND WELL LOCATIONS

Converse Consultants

NATIONAL COMMUNITY RENAISSANCE OF CA
1314 NORTH ANGELINA
PLACENTIA, CA

Project No.	FIGURE NO
19–42–206–02	2



Site Coverage

Name	Area	Percentage
Lot Area (SF) :		169,716 SF/ 3.90 acres
Maximum Lot Coverage allowed:		60% (101,830 SF)
Proposed Lot Coverage:		55%
Building Footprints (Existing and Proposed)		35,631 SF
Parking and Driveways		53,824 SF
Covered Patios		3,678 SF
Total Proposed Lot Coverage		93,133 SF (55%)
Percentage Open Space Required:		40%
Percentage Open Space Provided:		45%

Residential Unit Count

	One Bedroom	Two Bedroom
Building 1	28	4
Building 2	31	2
	59 units	6 units

Total Residential Units: 65

PROPOSED SITE PLAN

Converse Consultants

NATIONAL COMMUNITY RENAISSANCE OF CA
1314 NORTH ANGELINA
PLACENTIA, CA

Project No. 19-42-206-02

FIGURE NO 3

:\ACADDRAWINGS\19\42\206\19-42-206-04.dwg

SAMPLE LOCATION MAP - CURRENT SITE CONFIGURATION

BORING LOCATION

Converse Consultants

NATIONAL COMMUNITY RENAISSANCE OF CA
1314 NORTH ANGELINA
PLACENTIA, CA

Project No.
19-42-206-02

FIGURE NO
4

Table 1
Field Monitored Soil Gas Parameters
National Community Reniassance of CA
1314 N. Angelina
Placentia, CA

Boring ID	Depth (feet bgs)	Date	Time	Differemtial Pressure (Inches H_20)	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Hydrogen Sulfide (ppmv)	Carbon Monoxide (ppmv)	Balance (%)	Barometric Pressure (Inches Hg)
M1	5	4/15/2020	12:15	0.00	0.1	3.6	14.4	0	2	81.9	29.62
		4/16/2020	12:16	0.03	0.0	3.7	14.5	0	0	81.7	29.54
	10	4/15/2020	12:18	0.01	0.1	2.8	15.1	0	0	81.8	29.62
		4/16/2020	12:18	0.01	0.0	4.4	15	0	0	81.4	29.54
	20	4/15/2020	12:20	0.01	0.1	4.5	15.0	0	0	80.4	29.62
		4/16/2020	12:20	0.00	0.0	1.3	18.0	0	0	81.6	29.54
M2	5	4/15/2020	12:30	0.00	0.1	1.8	14.9	0	0	83.2	29.62
		4/16/2020	12:31	0.02	0.0	1.3	18.0	0	0	80.7	29.54
	10	4/15/2020	12:33	0.00	0.1	2.3	13.9	1	0	83.7	29.62
		4/16/2020	12:33	-0.04	0.0	3.2	14.9	0	0	81.9	29.54
	20	4/15/2020	12:35	0.04	0.1	5.3	14.2	0	0	80.4	29.62
		4/16/2020	12:35	0.03	0.0	5.1	14.4	1	0	80.6	29.54
M3	5	4/15/2020	12:41	0.08	0.1	0.2	18.7	1	0	81.1	29.62
		4/16/2020	12:46	0.03	0.0	1.0	12.6	4	0	86.4	29.54
	10	4/15/2020	12:43	0.05	0.0	6.4	12.9	1	0	80.6	29.62
		4/16/2020	12:47	-0.02	0.0	6.5	12.6	0	0	80.8	29.54
	20	4/15/2020	12:45	0.02	0.1	85.2	12.9	0	0	81.8	29.62
		4/16/2020	12:49	0.00	0.0	5.8	12.7	0	0	81.4	29.54

Table 1
Field Monitored Soil Gas Parameters
National Community Reniassance of CA
1314 N. Angelina
Placentia, CA

Boring ID	Depth (feet bgs)	Date	Time	Differemtial Pressure (Inches H_20)	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Hydrogen Sulfide (ppmv)	Carbon Monoxide (ppmv)	Balance (%)	Barometric Pressure (Inches Hg)
M4	5	4/15/2020	12:56	-1.86	No Flow						29.67
		4/16/2020	--	-1.29							29.54
	10	4/15/2020	12:58	--	No Flow						29.67
		4/16/2020	--	0.06							29.54
	20	4/15/2020	13:00	0.05	0.0	5.3	13.1	0	0	81.5	29.67
		4/16/2020	13:00	0.02	0.0	5.4	12.7	0	0	81.8	29.56
M5	5	4/15/2020	13:36	-0.01	0.1	2.2	16.1	0	0	81.6	29.68
		4/16/2020	13:36	-0.01	0.0	3.0	15.5	1	0	81.6	29.59
	10	4/15/2020	13:38	-0.02	0.1	3.7	14.6	0	0	81.6	29.68
		4/16/2020	13:38	0.00	0.0	4.8	14.5	0	0	80.6	29.59
	17	4/15/2020	13:40	0.00	0.0	5.4	14.8	0	0	81.6	29.68
		4/16/2020	13:40	0.00	0.0	5.4	14.3	0	0	80.3	29.59
M6	5	4/15/2020	13:46	0.05	0.1	1.2	16.9	0	0	81.8	29.68
		4/16/2020	13:47	-0.01	0.0	2.1	16.4	0	0	81.5	29.64
	10	4/15/2020	13:48	0.01	0.1	2.8	14.9	1	9	82.0	29.68
		4/16/2020	13:49	0.00	0.0	3.9	15.2	0	0	80.9	29.64
	20	4/15/2020	13:50	0.02	0.1	4.0	15.0	0	0	80.6	29.68
		4/16/2020	13:51	0.00	0.0	5.0	14.5	0	0	80.5	29.64

Table 1
Field Monitored Soil Gas Parameters
National Community Reniassance of CA
1314 N. Angelina
Placentia, CA

Boring ID	Depth (feet bgs)	Date	Time	Differemtial Pressure (Inches H_20)	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Hydrogen Sulfide (ppmv)	Carbon Monoxide (ppmv)	Balance (%)	Barometric Pressure (Inches Hg)
M7	5	4/15/2020	13:55	0.03	0.1	2.1	15.8	0	0	82.0	29.69
		4/16/2020	14:01	0.00	0.0	3.2	15.4	0	0	81.4	29.64
	10	4/15/2020	14:00	0.01	0.1	7.6	14.6	1	15	80.7	29.69
		4/16/2020	14:03	-0.01	0.0	4.4	14.7	0	0	80.9	29.64
	15	4/15/2020	14:05	0.00	0.1	6.0	14.2	0	0	79.7	29.69
		4/16/2020	14:05	0.00	0.0	5.9	14.1	0	0	80.0	29.64
M8	5	4/15/2020	14:40	0.03	0.0	5.5	14.1	0	0	80.4	29.70
		4/16/2020	14:41	-0.01	0.0	3.1	15.7	0	0	81.2	29.65
	10	4/15/2020	14:43	0.05	0.0	5.0	14.2	0	0	80.8	29.70
		4/16/2020	14:43	0.02	0.0	5.1	14.6	0	0	80.3	29.65
	15	4/15/2020	14:45	0.00	0.0	5.7	14.0	0	0	80.3	29.69
		4/16/2020	14:45	0.01	0.0	6.0	14.3	0	0	79.7	29.65
M9	5	4/15/2020	15:06	0.01	0.0	0.6	18.6	0	0	80.8	29.69
		4/16/2020	15:08	0.00	0.0	2.3	16.3	0	0	81.4	29.65
	10	4/15/2020	15:08	0.03	0.0	3.5	14.8	1	0	81.7	29.70
		4/16/2020	15:10	0.00	0.0	2.9	13.6	0	0	83.5	29.65
	19	4/15/2020	15:10	-0.02	0.0	3.8	14.2	0	0	82.0	29.70
		4/16/2020	15:12	0.01	0.0	4.3	14.2	0	0	81.5	29.65

APPENDIX C – PRELIMINARY GEOTECHNICAL INVESTIGATION

ALBUS-KEEFE & ASSOCIATES, INC
GEOTECHNICAL CONSULTANTS

January 10, 2020
J.N.: 2859.00

Ms. Sarah Walker
National Community Renaissance
4322 Piedmont Drive
San Diego, CA 92107

Subject: **Preliminary Geotechnical Investigation, Proposed Residential Development, 1314 Angelina Drive, Placentia, California.**

Dear Ms. Walker,

Pursuant to your request, ***Albus-Keefe & Associates, Inc***. is pleased to present to you our preliminary geotechnical investigation report for the subject development. This report presents the results of our field investigation, laboratory testing, engineering analyses, as well as our preliminary geotechnical recommendations for design and construction of the subject development.

We appreciate this opportunity to be of service to you. If you have any questions regarding the contents of this report, please do not hesitate to call this office.

Sincerely,

ALBUS-KEEFE & ASSOCIATES, INC.

Paul Kim
Associate Engineer

TABLE OF CONTENTS

TABLE OF CONTENTS

FIGURES AND PLATES

APPENDICES

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

The purposes of our preliminary geotechnical investigation were to evaluate geotechnical conditions within the project area and to provide conclusions and recommendations relevant to the design and construction of the proposed improvements at the subject site. The scope of this investigation included the following:

- Review of the referenced conceptual site plan
- Review of published geologic and seismic data for the site and surrounding area
- Review of historical aerial photographs
- Exploratory drilling and soil sampling
- Laboratory testing of selected soil samples
- Engineering analyses of data obtained from our review, exploration, and laboratory testing
- Evaluation of site seismicity, liquefaction, and settlement potential
- Preparation of this report

1.2 SITE LOCATION AND DESCRIPTION

The site is located at 1314 North Angelina Drive within the city of Placentia, California. The property is bordered by North Angelina Drive to the West, single-family residences to the North and East, and Morse Avenue to the South. The location of the site and its relationship to the surrounding areas is shown on Figure 1, Site Location Map.

The site consists of a rectangular-shaped property containing approximately 4 acres of land. The site is relatively flat with elevations ranging from EL. 294 to EL. 297 above mean sea level (based on Google Earth) descending to the south-west. The site is currently occupied by Blessed Sacrament Episcopal Church. There are currently two existing structures and it appears that the structure located westerly is used for church gatherings. The easterly structure is used as a school facility. Associated parking areas are located along the southern boundary with vegetation occupying the remainder to the site. Perimeter walls run along the North and East boundaries and appear to be associated with the single-family residences.

Vegetation includes general landscaping in and around the structures, planters within the parking areas, grass and moderate to large sized trees within the open spaces.

N

SITE LOCATION MAP

Proposed Residential Development
1314 Angelina Drive
Placentia, California

NOT TO SCALE

FIGURE 1

1.3 PROPOSED DEVELOPMENT

Based on the conceptual site plan by RRM Design Group, dated September 5, 2019, the proposed project includes the development of two residential buildings accommodating 65 units. Building 1, at the north end of the site, is a linear two-story structure. Building 2 is a two-story, L-shaped building located interior to the site with a three-story element at the northern end of the building transitioning to two-stories toward the single-family neighborhood along the eastern property line. Associated parking, underground utilities and a storm water disposal system are also planned.

No grading or structural plans were available in preparing of this report. However, we anticipate that minor rough grading of the site will be required to achieve future surface configuration. We expect the proposed above-grade portion will be of wood-frame construction yielding relatively light foundation loads.

2.0 INVESTIGATION

2.1 RESEARCH

We have reviewed the referenced geologic publications and maps (see references). Data from these sources were utilized to develop some of the findings and conclusions presented herein.

We have also reviewed available historical aerial photographs. The aerial photos indicate that as early 1946, the subject site was part of a larger site and used for agricultural purposes. By 1967, the site was cleared of vegetation and the south half of the existing Church structure was constructed. Additionally, the north- and east-adjacent single-family residences have been constructed. By 1980, the north half of the existing Church structure was constructed. Also, at this time, the parking lot has likely been developed with asphalt. By 2002, the additional asphalt-paved parking appears east of the Church structure. By 2005, the school structure is present. The site has remained relatively unchanged since 2005.

2.2 SUBSURFACE EXPLORATION

Subsurface exploration for this investigation was conducted on December 17, 2019, and consisted of the drilling of four (4) soil borings to depths ranging from approximately 31.5 to 51.5 feet below the existing ground surface (bgs). The borings were drilled using a truck-mounted, continuous flight, hollow-stem-auger drill rig. A representative of Albus-Keefe & Associates, Inc. logged the exploratory borings. Visual and tactile identifications were made of the materials encountered, and their descriptions are presented in the Exploration Logs in Appendix A. The approximate locations of the exploratory excavations completed by this firm are shown on the enclosed Geotechnical Map, Plate 1.

Bulk, relatively undisturbed and Standard Penetration Test (SPT) samples were obtained at selected depths within the exploratory borings for subsequent laboratory testing. Relatively undisturbed samples were obtained using a 3-inch O.D., 2.5-inch I.D., California split-spoon soil sampler lined with brass rings. SPT samples were obtained from the boring using a standard, unlined SPT soil sampler. During each sampling interval, the sampler was driven 18 inches with successive drops of a 140-pound automatic hammer falling 30 inches. The number of blows required to advance the sampler was recorded for each six inches of advancement. The total blow count for the lower 12 inches of advancement per soil sample is recorded on the exploration log. Samples were placed in sealed containers or plastic bags and transported to our laboratory for analyses. The borings were backfilled with auger cuttings upon completion of sampling.

One additional boring was drilled adjacent to boring B-1 for percolation testing. An additional percolation well was also installed in B-3. Details and results of percolation tests are reported under a separate cover.

2.3 LABORATORY TESTING

Selected samples of representative earth materials from our borings were tested in our laboratory. Tests consisted of USCS classification, in-situ moisture content and dry density, expansion index, maximum dry density and optimum moisture content, consolidation/collapse, direct shear strength, grain size analysis, percent passing No. 200 sieve, soluble sulfate content, and corrosivity testing (pH, chloride, and resistivity). Descriptions of laboratory testing and the test results are presented in Appendix B and on the Exploration Logs in Appendix A.

3.0 GEOLOGIC CONDITIONS

3.1 SOIL CONDITIONS

Descriptions of the earth materials encountered during our investigation are summarized below and are presented in detail on the Exploration Logs presented in Appendix A.

Soil materials encountered at the subject site generally consisted of Quaternary-aged alluvium (Qal). However, artificial fill materials were encountered within the parking lot at B-1 with an approximate thickness of 4 feet. The artificial fill consists of a sandy clay, grayish brown, moist, very stiff with fine to medium grained sand.

The alluvial materials were encountered to the maximum depth explored of 51.5 feet and are comprised of interbedded layers of damp to moist, reddish brown and light reddish-brown sandy clay, silty sand, clayey sand, silty clay, and sand. The granular alluvial soils are typically medium dense while the fine-grained alluvial soils are typically very stiff to hard.

A more detailed description of the interpreted soil profile at each of the boring locations, based upon the soil cuttings and soil samples, are presented in Appendix A. The stratigraphic descriptions in the logs represent the predominant materials encountered during investigation. Relatively thin, often discontinuous layers of different material may occur within the major divisions.

3.2 GROUNDWATER

Groundwater was not encountered during this firm's subsurface exploration to the maximum depth of 51.5 feet. Based on a review of the referenced CDMG Special Report, the historical groundwater for the site is not available. Additional review of the Department of Water Resources groundwater level data for the nearby well 338950N1178554W001 (approximately 2,600 feet to the northeast) indicates that groundwater for the area is below 150 feet in depth between 1970 to present. Review of well data from the State Water Resources Board GeoTracker database indicates groundwater levels in excess of 110 feet below the ground surface. These wells are estimated to be in generally similar geologic conditions based on review available geologic maps.

3.3 FAULTING

Geologic literature and field exploration do not indicate the presence of active faulting within the site. The site does not lie within an "Earthquake Fault Zone" as defined by the State of California in the Earthquake Fault Zoning Act. Table 3.1 presents a summary of all the known seismically active faults within 10 miles of the site.

TABLE 3.1
Summary of Active Faults

Name	Distance (miles)	Slip Rate (mm/yr.)	Preferred Dip (degrees)	Slip Sense	Rupture Top (km)	Fault Length (km)
Puente Hills (Coyote Hills)	0.91	0.7	26	thrust	2.8	17
Elsinore;W+GI	2.97	n/a	81	strike slip	0	83
Elsinore;W+GI+T+J+CM	2.97	n/a	84	strike slip	0	241
Elsinore;W	2.97	2.5	75	strike slip	0	46
Elsinore;W+GI+T	2.97	n/a	84	strike slip	0	124
Elsinore;W+GI+T+J	2.97	n/a	84	strike slip	0	199
Puente Hills (Santa Fe Springs)	9.57	0.7	29	thrust	2.8	11
Puente Hills (Coyote Hills)	0.91	0.7	26	thrust	2.8	17
Elsinore;W+GI	2.97	n/a	81	strike slip	0	83
Elsinore;W+GI+T+J+CM	2.97	n/a	84	strike slip	0	241
Elsinore;W	2.97	2.5	75	strike slip	0	46
Elsinore;W+GI+T	2.97	n/a	84	strike slip	0	124

4.0 ANALYSES

4.1 SEISMICITY AND SEISMIC DESIGN PARAMETERS

2019 CBC requires seismic parameters in accordance with ASCE 7-16. Unless noted otherwise, all section numbers cited in the following refer to the sections in ASCE 7-16.

Per Section 20.3 the project site was designated as Site Class D. We used USGS seismic design maps web tool developed by SEAOC and OSHPD to obtain the basic mapped acceleration parameters, including short periods (S_S) and 1-second period (S_1) MCE_R Spectral Response Accelerations. Section 11.4.8 requires site-specific ground hazard analysis for structures on Site Class E with S_S greater than or equal to 1.0 or Site Class D or E with S_1 greater than or equal to 0.2. Based on the mapped values of S_S and S_1 the project site falls within this category, requiring site specific hazard analysis in accordance with Section 21.2.

According to Section 21.2.3 (Supplement 1), the site-specific Risk Targeted Maximum Considered Earthquake (MCE_R) spectral response acceleration at any period is the lesser of the probabilistic and the deterministic response accelerations, subject to the exception specified in the same section. The probabilistic response spectrum was developed using USGS Risk Targeted Ground Motion (RTGM) calculator, which implements Method 2 as described on Section 21.2.1.2. The spectral acceleration and annual frequency of exceedance required by the RTGM calculator were extracted from hazard curves produced by USGS Unified Hazard Tool for the project site.

In accordance with Section 21.2.2 (Supplement 1), the deterministic spectral response acceleration at each period was calculated as the 84^{th} percentile, 5% damped, response acceleration, using the NGA-West2 GMPE Worksheet. For this, the information from at least three causative faults with the greatest contribution per deaggregation analysis were used, and the larger acceleration spectrum among these was selected as the deterministic response spectrum. The deterministic spectrum was adjusted per requirements in Section 21.2.2 (Supplement 1) where applicable. Both probabilistic and deterministic spectra were subjected to the maximum direction scale factors specified in Section 21.2 to produce the maximum acceleration spectra.

Design response spectrum was developed by subjecting the site-specific MCE_R response spectrum to the provisions outlined in Section 21.3. This process included comparison with 80% code-based design spectrum determined in accordance with Section 11.4.6. The short period and long period site coefficient (F_a and F_v, respectively) were determined per Section 21.3 in conjunctions with Table 11.4-1. Site specific design acceleration parameters (S_{MS}, S_{M1}, S_{DS}, and S_{D1}) were calculated according to Section 21.4.

Per Section 11.2 (definitions on Page 79 of ASCE7-16) for evaluation of liquefaction, lateral spreading, seismic settlements, and other soil-related issues, Maximum Considered Earthquake Geometric Mean (MCE_G) peak ground acceleration PGA_M shall be used. The site-specific PGA_M is calculated per Section 21.5.3, as the lesser of the probabilistic PGA_M (Section 21.5.1) and deterministic PGA_M (Section 21.5.2), but no less than 80% site modified peak ground acceleration, PGA_M, obtained from SEAOC/OSHPD web-based seismic hazard tool.

4.2 STATIC SETTLEMENT

Analyses were performed to evaluate the potential for static settlement of the underlying alluvial soils. Our analyses were based on the results of consolidation tests performed on selected samples from our borings as well as the recorded blow counts during the exploration. Results of our testing indicate the native site materials have low to moderate compressibility. In its current state, the native materials would result in excessive settlement due to the weight of new foundations.

The artificial fill soils were not considered in our settlement analysis as it is considered unsuitable for support of the proposed site development.

Provided remedial removals are performed, total and differential static settlement can likely be limited to a maximum of 1 inch and ½-inch over 30 feet, respectively. These estimated magnitudes of static settlements are considered within tolerable limits for the proposed structures.

5.0 CONCLUSIONS

5.1 FEASIBILITY OF PROPOSED DEVELOPMENT

From a geotechnical point of view, the proposed site development is considered feasible provided the recommendations presented in this report are incorporated into the design and construction of the project. Furthermore, it is the opinion that the proposed development, if constructed in accordance with the recommendations provided in our referenced report, will be safe against hazards from settlement, slippage, or landslides. The proposed site development will have no adverse effects on the stability of adjacent property if graded in accordance with this firm's recommendations and the approved rough grading plans.

Key issues that could have significant fiscal impacts on the geotechnical aspects of the proposed site development are discussed in the following sections of this report.

5.2 GEOLOGIC HAZARDS

5.2.1 Ground Rupture

No active faults are known to project through the site nor does the site lie within the bounds of an "Earthquake Fault Zone" as defined by the State of California in the Los Angeles Earthquake Fault Zoning Act. As such, the potential for ground rupture due to fault displacement beneath the site is considered very low. The nearest zoned fault is the Whittier Fault located 3.5 miles to the northeast.

5.2.2 Ground Shaking

The site is located in a seismically active area that has historically been affected by moderate to occasionally high levels of ground motion. The site lies in relatively close proximity to several seismically active faults; therefore, during the life of the proposed development, the property will probably experience moderate to occasionally high ground shaking from these fault zones, as well as some background shaking from other seismically active areas of the southern California region. Design of proposed structures in accordance with the current CBC is anticipated to adequately mitigate concerns with ground shaking.

5.2.3 Landsliding

Geologic hazards associated with landsliding are not anticipated at the site due to not being located within an area identified by the California Geologic Survey (CGS) as having potential for seismic slope instability. Additionally, the site is relatively level.

5.2.4 Liquefaction

Engineering research of soil liquefaction potential (Youd, et al., 2001) indicates that generally three basic factors must exist concurrently in order for liquefaction to occur. These factors include:

- A source of ground shaking, such as an earthquake, capable of generating soil mass distortions.
- A relatively loose silty and/or sandy soil.
- A relative shallow groundwater table (within approximately 50 feet below ground surface) or completely saturated soil conditions that will allow positive pore pressure generation.

The liquefaction susceptibility of the onsite soils was evaluated by analyzing the potential of concurrent occurrence of the above-mentioned three basic factors. The liquefaction evaluation for the site was completed under the guidance of Special Publication 117A: Guidelines for Evaluating and Mitigating Seismic Hazards in California (CDMG, 2008).

Based on the historically low groundwater level, the potential for liquefaction at the site is considered to be low. Additionally, the site is not mapped within a State-designated zone of potentially liquefiable soils.

5.3 STATIC SETTLEMENT

The existing artificial fills are considered unsuitable for support of the proposed development. Additionally, the near-surficial alluvial soils are compressible which would result in excessive settlements for the proposed development in its current condition. Therefore, removal and recompaction of the existing surficial soils to provide a uniform compacted blanket will be necessary. Provided grading and construction are performed in accordance with the recommendations provided herein, estimated total and differential settlement of proposed site improvements are anticipated to be less than 1 inch and ½ inch over 30 feet, respectively. These magnitudes of settlement are considered within tolerable limits of proposed site development.

5.4 EARTHWORK AND MATERIAL CHARACTERISTICS

All artificial fill is considered unsuitable to support proposed site development. This condition can be mitigated by the removal and re-compaction of the unsuitable soils. The non-engineered fill is estimated to be approximately 3 feet in depth and located in the southwest corner of the site. Although, locally deeper conditions may exist and likely throughout the site, particularly in the vicinity of the existing structures.

Removal and recompaction of the existing surficial materials is anticipated to result in minor shrinkage. Design of site grading will require consideration of this loss when evaluating earthwork balance issues.

Onsite earth materials are anticipated to be relatively easy to excavate with conventional heavy earthmoving equipment. The site earth materials are generally considered suitable for reuse as fill provided they are cleared on deleterious debris and oversized rocks (greater than 12 inches in greatest dimension). Site materials are generally below the optimum moisture content with a few localized layers above the optimum moisture content. As such, fill soils derived from onsite soils will require the addition of minor amounts of water and mixing in preparation for reuse as compacted fill.

Temporary construction slopes will be required to complete removal of unsuitable soils and for construction of underground utilities. Such excavations will require laybacks where they are surcharged or where they exceed 4 feet in height. Specific recommendations to provide for stable temporary cuts are provided later in this report. The use of appropriate shoring or lay backs will be essential to protect workers and prevent delays due to caving during trenching or temporary backcut activities. These materials will also be very prone to erosion during periods of rain until they are covered by pavement or mature landscaping. Appropriate protection during the rainy season will be required to avoid costly repairs due to erosion.

If encountered, portions of concrete debris and asphalt can likely be reduced in size (4” minus) and incorporated within fill soils during earthwork operations.

Onsite disposal systems, clarifiers, and other underground improvements may also be present beneath the site. If encountered during future demolition or rough grading, these improvements will require proper abandonment or removal.

Off-site improvements exist near the property lines. The presence of the existing offsite improvements may limit removals of unsuitable materials adjacent the property lines. Special grading techniques, such as slot cuttings, will be required adjacent to property lines where offsite structures are nearby. Construction of perimeter site walls may require deepened footings where removals are restricted by property boundaries.

5.5 SHRINKAGE AND SUBSIDENCE

Volumetric changes in earth quantities will occur when excavated onsite soil materials are replaced as properly compacted fill. We estimate that the existing surficial soils will shrink approximately up to 10 percent. Subsidence due to reprocessing of removal bottoms is anticipated to be negligible. The estimates of shrinkage and subsidence are intended as an aid for project engineers in determining earthwork quantities. However, these estimates should be used with some caution since they are not absolute values. Contingencies should be made for balancing earthwork quantities based on actual shrinkage and subsidence that occurs during the grading process.

5.6 SOIL EXPANSION

Based on our laboratory test results and USCS visual manual classification, the near-surface soils and the anticipated soils at basement subgrade within the site are generally anticipated to possess a **Low to medium** expansion potential. Additional testing for soil expansion will be required subsequent to rough grading and prior to construction of foundations and other concrete flatwork to confirm these conditions.

6.0 RECOMMENDATIONS

6.1 EARTHWORK

6.1.1 General Earthwork and Grading Specifications

All earthwork and grading should be performed in accordance with all applicable requirements of the grading codes of the City of Placentia, California and CAL OSHA, in addition to recommendations presented herein.

6.1.2 Pre-Grade Meeting and Geotechnical Observation

Prior to commencement of earthwork operations and foundation installation, we recommend a meeting be held between the City Inspector, general contractor, civil engineer, and geotechnical consultant to discuss proposed earthwork and logistics.

We also recommend that a geotechnical consultant be retained to provide soil engineering and engineering geologic services during site development. This is to observe compliance with the design specifications and recommendations, and to allow design changes in the event that subsurface conditions differ from those anticipated. If conditions are encountered during construction that appears to be different than those indicated in this report, the project geotechnical consultant should be notified immediately. Design and construction revisions may be required.

6.1.3 Site Clearing

Site improvements, such as asphaltic pavement, structural foundations and underground utilities, should be removed from the areas to be developed prior to any grading activities. Existing underground utility lines within the project area that will be protected in place and that fall within a 1 to 1 (H:V) plane projected down from the edges of footings may be subject to surcharge loads. Under such conditions, this office should be made aware of these conditions for evaluation of potential surcharging. Supplemental recommendations may be required to protect such improvements in place.

In general, seepage pits that are open should be cleared of any fluids and then filled with 2-sack cement slurry up to within 5 feet of proposed grades. Any brick lining that remains in the upper 5 feet should be removed and the remainder of the pit filled with engineered fill in accordance with Section 6.1.5. Seepage pits that are presently backfilled with soil should be removed to a depth of 10 feet below pad grade and be capped with 2-sack cement slurry. The slurry cap should be at least 5 feet thick and should extend at least 12 inches outside the perimeter of the seepage pit. The remaining 5 feet should be filled with engineered fill in accordance with Section 6.1.5.

The project geotechnical consultant should be notified at the appropriate times to provide observation services during clearing operations to verify compliance with the above recommendations. Voids created by clearing and excavation should be left open for observation by the geotechnical consultant. Should any unusual soil conditions or subsurface structures be encountered during site clearing or grading that are not described or anticipated herein, these conditions should be brought to the immediate attention of the project geotechnical consultant for corrective recommendations as needed.

Temporary construction equipment (office trailers, power poles, etc.) should be positioned to allow adequate room for clearing and recommended ground preparation to be performed for proposed structures, pavements, and hardscapes.

6.1.4 Site Preparation (Removals and Overexcavations)

In general, the artificial fill and the near-surface compressible materials are considered unsuitable for support of the proposed development at the site. These materials should be removed from proposed building, street and other "structural" areas, and replaced as engineered compacted fill. The removal depth is anticipated to be up to 4 feet and existing soils should be over-excavated to at least a depth of 2 feet below the bottom of footings for structures supported by conventional spread footings at grade. The actual depth of removal should be determined by the geotechnical consultant during grading.

The removals should extend laterally a distance of at least 5 feet beyond the limits of the proposed structures or a 1:1 projection down and away from the bottom of the footings, whichever is greater. Removals for retaining walls less than 3 feet in height and screen walls may be limited to the edge of the foundations or pavement. Upon review of more detailed site development plans, the depth of removals for short retaining walls and screen walls may be lessened from the general removals described above.

Where removals are limited by existing structures, protected trees or property lines, special considerations may be required in the construction of affected improvements. Under such conditions, specific recommendations should be provided by this firm based on review of site-specific development plans.

Following removals/excavation, the exposed grade should first be scarified to a depth of 6 inches, brought to at least 120 percent of the optimum moisture content, and then compacted to at least 90 percent of the laboratory standard (ASTM D 1557).

6.1.5 Fill Placement

Materials excavated from the site may be reused as fill provided they are free of deleterious materials and particles greater than 4 inches in maximum dimension (oversized materials). Asphaltic and concrete debris generated during site demolition or encountered within the existing fill can be incorporated within new fill soils during earthwork operations provided they are reduced to no more than 4 inches in maximum dimension. Such materials should be mixed thoroughly with fill soils to prevent nesting. All fill should be placed in lifts no greater than 8 inches in loose thickness, moisture conditioned to over the optimum moisture content, then compacted in place to at least 90 percent of the laboratory standard. Each lift should be treated in a similar manner. Subsequent lifts should not be placed until the project geotechnical consultant has approved the preceding lift.

6.1.6 Import Materials

If import materials are required to achieve the proposed finish grades, the proposed import soils should have an Expansion Index (EI, ASTM D 4829) less than 50 and possess negligible soluble sulfate concentrations. Import sources should be indicated to the geotechnical consultant prior to hauling the materials to the site so that appropriate testing and evaluation of the fill materials can be performed in advance.

6.1.7 Temporary Excavations

Temporary construction slopes or trench excavations in site materials may be cut vertically up to a height of 4 feet provided that no surcharging of the excavations is present. Temporary slopes over 4 feet in height but no more than 10 feet in height should be laid back to 1:1 (H:V) or flatter and evaluated by the geotechnical consultant.

Excavations should not be left open for prolonged periods of time. The project geotechnical consultant should observe all temporary cuts to confirm anticipated conditions and to provide alternate recommendations if conditions dictate. All excavations should conform to the requirements of CAL OSHA.

Where temporary excavations cannot accommodate a 1:1 layback or where surcharging occurs, shoring, slot cutting, underpinning, or other methods should be used. Specific recommendations for other options if considered should be provided by the geotechnical consultant based on review of the final design plans.

6.2 SEISMICITY

Following ASCE7-16, Section 21.5.3, we have estimated site-specific Maximum Considered Earthquake Geometric Mean (MCE_G) peak ground acceleration PGA_M = 0.745g. Per Section 11.2, this value should be used for evaluation of liquefaction, lateral spreading, seismic settlements, and other soil-related issues. Based on the results of deaggregation analysis performed using USGS Unified Hazard Tool, the mean event associated with a probability of exceedance equal to 2% over 50 years has a moment magnitude of 6.68 and the mean distance to the seismic source is 5.6 miles.

6.3 SEISMIC DESIGN PARAMETERS

For design of the project in accordance with Chapter 16 of the 2019 CBC, the table below presents the seismic design factors.

TABLE 6.1
CBC 2019 SEISMIC DESIGN PARAMETERS

Parameter	Value
Site Class	D
Mapped MCE Spectral Response Acceleration, short periods, S_S	1.730
Mapped MCE Spectral Response Acceleration, at 1-sec. period, S_1	0.609
Site Coefficient, Fa	**1.0**
Site Coefficient, Fv	**2.5**
Adjusted MCE Spectral Response Acceleration, short periods, S_{MS}	**1.891**
Adjusted MCE Spectral Response Acceleration, at 1-sec. period, S_{M1}	**1.465**
Design Spectral Response Acceleration, short periods, S_{DS}	**1.261**
Design Spectral Response Acceleration, at 1-sec. period, S_{D1}	**0.977**
Long-Period Transition Period, T_L (sec.)	8
Seismic Design Category for Risk Categories I-IV	**D**
MCE = Maximum Considered Earthquake	

Boldface values: Site-specific values per ASCE7-16; other values are mapped values.

6.4 FOUNDATION DESIGN

6.4.1 General

The following recommendations are provided for preliminary design purposes. These recommendations have been based on the site materials exposed during our investigation, our understanding of the proposed development, and the assumption that the recommendations presented herein are incorporated into the design and construction of the project. Final recommendations should be provided by the project geotechnical consultant following review of final foundation plans as well as observation and testing of site materials during grading. Depending upon the design plans and actual site conditions, the recommendations provided herein may require modification.

6.4.2 Soil Expansion

The recommendations presented herein are based on soils with a **Low to Medium** expansion potential (EI≤60). Following site grading, additional testing of site soils should be performed by the project geotechnical consultant to confirm the basis of these recommendations. If site soils with higher expansion potentials are encountered or imported to the site, the recommendations contained herein may require modification.

6.4.3 Settlement

Under normal static conditions, the foundation system should be designed to tolerate a total settlement of 1 inch and a differential settlement of 1/2-inch over 30 feet. These estimated magnitudes of settlement should be considered by the structural engineer in design of the proposed structures at the site.

6.4.4 Allowable Bearing Value

Foundations for the basement may utilize a bearing value of 2,100 pounds per square foot (psf) for continuous and pad footings a minimum width of 12 inches and founded at a minimum depth of 12 inches below the lowest adjacent grade. This value may be increased by 230 psf and 650 psf for each additional foot in width and depth, respectively, up to a maximum value of 3,400 psf. Recommended allowable bearing values include both dead and live loads, and may be increased by one-third for wind and seismic forces.

6.4.5 Lateral Resistance

Provided site grading is performed and that foundations are founded in engineered fill, a passive earth pressure of 240 pounds per square foot per foot of depth (psf/ft) up to a maximum value of 2,000 pounds per square foot (psf) may be used to determine lateral bearing for footings. This value may be increased by one-third when designing for wind and seismic forces. A coefficient of friction of 0.31 times the dead load forces may also be used between concrete and the supporting soils to determine lateral sliding resistance. No increase in the coefficient of friction should be used when designing for wind and seismic forces. Footings against property lines should have the above-noted values reduced by 50 percent.

The above values are based on footings placed directly against compacted fill or competent native soils. In the case where footing sides are formed, all backfill against the footings should be compacted to at least 90 percent of the laboratory standard.

6.4.6 Conventional Spread Foundations and Slabs on Grade

All exterior and interior continuous footings should have a minimum width of 12 inches and minimum embedment of 12 inches below lowest adjacent grade. All continuous footings for habitable structures should be reinforced with a minimum of one No. 4 bar on top and one No. 4 bar on the bottom.

All spread footings used to support columns should have a minimum width of 18 inches and minimum embedment of 12 inches below lowest adjacent grade. All spread footings in habitable structures should be tied in both directions with a grade beam having a minimum depth and width of 12 inches. The grade beams should be reinforced with a minimum of one No. 4 bar on top and one No. 4 bar on the bottom. Reinforcing of the grade beams should hook into the footings.

Interior concrete slabs constructed on grade should be a nominal 4 inches thick and should be reinforced with 6-inch by 6-inch, W4 X W4 reinforcing wire mesh or No. 3 bars spaced 12 inches on center, each way. Care should be taken to ensure the placement of reinforcement at mid-slab height. Slabs on grade in habitable structures should be hooked to the underlying grade beams on a minimum spacing of 24 inches or poured monolithically with the grade beams.

Interior grade beams as required by the WRI method should be provided in both directions at a maximum spacing of 20 feet. Design of the slab in accordance with the WRI method may use an effective PI of 23. This value already accounts for the factors for ground slope and over-consolidation.

All slabs on grade that may have moisture sensitive coverings should be underlain with a minimum of 10-mil moisture vapor retarder conforming to ASTM E 1745, Class A. A minimum of four (4) inches of clean sand having a sand equivalent (SE) of at least 30 should be placed under the membrane. An additional one inch of the sand (SE>30) may be placed over the vapor barrier to aid in the uniform curing of the slab if preferred. This vapor barrier system is anticipated to be suitable for most flooring finishes that can accommodate some vapor emissions. However, this system may emit more than 4 pounds of water per 1000 sq. ft. and therefore, may not be suitable for all flooring finishes. Additional steps should be taken if such vapor emission levels are too high for anticipated flooring finishes.

Prior to placing concrete, the subgrade below all floor slab areas should be moisture-conditioned to achieve a moisture content that is at least 120 percent of the optimum moisture content. This moisture content should be maintained a minimum depth of 12 inches below the bottoms of the slabs.

6.4.7 Foundation Observations

Foundation excavation should be observed by the project geotechnical consultant to verify that they have been excavated into competent bearing soils and to the minimum embedment recommended above. These observations should be performed prior to placement of forms or reinforcement. The excavations should be trimmed neat, level and square. Loose, sloughed or moisture-softened materials and debris should be removed prior to placing concrete.

6.5 RETAINING AND SCREENING WALLS

6.5.1 General

The following preliminary design and construction recommendations are provided for general retaining and screen walls supported by engineered compacted fill or competent native soils. Final wall designs specific to the site development should be provided for review once completed. The structural engineer and architect should provide appropriate recommendations for sealing at all joints and applying moisture-proofing material on the back of the walls.

6.5.2 Allowable Bearing Value and Lateral Resistance

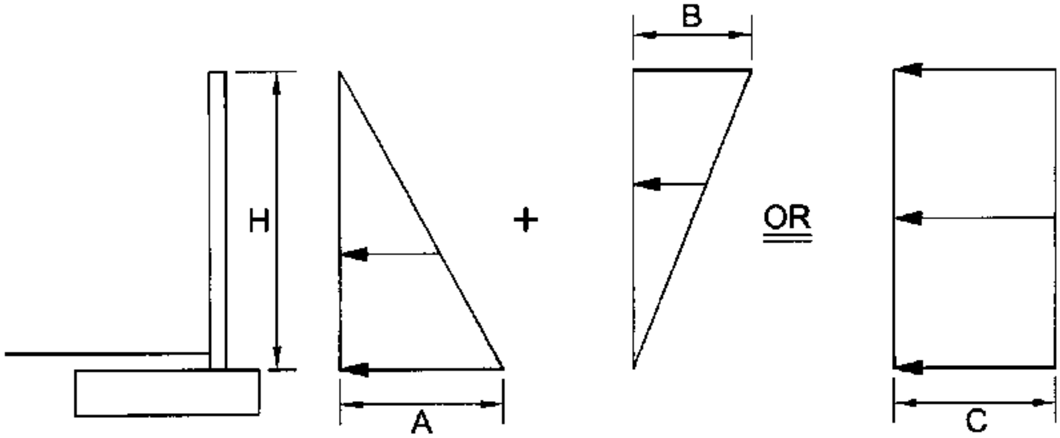
Design of retaining and screen walls may utilize the bearing and lateral resistance values provided in Section 0 and 6.4.5. Lateral resistance for walls along property lines, where lateral removals are restricted should be reduced by 50%.

6.5.3 Active Earth Pressures

Static and seismic earth pressures for level and 2:1 (H:V) backfill conditions are provided in Table 6.2. Seismic earth pressures provided herein are based on the method provided by Seed & Whitman (1970) for active condition and Wood (1973) for at-rest condition, both using a peak ground acceleration (PGA) of 0.38g for probability of exceedance of 10% in 50 years. Active condition relates to the un-restrained retaining wall condition where the wall is free to rotate about its base. The at-rest condition should apply to cases where the wall is restrained from rotation, such as the subterranean walls where the movement is restricted by the structural floor members. As indicated in Section 1803.5.12 of the 2019 CBC, retaining walls supporting 6 feet of backfill or less are not required to be designed for seismic earth pressures. In addition, the values are based on drained backfill conditions and do not consider hydrostatic pressure. Furthermore, retaining walls should be designed to support adjacent surcharge loads imposed by other nearby footings or traffic loads in addition to the earth pressure.

TABLE 6.2

SEISMIC EARTH PRESSURES
Pressure Diagram



Static Component | Seismic Component | Total Force

Pressure Values
Walls Up To 10 Feet High

Value	**Backfill Condition**	
	Level Active (Unrestrained)	**Level At-Rest (Restrained)**
A	43H	80H
B	12H	12H
C	28H	46H

Note:
H is in feet and resulting pressure is in psf. Design may utilize either the sum of the static component and the seismic component force diagrams or the total force diagram above. SEAOSC has suggested using a load factor of 1.7 for the static component and 1.0 for the seismic component. The actual load factors should be determined by the structural engineer.

6.5.4 Drainage and Moisture-Proofing

Retaining walls should be constructed with a perforated pipe and gravel subdrain to prevent entrapment of water in the backfill. The perforated pipe should consist of 4-inch-diameter, ABS SDR-35 or PVC Schedule 40 with the perforations laid down. The pipe should be embedded in ¾- to 1½-inch open-graded gravel wrapped in filter fabric. The gravel should be at least one foot wide and extend at least one foot up the wall above the footing and drainage outlet. Drainage gravel and piping should not be placed below outlets and weepholes. Filter fabric should consist of Mirafi 140N, or equal. Outlet pipes should be directed to positive drainage devices.

The use of weepholes may be considered in locations where aesthetic issues from potential nuisance water are not a concern. Weepholes should be 2 inches in diameter and provided at least every 6 feet on center. Where weepholes are used, perforated pipe may be omitted from the gravel subdrain.

Retaining walls supporting backfill should also be coated with a moisture-proofing compound or covered with such material to inhibit infiltration of moisture through the walls. Moisture-proofing material should cover any portion of the back of wall that will be in contact with soil and should lap over and onto the top of footing. A drainage panel should be provided between the soil backfill and water proofing. The panel should extend from the top of the backdrain gravel up to within 12 inches of finish grade. The top of footing should be finished smooth with a trowel to inhibit the infiltration of water through the wall. The project structural engineer should provide specific recommendations for moisture-proofing, water stops, and joint details.

6.5.5 Footing Reinforcement and Wall Jointing

All continuous footings should be reinforced with a minimum of two No. 4 bars, one top and one bottom. Walls should be provided with cold joints spaced no more than 40 feet apart. Wall finishes and capping materials should not extend across the cold joint. The structural engineer may require different reinforcement or jointing and should dictate if greater than the recommendations provided herein. Where recommended removals are limited due to space restrictions, greater reinforcement and closer jointing may be recommended. Specific recommendations should be provided by the geotechnical consultant during grading based on as-built conditions exposed in the field.

6.5.6 Footing Observations

Footing excavations should be observed by the project geotechnical consultant to verify that they have been excavated into competent bearing soils and to the minimum embedment recommended herein. These observations should be performed prior to placement of forms or reinforcement. The excavations should be trimmed neat, level and square. Loose, sloughed or moisture-softened materials and debris should be removed prior to placing concrete.

6.5.7 Retaining Wall Backfill

Onsite soils may generally be used for backfill of retaining walls. The project geotechnical consultant should approve all backfill used for retaining walls. Wall backfill should be moisture-conditioned to slightly over the optimum moisture content; placed in lifts no greater than 12 inches in thickness, and then mechanically compacted with appropriate equipment to at least 90 percent of the laboratory standard. Hand-operated compaction equipment should be used to compact the backfill placed immediately adjacent the wall to avoid damage to the wall. Flooding or jetting of backfill material is not recommended.

6.6 EXTERIOR FLATWORK

Exterior flatwork should be a minimum 4 inches thick. Cold joints or saw cuts should be provided at least every 7 feet in each direction. Flatwork more than 7 feet in width across the minimum dimension should be reinforced with 6” by 6”, W4 by W4 welded wire mesh or No 3 bars spaced 12 inches center to center in both directions. Special jointing detail should be provided in areas of block-outs, notches, or other irregularities to avoid cracking at points of high stress. Subgrade soils below flatwork should be moistened to at least 120 percent of the optimum moisture content to a depth of 12 inches. Moistening should be accomplished by lightly spraying the area over a period of a few days just prior to pouring concrete. The geotechnical consultant should observe and verify the density and moisture content of subgrade soils prior to pouring concrete to ensure that the required compaction and pre-moistening recommendations have been met.

Drainage from flatwork areas should be directed to local area drains and/or other appropriate collection devices designed to carry runoff water to the street or other approved drainage structures. The concrete flatwork should also be sloped at a minimum gradient of 1 percent away from building foundations and retaining walls.

6.7 CONCRETE MIX DESIGN

Laboratory testing of onsite soil indicates **negligible** soluble sulfate content. Concrete designed to follow the procedures provided in ACI 318, Section 4.3, Table 4.3.1 for **negligible** sulfate exposure are anticipated to be adequate for mitigation of sulfate attack on concrete. Upon completion of rough grading, an evaluation of as-graded conditions and further laboratory testing will be required for the site to confirm or modify the conclusions provided in this section.

6.8 CORROSION

Results of preliminary testing of soils for pH, chloride, and minimum resistivity indicate the site is potentially **Moderately Corrosive** to metals that are in contact or close proximity to onsite soils. As such, specific recommendations should be obtained from a corrosion specialist if construction will include metals that will be near or in direct contact with site soils.

6.9 PRELIMINARY PAVEMENT DESIGN

6.9.1 Subgrade Preparation

Prior to placement of paving elements, subgrade soils should be moisture-conditioned to at least 120 percent of the optimum moisture content then compacted to at least 90 percent compaction for asphaltic concrete pavement areas and to at least 95 percent compaction for concrete pavement areas. Areas observed to pump or yield under vehicle traffic should be removed and replaced with firm and unyielding compacted soil or aggregate base materials.

6.9.2 Preliminary Pavement Structural Sections

Based on the soil conditions present at the site and an estimated traffic index, preliminary pavement sections are provided in the table below. An assumed “R-value” of 10 was used for the near-surface soil in this preliminary pavement design. The sections provided below are for planning purposes only and should be re-evaluated subsequent to site grading. Final pavement sections should be based on actual R-value testing of in-place soils and analysis of anticipated traffic.

TABLE 6.3
PRELIMINARY PAVEMENT STRUCTURAL SECTIONS

Location	Traffic Index	AC (inches)	Concrete Pavers (mm)	PCC (inches)	AB (inches)
Entry Way and Drives	5.5	3.0 4.0	--	--	12.0 9.0
		--	--	8.0	--
		--	80.0	--	13.0
Parking Stalls	--	3.0	--	--	6.0

6.9.1 Subgrade Preparation

Prior to placement of paving elements, subgrade soils should be scarified 6 inches, moisture-conditioned to at least 120 percent of the optimum moisture content then compacted to at least 90 percent of the maximum dry density determined in accordance with ASTM D1557. Areas observed to pump or yield under vehicle traffic should be removed and replaced with firm and unyielding engineered compacted soil or aggregate base materials.

6.9.2 Aggregate Base

Aggregate base materials should be Crushed Aggregate Base or Crushed Miscellaneous Base conforming to Section 200-2 of the Standard Specification for Public Works Construction (Greenbook) or Class 2 Aggregate Base conforming to the Caltrans' Standard Specifications. The materials should be moisture conditioned to slightly over the optimum moisture content then compacted to at least 95 percent of ASTM D 1557.

6.9.3 Asphaltic Concrete

Paving asphalt should be PG 64-10 conforming to the requirements of Section 203-1 of the Greenbook. Asphalt concrete materials should conform to Section 203-6 and construction should conform to Section 302 of the Greenbook.

6.9.4 Concrete Paver

Concrete pavers should conform to the requirements of ASTM C 936. Construction of the pavers, including bedding sand, should follow manufacturer's specifications. Typical thickness of bedding sand is about 1 inch. The gradation of bedding sand should meet the requirement in Table 6.4.

TABLE 6.4
Gradation for Sand Bedding

Sieve Size	Percent Passing
⅜”	100
No. 4	95 - 100
No. 8	80 - 100
No. 16	50 - 85
No. 30	25 - 60
No. 50	5 - 30
No. 100	0 - 10
No. 200	0 - 1

6.9.5 Portland Cement Concrete

Portland cement concrete used to construct concrete paving should conform to Section 201 of the Greenbook and should have a minimum compressive strength of 3,250 pounds per square inch (psi) at 28 days. Reinforcement and jointing of concrete pavement sections should be designed according to the minimum recommendations provided by the Portland Cement Association (PCA). For rigid pavement, transverse and longitudinal contraction joints should be provided at spacing no greater than 15 feet. Score joints may be constructed by saw cutting to a depth of ¼ of the slab thickness. Expansion/cold joints may be used in lieu of score joints. Such joints should be properly sealed. Where traffic will traverse over cold joints without keyways or dowels or edges of concrete paving, the edges should be thickened by 20% of the design thickness toward the edge over a horizontal distance of 5 feet.

6.10 POST GRADING CONSIDERATIONS

6.10.1 Site Drainage and Irrigation

The ground immediately adjacent to foundations should be provided with positive drainage away from the structures in accordance with 2019 CBC, Section 1804.4. No rain or excess water should be allowed to pond against structures such as walls, foundations, flatwork, etc.

Excessive irrigation water can be detrimental to the performance of the proposed site development. Water applied in excess of the needs of vegetation will tend to percolate into the ground. Such percolation can lead to nuisance seepage and shallow perched groundwater. Seepage can form on slope faces, on the faces of retaining walls, in streets, or other low-lying areas. These conditions could lead to adverse effects such as the formation of stagnant water that breeds insects, distress or damage of trees, surface erosion, slope instability, discoloration and salt buildup on wall faces, and premature failure of pavement. Excessive watering can also lead to elevated vapor emissions within buildings that can damage flooring finishes or lead to mold growth inside the home.

Key factors that can help mitigate the potential for adverse effects of overwatering include the judicious use of water for irrigation, use of irrigation systems that are appropriate for the type of vegetation and geometric configuration of the planted area, the use of soil amendments to enhance moisture retention, use of low-water demand vegetation, regular use of appropriate fertilizers, and seasonal adjustments of irrigation systems to match the water requirements of vegetation. Specific recommendations should be provided by a landscape architect or other knowledgeable professional.

6.10.2 Utility Trenches

Trench excavations should be constructed in accordance with the recommendations contained in Section 6.1.7 of this report. Trench excavations must also conform to the requirements of Cal/OSHA.

Trench backfill materials and compaction criteria should conform to the requirements of the local municipalities. As a minimum, utility trench backfill should be compacted to at least 90 percent of the laboratory standard. Materials placed within the pipe zone (6 inches below and 12 inches above the pipe) should consist of particles no greater than ¾ inches and have a SE of at least 30. The materials within the pipe zone should be moisture-conditioned and compacted by hand-operated compaction equipment. Above the pipe zone (>1 foot above pipe), the backfill may consist of general fill materials. Trench backfill should be moisture-conditioned to over the optimum moisture content, placed in lifts no greater than 12 inches in thickness, and then mechanically compacted with appropriate equipment to at least 90 percent of the laboratory standard. For trenches with sloped walls, backfill material should be placed in lifts no greater than 8 inches in loose thickness, and then compacted by rolling with a sheepsfoot roller or similar equipment. The project geotechnical consultant should perform density testing along with probing to verify that adequate compaction has been achieved.

Within shallow trenches (less than 18 inches deep) where pipes may be damaged by heavy compaction equipment, imported clean sand having a SE of 30 or greater may be utilized. The sand should be placed in the trench, thoroughly watered, and then compacted with a vibratory compactor. For utility trenches located below a 1:1 (H:V) plane projecting downward from the outside edge of the adjacent footing base or crossing footing trenches, concrete or slurry should be used as trench backfill.

6.11 PLAN REVIEW AND CONSTRUCTION SERVICES

We recommend ***Albus-Keefe & Associates, Inc.*** be engaged to review any future development plans, including foundation plans prior to construction. This is to verify that the assumptions of this report are valid and that the preliminary conclusions and recommendations contained in this report have been properly interpreted and are incorporated into the project plans and specifications. If we are not provided the opportunity to review these documents, we take no responsibility for misinterpretation of our preliminary conclusions and recommendations.

We recommend that a geotechnical consultant be retained to provide soil engineering services during construction of the project. These services are to observe compliance with the design, specifications or recommendations, and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

If the project plans change significantly from the assumed development described herein, the project geotechnical consultant should review our preliminary design recommendations and their applicability to the revised construction. If conditions are encountered during construction that appear to be different than those indicated in this report or subsequent design reports, the project geotechnical consultant should be notified immediately. Design and construction revisions may be required.

7.0 LIMITATIONS

This report is based on the proposed development and geotechnical data as described herein. The materials encountered on the project site, described in other literature, and utilized in our laboratory testing for this investigation are believed representative of the total project area, and the conclusions and recommendations contained in this report are presented on that basis. However, soil and bedrock materials can vary in characteristics between points of exploration, both laterally and vertically, and those variations could affect the conclusions and recommendations contained herein. As such, observation and testing by a geotechnical consultant during the grading and construction phases of the project are essential to confirming the basis of this report.

This report has been prepared consistent with that level of care being provided by other professionals providing similar services at the same locale and time period. The contents of this report are professional opinions and as such, are not to be considered a guaranty or warranty. This report should be reviewed and updated after a period of one year or if the site ownership or project concept changes from that described herein.

This report has been prepared for the exclusive use of **National Community Renaissance** and his project consultants in the planning and design of the proposed development. This report has not been prepared for use by parties or projects other than those named or described herein. This report may not contain sufficient information for other parties or other purposes. This report is subject to review by the controlling governmental agency.

Respectfully submitted,

ALBUS-KEEFE & ASSOCIATES, INC

Paul Hyun Jin Kim
Associate Engineer
G.E. 3106

8.0 REFERENCES

Publications

California Geologic Survey, Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California, 2008.

CDMG, "Seismic Hazard Zone Report for the Yorba Linda 7.5-Minute Quadrangle, Los Angeles, Orange and San Bernardino County, California," Seismic Hazard Zone Report 010, 2005.

NCEER, "Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils", Technical Report NCEER-97-0022, December 31, 1997.

Seed, HB, and Whitman, RV. "Design of Earth Retaining Structures for Dynamic Loads," ASCE Specialty Conference, Lateral Stresses in the Ground and Design of Earth Retaining Structures, Cornell Univ., Ithaca, New York, 103-147, 1970.

Southern California Earthquake Center (SCEC), University of Southern California, "Recommended Procedures for Implementation of DMG Special Publication 117 Guidelines for Analyzing and Mitigating Liquefaction Hazards in California", March 1999.

U.S. Geologic Survey. Unified Hazard Tool, https://earthquake.usgs.gov/hazards/interactive/

U.S. Geologic Survey. U.S. Seismic Design Maps, https://seismicmaps.org/

Tokimatsu, K. & Seed, H.B., "Evaluation of Settlement in Sands Due to Earthquake Shaking," Journal of Geotechnical Engineering, Vol. 113, No. 8, August, 1987.

Youd, T.L., Idriss, I.M., Andrus, R.D., Arango, I., Castro, G., Christian, J., Dobry, R., Finn, W.D.L., Harder, L.F., Hynes, M.E., Ishihara, K., Koester, J.P., Liao, S.S.C., Marcuson, W.F., Martin, G.R., Mitchell, J.K., Moriwaki, Y., Power, M.S., Robertson, P.K., Seed, R.B., and Stokoe, K.H., "Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils", Journal of Geotechnical and Geoenvironmental Engineering, October, 2001.

Plans

Conceptual Site Plan, Placentia, California, prepared by rrm design group Architect, dated September 05, 2019, scale: 1" = 30'

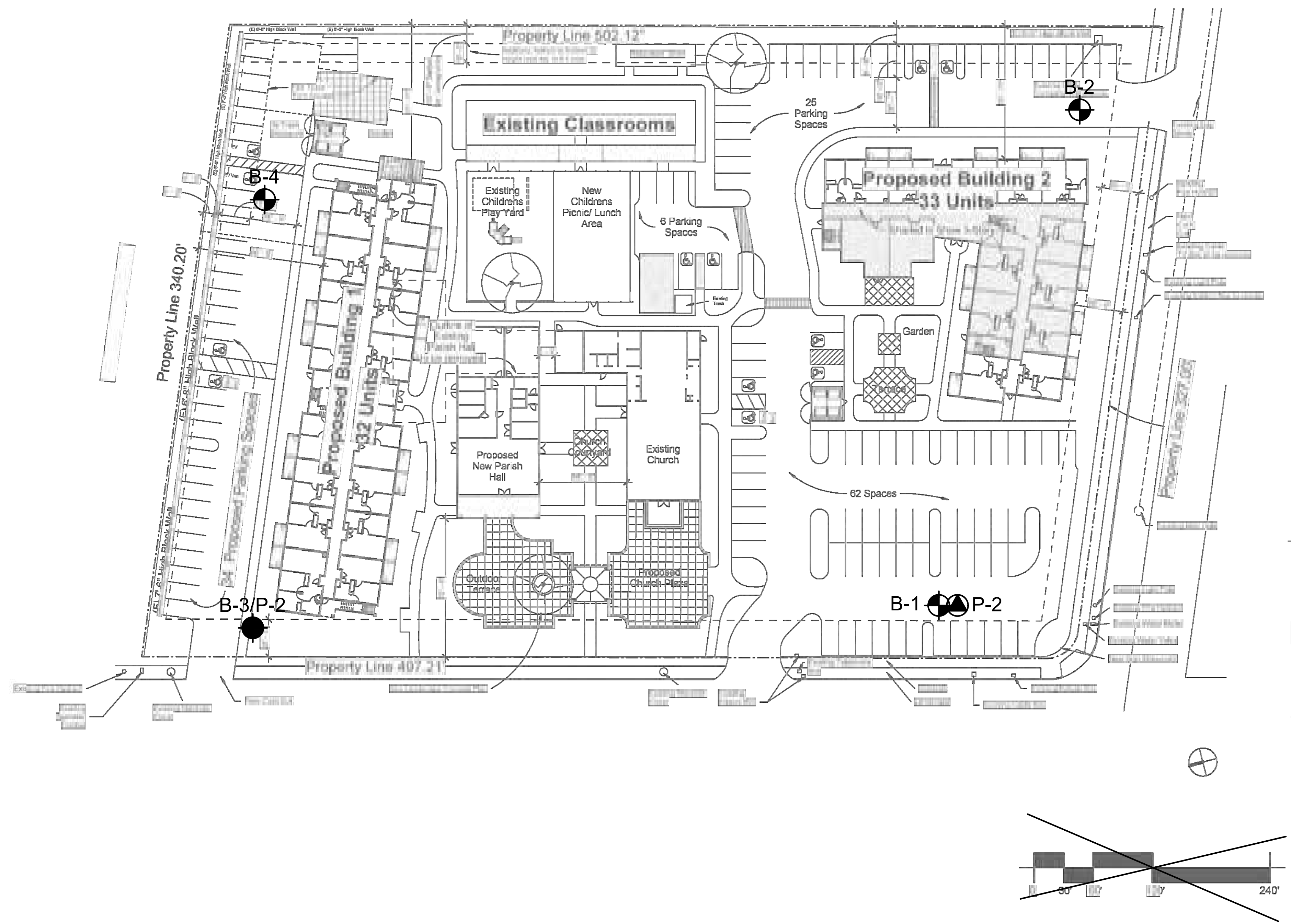
ALBUS-KEEFE & ASSOCIATES, INC.
GEOTECHNICAL CONSULTANTS

GEOTECHNICAL MAP

Job No.: 2859.00	Date: 12/27/19	Plate: 1

EXPLANATION
(Locations Approximate)

- Exploratory Boring
- Exploratory Percolation Test Boring
- Exploratory Boring and Percolation Test Boring



Site Coverage

Name / Area	Percentage
Lot Area (SF) :	169,716 SF/ 3.90 acres
Maximum Lot Coverage allowed:	60% (101,830 SF)
Proposed Lot Coverage:	55%
Building Footprints (Existing and Proposed)	35,631 SF
Parking and Driveways	53,824 SF
Covered Patios	3,678 SF
Total Proposed Lot Coverage	93,133 SF (55%)
Percentage Open Space Required:	40%
Percentage Open Space Provided:	45%

Residential Unit Count

	One Bedroom	Two Bedroom
Building 1	28	4
Building 2	31	2
	59 units	6 units

Total Residential Units: 65

SITE PLAN

1314 N. ANGELINA DR. - PLACENTIA, CA

rrm design group

09/05/19
#0934-02-RS17

A4

APPENDIX A

EXPLORATION BORING LOGS

EXPLORATION LOG

Project:		Location:
Address:		Elevation:
Job Number:	Client:	Date:
Drill Method:	Driving Weight:	Logged By:

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		EXPLANATION							
		Solid lines separate geologic units and/or material types.							
5		Dashed lines indicate unknown depth of geologic unit change or material type change.							
		Solid black rectangle in Core column represents California Split Spoon sampler (2.5in ID, 3in OD).							
		Double triangle in core column represents SPT sampler.							
10		**Vertical Lines** in core column represents Shelby sampler.							
		Solid black rectangle in Bulk column respresents large bag sample.							
15		**Other Laboratory Tests:** Max = Maximum Dry Density/Optimum Moisture Content EI = Expansion Index SO4 = Soluble Sulfate Content DSR = Direct Shear, Remolded DS = Direct Shear, Undisturbed SA = Sieve Analysis (1" through #200 sieve) Hydro = Particle Size Analysis (SA with Hydrometer) 200 = Percent Passing #200 Sieve Consol = Consolidation SE = Sand Equivalent Rval = R-Value ATT = Atterberg Limits							
20									

Albus-Keefe & Associates, Inc.

Plate A-1

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-1
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 294
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
	Asphalt = 3.5"							
	Base = 5"							
	ARTIFICIAL FILL (Af) Sandy Clay (CL): Grayish brown, moist, very stiff, fine to medium grained sand		25			15.9	113.2	
5	**ALLUVIUM (Qal)** Sandy Clay (CL): Reddish brown, moist, very stiff, fine to medium grained sand, more sand		34			14.4	115	Consol
	Clayey Sand (SC): Reddish brown, moist, medium dense, fine to coarse grained sand, trace pinhole pores		28			12.7	119.3	
10	@ 10 ft, trace pinhole pores		21			12.8	117.3	
15	Sand (SP): Reddish brown, moist, medium dense, fine to medium grained sand		10					
	Clayey Sand (SC): Reddish brown, moist, medium dense, fine to medium grained sand							
20	Sandy Clay (CL): Reddish brown, moist, hard, fine grained sand		28					

Albus-Keefe & Associates, Inc.

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-1
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 294
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Silty Clay with Sand (CL): Light reddish brown, moist, hard, fine grained sand		19					
30		Silty Sand trace Clay (SM): Light reddish brown, moist, medium dense, fine grained sand		12					200
35		Clayey Sand (SC): Light reddish brown, moist, medium dense, fine to medium grained sand		10					SA Hydro
		Sand with Silt (SP): Light reddish brown, moist, medium dense, fine to medium grained sand							
40		Silty Sand trace Clay (SM): Light reddish brown, moist, dense, fine grained sand		16					200
45		Sandy Clay (CL): Reddish brown, moist, hard, fine grained sand		20					

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-1
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 294
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Clayey Sand (SC): Light reddish brown, moist, very dense, fine to coarse grained sand		28					
		Total Depth 51.5 feet No Groundwater Boring backfilled with soil cuttings Percolation Well (10ft offset): 0-30' solid 3" pipe 30-35' perforated 3" pipe caved to 25', no gravel added							

Albus-Keefe & Associates, Inc.

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-2
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 296
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Grass							
		ALLUVIUM (Qal) Sandy Clay (CL): Light reddish brown, dry to damp, hard, fine grained sand, trace pinhole pores and fine roots		58			5.7	115.1	
5		@ 4 ft, some medium grained sand, trace pinhole pores and fine roots		38			10.1	120	Consol
		Silty Sand with Clay (SM): Light reddish brown, moist, medium dense, fine to medium grained sand, some coarse grained sand, trace pinhole pores		20			7.3	110.6	Consol
10		Silty Clay with Sand (CL-ML): Light reddish brown to reddish brown, moist, very stiff, fine grained sand, trace pinhole pores		28			14.8	109.1	
15		Silty Clay (CL-ML): Light reddish brown to light gray, moist, stiff		8					
20				11					

EXPLORATION LOG

Project: Santa Angelina Senior Community			Location: B-2
Address: 1314 N Angelina Dr, Placentia, CA			Elevation: 296
Job Number: 2859.00	Client: National Community Renaissance		Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in		Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Core	Bulk	Laboratory Tests: Moisture Content (%)	Dry Density (pcf)	Other Lab Tests
				10					
30		Sandy Clay (CL): Reddish brown, moist, very stiff, fine grained sand		8					
		Total Depth 31.5 feet No Groundwater Boring backfilled with soil cuttings							

EXPLORATION LOG

Project: Santa Angelina Senior Community	Location: B-3
Address: 1314 N Angelina Dr, Placentia, CA	Elevation: 297
Job Number: 2859.00 / Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger / Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lithology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Grass							
		ALLUVIUM (Qal) Sandy Clay (CL): Light reddish brown, dry to damp, very stiff, fine grained sand, trace pinhole pores		38			10	112.1	
5		@ 4 ft, moist, hard		74			11.1	119.4	
		@ 6 ft, Gray to reddish brown, very stiff, less sand		32			14.4	117	
10		@ 10 ft, hard, less gray, more sand		37			14.3	113.6	
15		@ 15 ft, very stiff		10					
20				14					

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-3
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 297
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		@ 25 ft, hard, more sand		17					
30		Silty Sand / Sandy Silty trace Clay (SM/ML): Light reddish brown, moist, medium dense / very stiff		8					200
35		Silty Sand trace Clay (SM): Light reddish brown, moist, very stiff		13					200
		Total Depth 36.5 feet No Groundwater Boring backfilled with soil cuttings Percolation Well: 0-30' solid 3" pipe 30-35' perforated 3" pipe caved to 27', no gravel added							

EXPLORATION LOG

Project: Santa Angelina Senior Community	Location: B-4
Address: 1314 N Angelina Dr, Placentia, CA	Elevation: 297
Job Number: 2859.00 / Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger / Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Material Description	Water	Blows Per Foot	Samples: Core	Samples: Bulk	Moisture Content (%)	Dry Density (pcf)	Other Lab Tests
0	Grass				Bulk			Max EI SO4 DS ATT pH Resist Ch
	ALLUVIUM (Qal) Sandy Clay with Silt (CL): Reddish brown, damp to moist, stiff, fine grained sand, trace pinhole pores and fine roots		16	Core	Bulk	10.6	103.2	
4	@ 4 ft, hard		41	Core	Bulk	10.3	114.5	Consol
5	Clayey Sand (SC): Light reddish brown, moist, dense, fine to medium grained sand							
6	Sandy Clay with Silt (CL): Reddish brown, moist, very stiff, fine grained sand, trace pinhole pores		35	Core		19.9	103.7	
10	@ 10 ft, trace pinhole pores		29	Core		22.2	98	
15	Silty Clay trace Sand (CL): Light reddish brown to light gray, damp, very stiff, fine grained sand		13	SPT				
20	Silty Sand / Sandy Silt trace Clay (SM/ML): Light reddish brown, damp, medium dense / very stiff, fine grained sand		15	SPT				

Albus-Keefe & Associates, Inc.

Plate A-9

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-4
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 297
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Silty Sand trace Clay (SM): Light reddish brown, damp, medium dense, fine grained sand		11					
30		Sand (SP): Light reddish brown, damp, very dense, fine to coarse grained sand		32					
		Total Depth 31.5 feet No Groundwater Boring backfilled with soil cuttings							

Albus-Keefe & Associates, Inc.

APPENDIX B

LABORATORY TEST PROGRAM

LABORATORY TESTING PROGRAM

Soil Classification

Soils encountered within the exploratory borings were initially classified in the field in general accordance with the visual-manual procedures of the Unified Soil Classification System (ASTM D2488). The samples were re-examined in the laboratory and classifications reviewed and then revised where appropriate. The assigned group symbols are presented in the Boring Logs provided in Appendix A.

In Situ Moisture and Density

Moisture content and dry density of in-place soil materials were determined in representative strata. Test data are summarized on the Boring Logs provided in Appendix A.

Laboratory Maximum Dry Density

Maximum dry density and optimum moisture content of onsite soils were determined for selected samples in general accordance with Method A of ASTM D 1557. Pertinent test values are given on Table B.

Expansion Potential

An Expansion Index test was performed on a selected sample in accordance with ASTM D 4829. The test result and expansion potential are presented on Table B.

Grain-Size Analyses

Grain size analyses were performed on selected samples of site materials. These tests were performed in accordance with ASTM D 422. Results are graphically presented on Plate B.

Consolidation

Consolidation tests were performed for selected soil samples in general conformance with ASTM D 2435. Axial loads were applied in several increments to a laterally restrained 1-inch-high sample. Loads were applied in geometric progression by doubling the previous load, and the resulting deformations were recorded at selected time intervals. The test samples were inundated at selected loads to evaluate the effects of a sudden increase in moisture content (hydro-consolidation potential). Results of the tests are graphically presented on Plates B-2 to B-5.

Direct Shear

The Coulomb shear strength parameters, angle of internal friction and cohesion, were determined for a bulk sample obtained from one our borings. The tests were performed in general conformance with Test Method ASTM D 3080. The sample was remolded to 90 percent of maximum dry density and at the optimum moisture content. Three specimens were prepared for each test, artificially saturated, and then sheared under varied loads at an appropriate constant rate of strain. Results are graphically presented on Plate B-6.

Atterberg Limits

Atterberg Limits (Liquid Limit, Plastic Limit, and Plasticity Index) were performed in accordance with Test Method ASTM D4318. Pertinent test values are presented within Table B.

Corrosion

Select samples were tested for minimum resistivity, chloride, and pH in accordance with California Test Method 643. Results of these tests are provided in Table B.

Soluble Sulfate Content

A chemical analysis was performed on a selected soil sample to determine soluble sulfate content. The test was performed in accordance with California Test Method (CTM) 417. The test result is included in Table B.

Percent Passing No. 200 Sieve

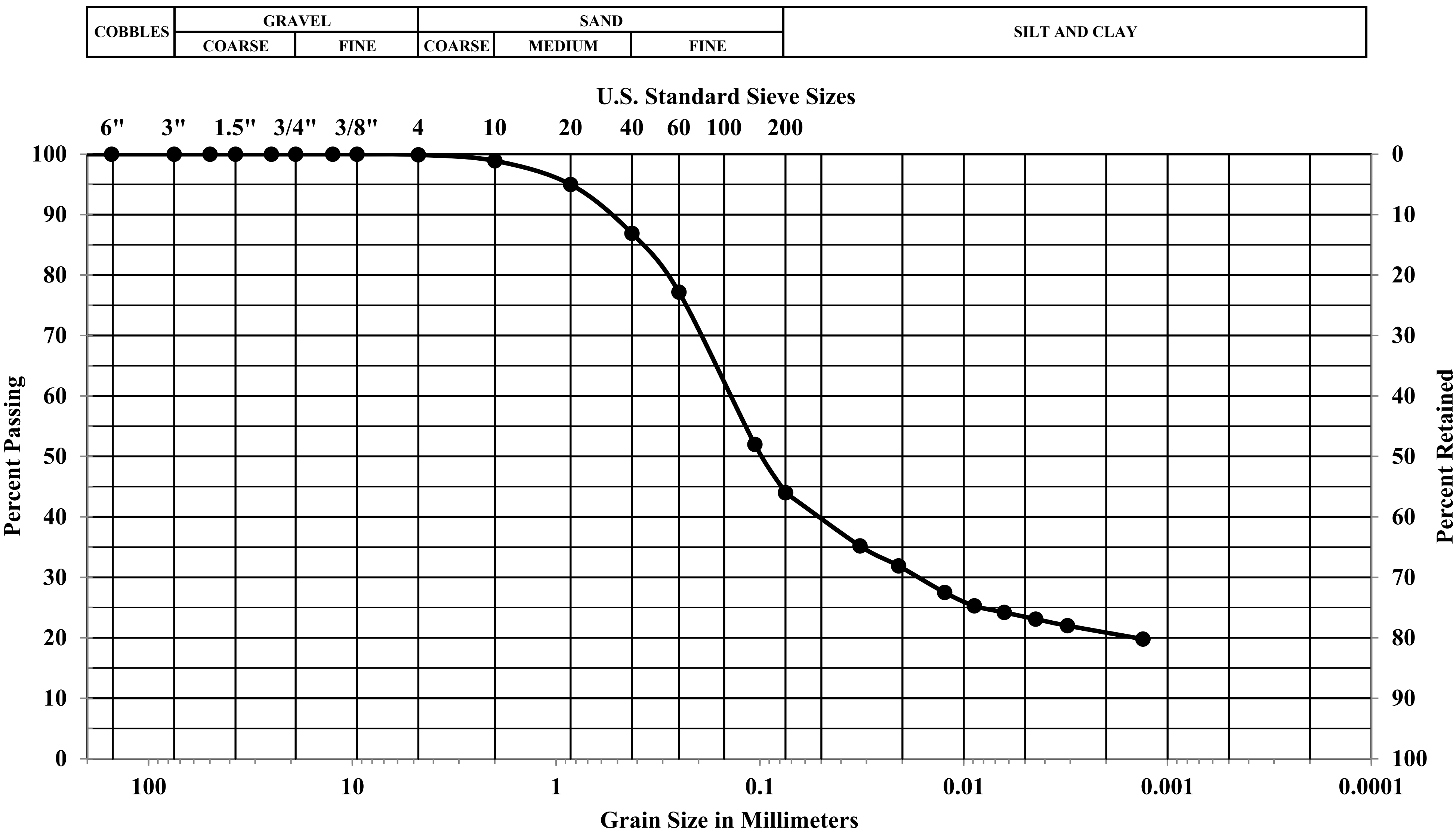
Percent of material passing the No. 200 sieve was determined on selected samples to verify visual classifications performed in the field. These tests were performed in accordance with ASTM D 1140. Test results are presented on Table B.

TABLE B
SUMMARY OF LABORATORY TEST RESULTS

Boring Number	Depth (feet)	Soil Type	Test Results	
B-1	30	Silty Sand (SM)	Percent Passing #200 Sieve:	45.3%
B-1	40	Silty Sand (SM)	Percent Passing #200 Sieve:	30.5%
B-3	30	Silty Sand/ Sandy Silt (SM/ML)	Percent Passing #200 Sieve:	53.7%
B-3	35	Silty Sand (SM)	Percent Passing #200 Sieve:	33.2 %
B-4	0-5	Sandy Clay (CL)	Maximum Dry Density (pcf): Optimum Moisture (%): Liquid Limit: Plastic Index: Soluble Sulfate Content (%): Sulfate Exposure: pH: Minimum Resistivity: Chloride: Expansion Index: Expansion Potential:	122.5 11.5 32 16 0.000 Negligible 7.36 2500 Ohm-cm 24.2 ppm 49 Low

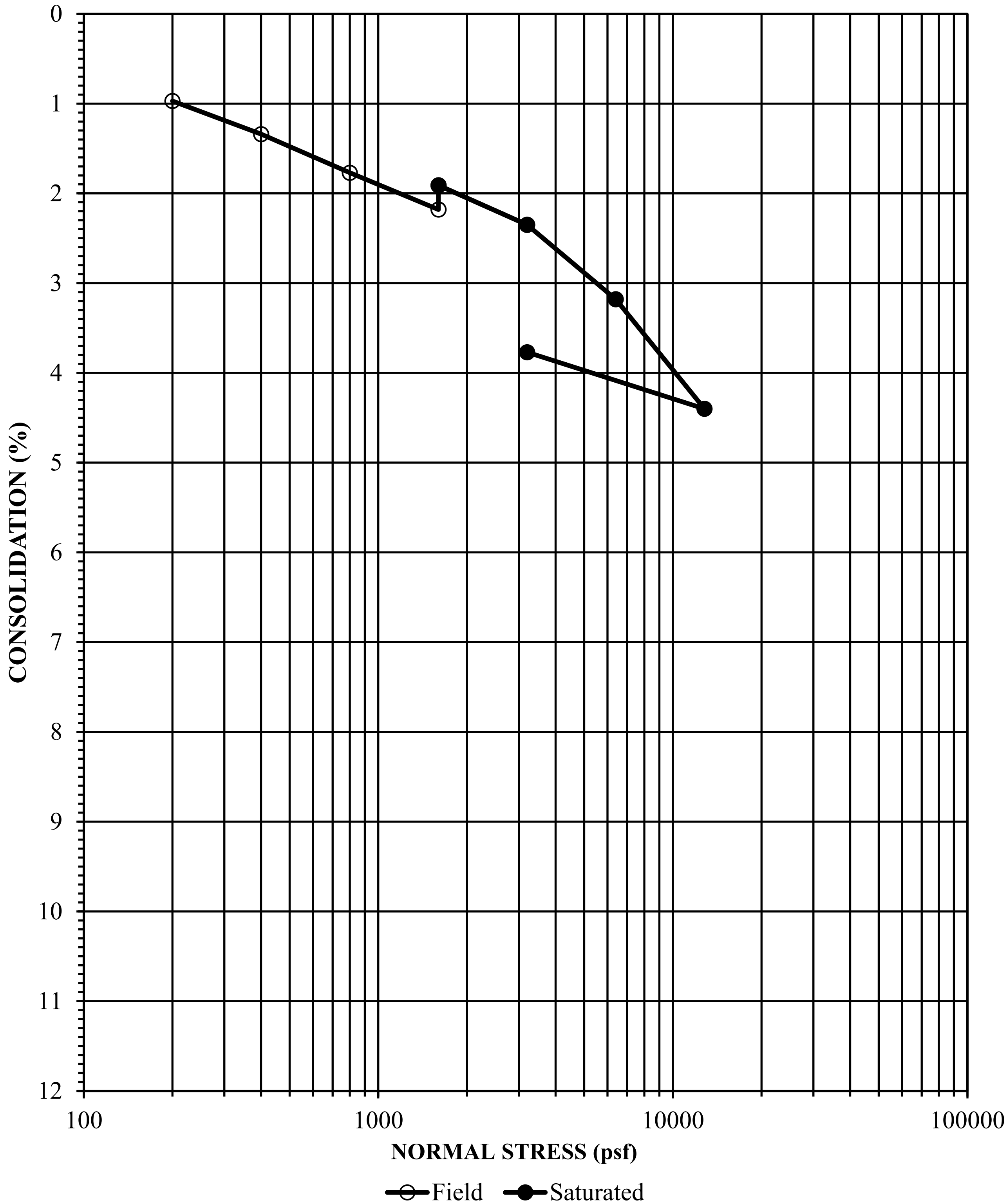
Additional laboratory test results are provided on the boring logs provided in Appendix A and on the Plates that follow.

GRAIN SIZE DISTRIBUTION



Job Number	Location	Depth	Description
2859.00	B-1	35-36.2	Clayey Sand (SC)

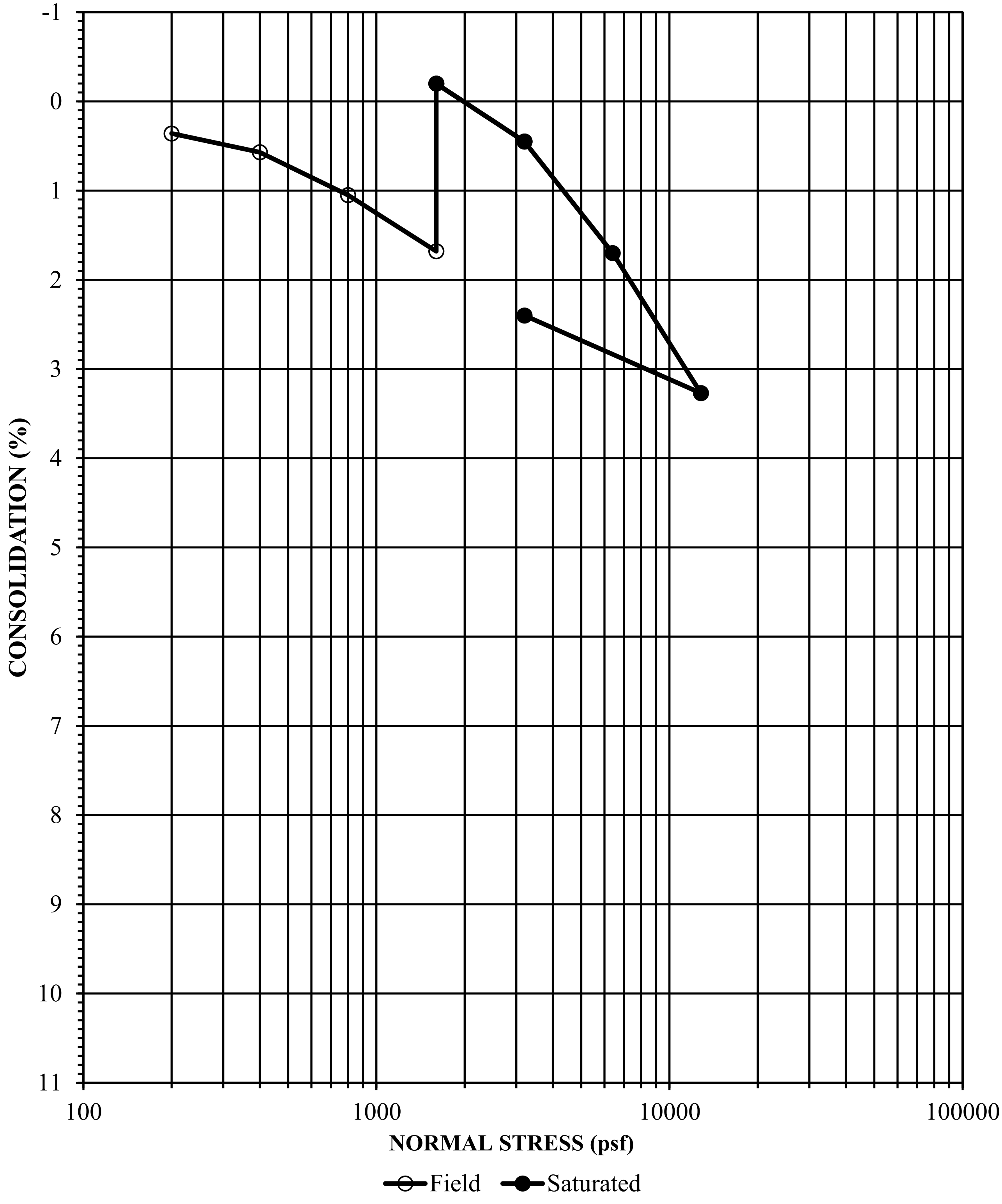
CONSOLIDATION



Job Number	Location	Depth	Description
2859.00	B-1	4	Sandy Clay (CL)

Initial Dry Density (pcf)	Initial Moisture Content (%)	Final Moisture Concent (%)
117.9	11.2	12

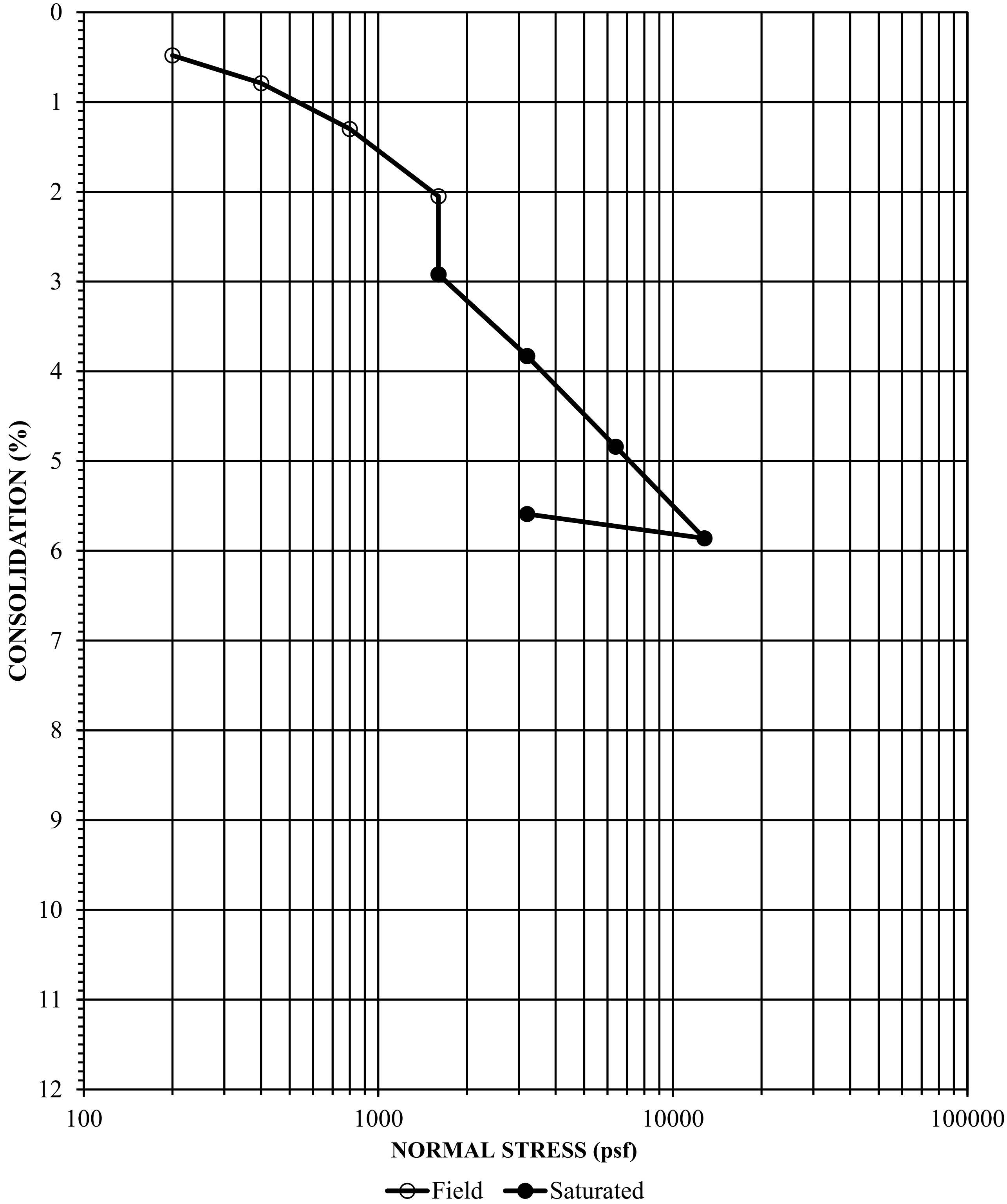
CONSOLIDATION



Job Number	Location	Depth	Description
2859.00	B-2	4	Sandy Clay (CL)

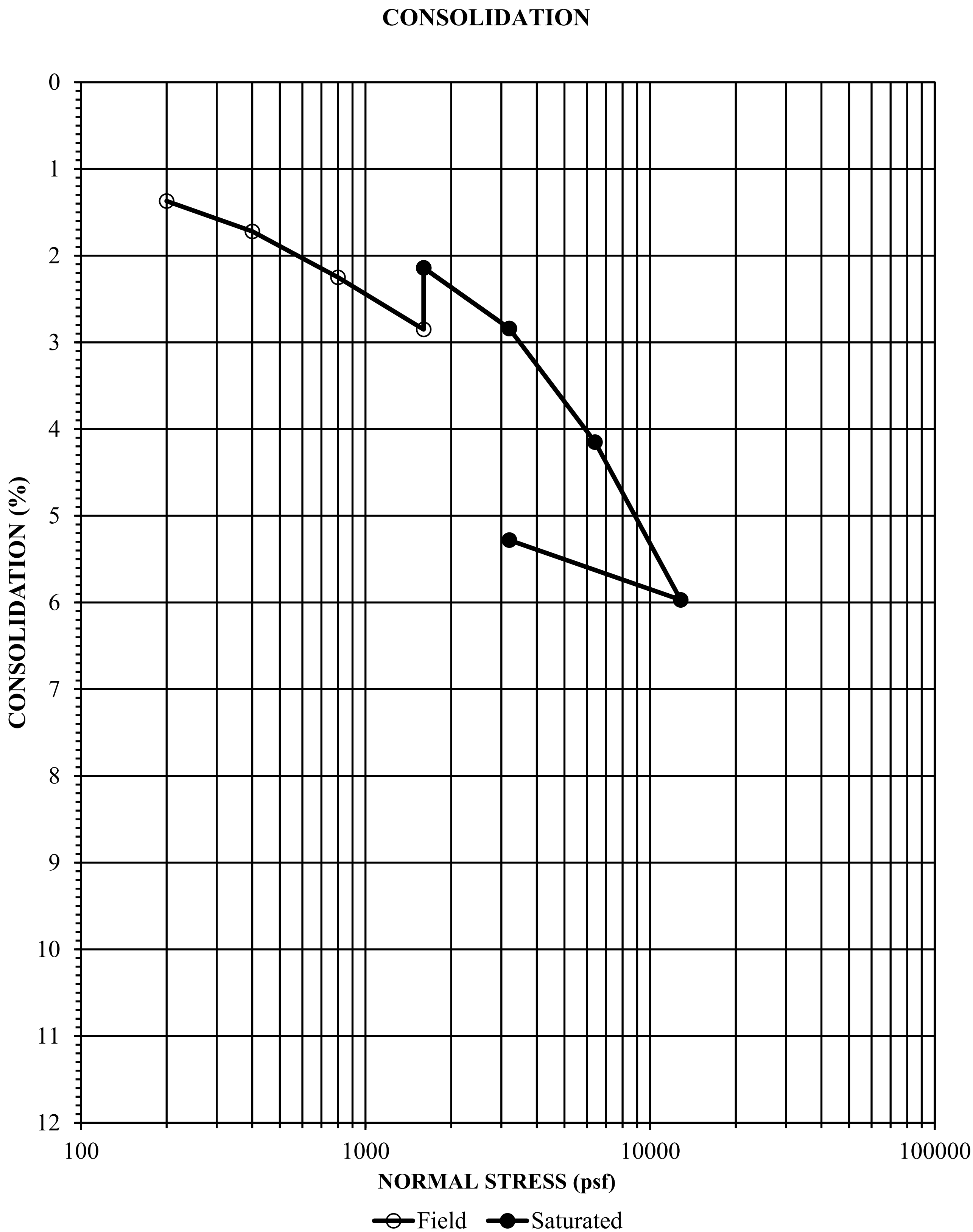
Initial Dry Density (pcf)	Initial Moisture Content (%)	Final Moisture Concent (%)
118.7	7.7	12.7

CONSOLIDATION



Job Number	Location	Depth	Description
2859.00	B-2	6	Silty Sand trace Clay (SM)

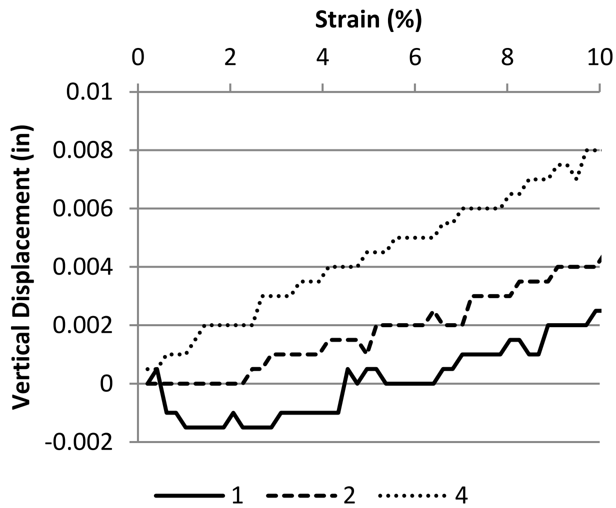
Initial Dry Density (pcf)	Initial Moisture Content (%)	Final Moisture Concent (%)
110	8.1	14.1

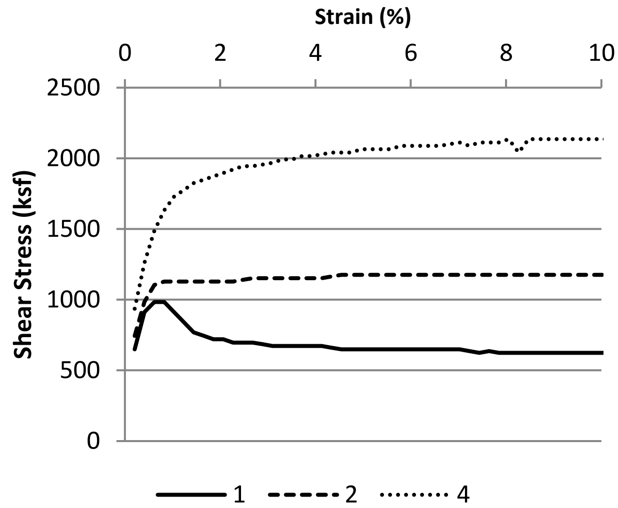


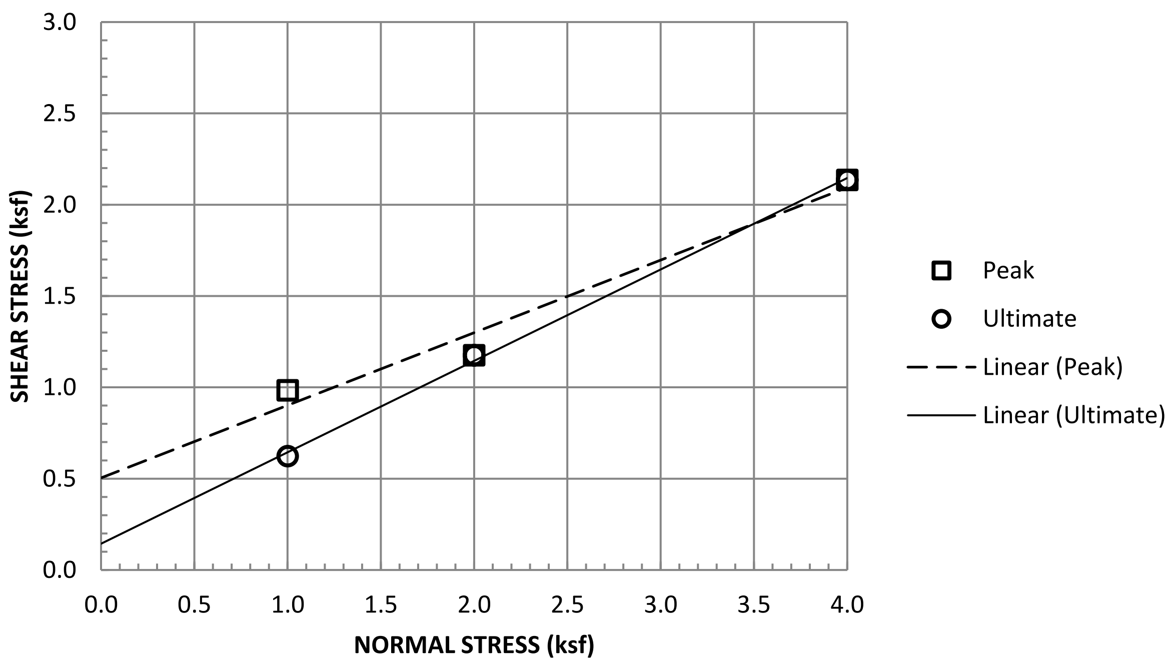
Job Number	Location	Depth	Description
2859.00	B-4	4	Sandy Clay (CL)

Initial Dry Density (pcf)	Initial Moisture Content (%)	Final Moisture Concent (%)
112	7.8	15.6

DIRECT SHEAR







Sample Type:	Remolded 90% of 122.5 @ 11.5%, Saturate		
Normal Stress (ksf)	1	2	4
Peak Shear Stress (ksf)	0.984	1.176	2.136
Peak Displacement (in)	0.003	0.005	0.008
Ultimate Shear Stress (ksf)	0.624	1.176	2.136
Ultimate Displacement (in)	0.25	0.25	0.25
Initial Dry Density (pcf)	110.3	110.3	110.3
Initial Moisture Content (%)	11.5	11.5	11.5
Final Moisture Content (%)	15.4	16.8	17
Strain Rate (in/min)	.005		

Job Number	Location	Depth	Description
2859.00	B-4	0-5	Sandy Clay (CL)

APPENDIX D – PHASE I CULTURAL RESOURCES INVENTORY REPORT

PHASE I
CULTURAL RESOURCES INVENTORY

FOR THE

SANTA ANGELINA SENIOR APARTMENT HOMES
CITY OF PLACENTIA
ORANGE COUNTY, CALIFORNIA

Prepared for:

Sarah Walker, Planning Project Manager
National Community Renaissance of California
9421 Haven Avenue
Rancho Cucamonga, CA 91730

Prepared by:

UltraSystems Environmental Inc.
16431 Scientific Way
Irvine, CA 92618

January 2020

Key Words: City of Placentia; Yorba Linda, Calif. USGS 7.5' topo map survey; negative findings; Blessed Sacrament Episcopal Church

PHASE I
CULTURAL RESOURCES INVENTORY

FOR THE

SANTA ANGELINA SENIOR APARTMENT HOMES
CITY OF PLACENTIA, ORANGE COUNTY, CALIFORNIA

Sarah Walker, Planning Project Manager
National Community Renaissance of California
9421 Haven Avenue
Rancho Cucamonga, CA 91730

Prepared by:
Stephen O'Neil, M.A., RPA
Megan Black Doukakis, M.A.

UltraSystems Environmental Inc.
16431 Scientific Way
Irvine, CA 92618

January 16, 2020

Prepared by: Date: January 16, 2020

Stephen O'Neil, M.A., RPA
UltraSystems Environmental Inc.

TABLE OF CONTENTS

TABLES

FIGURES

ATTACHMENTS

1.0 INTRODUCTION

1.1 Overview

This Phase I Cultural Resources Inventory report was prepared by UltraSystems Environmental Inc. (UEI) at the request of National Community Renaissance of California for the Santa Angelina Senior Apartment Homes Project (Santa Angelina). The project would consist of: (1) utilities improvements; (2) construction of two new residential buildings; (3) demolition of the existing parish hall; (4) construction of a new parish hall; (5) construction of a new community building; and (6) project site amenities and landscaping. UEI prepared this report to evaluate the potential presence of prehistoric and historic resources within the project boundary. A site record describing the Blessed Sacrament Episcopal Church was also prepared.

The project site is comprised of approximately 3.9 acres on the Blessed Sacrament Episcopal Church campus at 1314 N. Angelina Drive in the city of Placentia (see **Attachment A, Figure 1**). The project site includes a mix of several structures with both hardscaped and landscaped areas. The Project site is located in a fully urbanized area with single-family residences to the north, east and south, and a shopping center to the west. This is situated on the northeast corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County (see **Attachment A, Figure 2**). The project on the *Yorba Linda, Calif.*, USGS topographical quadrangle, R 09 W, T 03 S, in the northwest ¼ of the northeast ¼ of Section 30. The background research and archival study included a one-half mile buffer surrounding the project site's Area of Potential Effect (APE) (see **Attachment A, Figure 3**).

The Blessed Sacrament Episcopal Church campus is a rectangular-shaped parcel with the church centrally located onsite facing Angelina Drive, a day-school behind the church, and a large parking lot located on the southern half of the site fronting Morse Avenue. The main building, facing Angelina Drive, consists of the church at the south end, the parish hall at the north end, and a connecting structure between offices. The northern and southeastern ends of the property consist of expansive open space landscaped with grass and trees.

The proposed Santa Angelina Project includes the development of two residential buildings accommodating sixty-four units affordable to households earning less than 60 percent of the Area Median Income (AMI) along with one exempt managers unit.. The structures will be built in the California Craftsman architectural style to be complementary with the church and surrounding neighborhood. Building 1, at the north end of the site, would be a linear two-story structure. Building 2 would be a two-story, L-shaped building located interior to the site with a three-story element at the northern end of the building transitioning to two stories toward the eastern property line. Building 1 is proposed to include 28 one-bedroom units, and four two-bedroom units. Building 2 includes 31 one-bedroom units and two two-bedroom units. A 1,500-square-foot senior-oriented community center is also planned for the ground floor of Building 2. In total the project proposes 35,6431 square feet of new residential building area, 53,824 square feet of paved parking and driveways, and 73,583 square feet of open space and landscaped area. To accommodate the new residents, visitors and staff, a total of 48 parking stalls are proposed. The parcel will also include 85 existing parking spaces for the church for a total of 127 parking spaces onsite. The total proposed lot coverage for the project is 93,133 square feet or 55% of the total church campus (2.11 acres).

In addition to construction of the new housing units, the project will also remove and replace the Blessed Sacrament parish hall. The parish hall will be demolished and replaced with a new parish hall of slightly larger size that will include a covered portico, a memorial courtyard and plaza area fronting Angelina Drive.

Area of Potential Effects

The Area of Potential Effect for the undertaking encompasses the maximum extent of ground disturbance required by the project design (see **Attachment A, Figure 3**).

1.1.1 Methods

A cultural resources records search was completed at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton, which is the local California Historic Resources Information System (CHRIS) facility. The records search was conducted to identify previously recorded cultural resources (prehistoric and historic archaeological sites/isolates, historic buildings, structures, objects, or districts) within the project area and to also determine if previous cultural resource surveys were conducted. The project site and a one-half-mile buffer zone are included in the search radius for archival studies. These records included a review of previously recorded prehistoric and historic archaeological resources and a review of listed cultural resource survey reports within that same geographical area.

Stephen O'Neil, M.A., RPA, contacted the Native American Heritage Commission (NAHC) requesting a Sacred Lands File (SLF) search and also requested a list of interested local tribal organizations and potentially affiliated Native American individuals. The identified parties were contacted to outreach with Native American tribal organizations. The cultural resources record search was conducted by Mrs. Megan Black Doukakis, M.A., and an intensive pedestrian cultural resources survey was conducted by Mr. O'Neil. Mr. O'Neil served at the Principal Investigator, who qualifies as Principal Prehistoric Archaeologist and Historic Archaeologist per United States Secretary of the Interior Standards (see **Attachment B**).

1.1.2 Disposition of Data

This report will be filed with the South Central Coastal Information Center; California State University, Fullerton; the National Community Renaissance of California; the City of Placentia; and UEI , Irvine, California. All field notes and other documentation related to the study will remain on file at the Irvine office of UEI.

2.0 BACKGROUND SETTINGS

2.1 Natural Setting

The City of Placentia is located in the northern portion of Orange County. This region is relatively flat but is at the western edge of the Chino Hills, with the project site's elevation between 290 and 300 feet average mean sea level (AMSL) sloping gently to the south-southwest. It is situated between Carbon Canyon Creek on the east and Fullerton Creek to the west, both flowing southwest, tributaries to Coyote Creek that flows to the Pacific Ocean. The region's environment is characterized by a warm-summer Mediterranean climate, with the average maximum temperature in July reaching 87°F (degrees Fahrenheit) and the average minimum temperature in January at around 45°F. Rainfall is typically less than 14 inches annually.

The surface geology of the northwestern portion of the project consists of younger Quaternary Alluvium and the southeastern portion of the project area has surface deposits composed of older Quaternary Alluvium. Both the younger and older soils are "… derived as alluvial fan deposits from the Chino Hills to the northeast broadly via Carbon Canyon Creek that currently flows to the [west]" (McLeod 2019:1).

2.2 Cultural Setting

2.2.1 Prehistoric Context

The term "prehistoric period" refers to the period of pre-contact Native California lifeways and traditions prior to the arrival of Euro-Americans.

It is widely acknowledged that human occupation in the Americas began about 13,000 or more years ago (all dates presented here are calibrated radiocarbon ages or calendar dates). However, recent discoveries in areas outside of California have pushed that age back several thousand years more to about 15,000 or even perhaps up to nearly 20,000 years ago (Smith and Barker, 2017).

To describe and understand the cultural processes that occurred during prehistory, archaeologists have routinely developed a number of chronological frameworks to correlate technological and cultural changes recognized in the archaeological record. These summaries bracket certain time spans into distinct archaeological horizons, traditions, complexes, and phases.

There are many such models even for the various sub-regions of Southern California (cf. Grayson, 2011; Warren, 1984; Jones and Klar, 2007). Given the variety of environments and the mosaic of diverse cultures within California, prehistory is typically divided into specific sub-regions that include: the Interior of Southeastern California and the Mojave Desert (Warren and Crabtree, 1986); and San Diego and the Colorado Desert (Meighan, 1954; True, 1958, 1970).

Many archaeologists tend to follow the regional syntheses adapted from a scheme developed by William J. Wallace in 1955 and modified by others (Wallace, 1978; Warren, 1968; Chartkoff and Chartkoff, 1984; Moratto 1984; Sutton et al., 2007 and others). Although the beginning and ending dates vary, the general framework of prehistory in the Southern California area consists of the following four periods:

- **Paleoindian and Lake Mojave Periods** [Pleistocene and Early Holocene] (ca. 11000 B.C. to 6000 B.C.). This time period is characterized by highly mobile foraging strategies and a broad spectrum of subsistence pursuits. These earliest expressions of aboriginal occupation in America were marked by the use of large dart or spear points (Fluted and Concave Base Points) that are an element of the Western Clovis expression. Following the earliest portions of this time span there was a change in climate coincident with the retreat of the glaciers. Large bodies of water existed and lakeside aboriginal adaptations were common. Large stemmed points (Western Stemmed Series – Lake Mojave and Silver Lake point types) were accompanied by a wide variety of formalized stone tools and were employed with the aid of atlatls (dart throwing boards). The latter archaeological materials are thought to be representative of an adaptation that was in part focused on lacustrine and riverine environments.

- **Millingstone Horizon** [Middle Holocene] (ca. 6000 B.C. to A.D. 1000). During this time span mobile hunter-gatherers evolved and became more sedentary. Certain plant foods and small game animals came to the forefront of indigenous subsistence strategies. This prehistoric cultural expression is often notable for its large assemblage of millingstones. These are especially well-made, deep-basin metates accompanied by formalized, portable handstones (manos). Additionally, the prehistoric cultural assemblage of this time period is dominated by an abundance of scraping tools (including scraper planes and pounding/pulping implements), with only a slight representation of dart tipped - projectile points (Pinto, Elko and Gypsum types).

- **Late Prehistoric Period** (ca. A.D. 1000 to 1500). Following the Millingstone Horizon were cultures that appeared to have a much more complex sociopolitical organization, more diversified subsistence base and exhibited an extensive use of the bow and arrow. Small, light arrow points (Rose Spring Series), and, later, pottery mark this period along with the full development of regional Native cultures and tribal territories.

- **Protohistoric Period** (ca. A.D. 1500 to 1700s). This final cultural period ushered in long-distance contacts with Europeans, and thereby led to the Historic Period (ca. A.D. 1700 to contemporary times). Small arrow points recognized as Desert Side-notched and Cottonwood forms are a hallmark of this time period.

2.2.2 Ethnohistoric Context

The project lies within the territory of the Gabrielino (Tongva) ethnolinguistic group (Bean and Smith, 1978:538), who speak a language classified as a member of the Uto-Aztecan language family. This language is further affiliated as an element of the Northern Takic Branch of that linguistic group (Golla, 2011:179).

The Gabrielino, with the Chumash, were considered the most populous, wealthiest, and therefore most powerful ethnic nationalities in aboriginal Southern California (Bean and Smith, 1978:538). Unfortunately, most Gabrielino cultural practices had declined before systematic ethnographic studies were instituted. Today, the leading sources on Gabrielino culture are Bean and Smith (1978), Johnson (1962), and McCawley (1996).

According to the recent research, Takic groups were not the first inhabitants of the region. Archaeologists suggest that a Takic in-migration may have occurred as early as 2,000 years ago, replacing or intermarrying with a more ancient indigenous people represented by speakers of a Hokan language (Howard and Raab, 1993; Porcasi, 1998). By the time of European contact, the Gabrielino territory included the southern Channel Islands and the Los Angeles Basin. Their territory reached east into the present-day San Bernardino-Riverside area and south to the San Joaquin Hills in central Orange County.

Different groups of Gabrielino adopted several subsistence strategies, based on gathering, hunting, and fishing. Because of the similarities to other Southern California tribes in economic activities, inland Gabrielino groups' industrial arts, exemplified by basket weaving, exhibited an affinity with those of their neighbors (Kroeber, 1925). Coastal Gabrielino material culture, on the other hand, reflected an elaborately developed artisanship most recognized through the medium of steatite, which was rivaled by few other groups in Southern California.

The intricacies of Gabrielino social organization are not well known. There appeared to have been at least three hierarchically ordered social classes, topped with an elite consisting of the chiefs, their immediate families, and other ceremonial specialists (Bean and Smith, 1978). Clans owned land, and property boundaries were marked by the clan's personalized symbol. Villages were politically autonomous, composed of non-localized lineages, each with its own leader. The dominant lineage's leader was usually the village chief, whose office was generally hereditary through the male line. Occasionally several villages were allied under the leadership of a single chief. The villages frequently engaged in warfare against one another, resulting in what some consider to be a state of constant enmity between coastal and inland groups.

The first Franciscan establishment in Gabrielino territory and the broader region was Mission San Gabriel, founded in A.D. 1772. Priests from the mission proselytized the Tongva throughout the Los Angeles Basin. As early as 1542, however, the Gabrielino were in peripheral contact with the Spanish during the historic expedition of Juan Rodríguez Cabrillo. However, it was not until 1769 that the Spaniards took steps to colonize the territory of aboriginal Californians. Within a few decades, most of the Gabrielino were incorporated into Mission San Gabriel and other missions in Southern California (Engelhardt, 1931). Due to introduced diseases, dietary deficiencies, and forceful *reduccion* (removal of non-agrarian Native populations to the mission compound), Gabrielino population dwindled rapidly from these impacts. By 1900, the Gabrielino community had almost ceased to exist as a culturally identifiable group. In the late 20th century, however, a renaissance of Native American activism and cultural revitalization of Gabrielino descendants took place. Among the results of this movement has been a return to a traditional name for the tribe, the Tongva, which is employed by several of the bands and organizations representing tribal members. Many of the Tongva bands focus on maintaining and teaching traditional knowledge, with special focus on language, place names and natural resources.

The Placentia region, which is situated in the eastern periphery of the Los Angeles Basin near the once-lush plain along the Santa Ana River in the western edge of the Chino Hills, was a prime location for prehistoric settlement. Villages in the area included "a very large village of friendly" Indians in the Brea Canyon approximately three miles to the northwest that was visited by the Portolá Expedition in late July 1769 (Bolton 1927:142-143, in McCawley 1996:59); the Expedition's journalist, Fr. Juan Crespí, use of the phrase "very large" for the population (compared to villages observed to the south) suggests upwards of 100 people. Interestingly a ceremony was being held at this village at the time that included other Tongva from a village on the banks of the Santa Ana River visited by Portolá's company the day before, demonstrating the social and political ties between local Tongva clans. The Tongva community of *Hotuuknga* was situated four and a half miles to the southeast along the Santa Ana River in what is now the City of Yorba Linda (McCawley 1996:59-60), near what later became the headquarters of Bernardo Yorba's Rancho Canon de Santa Ana. *Hotuuknga* had over 260 residents (Merriam 1968:112). Both of these villages later contributed converts to Missions San Gabriel and San Juan Capistrano. The Chino Hills, surrounding Fullerton and Carbon Creeks, nearby Santa Ana River and Tustin Plain would have provided a rich set of both gathering and hunting resources used by the surrounding indigenous communities.

2.2.3 Historic Context

2.2.3.1 Spanish/Mexican Era

The earliest direct European contact with the Placentia region was with the Portolá Expedition of 1769, a party of exploration and conquest led by Lt. Colonel Gaspar de Portolá that twice traveled from San Diego through coastal California to San Francisco and Monterey to occupy Upper California for the Spanish crown. In late July 1769 they passed through the immediate area on their way from the Santa Ana River, through adjacent Brea Canyon and on to the Ontario Valley (Crespí, 2001). They had stayed at the Tongva nation's village of *Totpavit* on the river's bank (approximately six miles to the south of the project site) and passed through another community in Brea Canyon approximately three miles to the west. As the Spanish presence in southern California was consolidated by the establishment of Missions San Gabriel to the north and San Juan Capistrano to the south, as well as by the granting of several large tracts of land to retired soldiers such as that to Juan Nietos which extended from the San Gabriel River east to what is now Buena Park and Fullerton, and the Rancho Santiago de Santa Ana to the Yorba's bordering the east side of the Santa Ana River. Soon cattle and vaqueros would have intruded on Tongva lands in the project area.

The earliest known direct European involvement with the land that became Placentia occurred in 1836. It was then that the governor of Mexico, Governor Juan Alvarado, granted the San Juan Cajon de Santa Ana land grant to Juan Pacifico Ontiveros (1795-1877) (Placentia.org, 2019). Juan's grandfather, José Antonio (1744-1798), was the first Ontiveros to arrive in Alta California from Sinaloa, Mexico in 1781 as a soldier in the Spanish Army (Bandy and Bandy, 1998:82). José Antonio escorted the first colonists to the Pueblo of Los Angeles in that same year. He was assigned to the Santa Barbara Company, where he served until 1785. Upon being released from duty he, along with his wife Ana María and their two children, Juana de Dios (1768-1846) and Juan Patricio (1772-1834), were sent to the Pueblo of Los Angeles as settlers (Bandy and Bandy, 1998:83). By 1790 José Antonio was listed as a shoemaker in the pueblo. In 1781, the family left their youngest son, Juan Patricio, at Mission San Gabriel to be educated by the priests at nine years old. Juan Patricio became a soldier in the Spanish army and married María Antonia Rodriguez in 1794. Their first child, Juan Pacifico Ontiveros, was born in 1795 at San Gabriel (Bandy and Bandy, 1998:83). Juan Patricio served as the corporal of the guard (*escolta*) at the Mission San Gabriel Arcángel and then mayordomo of Mission San Juan Capistrano (Anaheim Public Library, 2019; Bandy and Bandy, 1998:84).

In 1825 while working for Antonio Nieto on the Rancho Santa Gertrudis, Juan Patricio observed that there was unclaimed land to the east of Los Nietos that bordered Rancho Los Coyotes, Los Bolsas and Santa Ana. Juan Patricio submitted a petition for the land grant to Governor José Figueroa in 1835 (Bandy and Bandy, 1998:84). Objections were raised by neighboring ranchos and in 1934 Juan Patricio passed away. Driven by his father's desire to own land, Juan Pacifico submitted a new petition to Governor Alvarado for Rancho San Juan Pacifico in 1836. The grant was approved the following year for the newly titled Rancho San Juan or Cajón de Santa Ana (Bandy and Bandy, 1998:85). The land grant covered 35,971 acres and comprised the area that was to become the cities of Placentia, Anaheim, Fullerton and La Habra. Juan Pacifico married Martina Osuna in 1825 and together they had 13 children.

The Rancho was prosperous in part due to its asphalt resources. Early ranchers discovered the material seeping from the dry canyon walls and recognized it as *brea*. This material became useful in waterproofing the roofs of adobes (Bandy and Bandy, 1998:87). Juan Pacifico and family lived in an adobe home he built on the rancho near the intersection of today's Crowther Avenue and Kraemer Boulevard. The adobe, which had been the oldest continuously occupied residence in Orange County, was destroyed in the late 1970s to make way for development (OrangeCounty.org, 2019).

Mexico rebelled against Spain in 1810, and by 1821, Mexico, including its California province, achieved independence. The Mexican Republic began to grant private land to citizens to encourage emigration to California. Huge land grant ranchos took up large sections of land in California. Ranchos surrounded the mission lands in all directions. The Mission San Gabriel lands were used for the support of the mission and provided for the large population of Tongva Native Americans. The mission lands were held in trust for Native peoples by the Franciscan missionaries for eventual redistribution. The lands along the coast, however, were open for early settlement by the colonists from New Spain.

The Mexican-American War of 1846 saw the invasion of California from both land and sea. Following several skirmishes in the San Diego and Los Angeles areas, and the capture of the territorial capital in Monterey, United States rule was firmly established. Following the rapid influx of population to the north because of the Gold Rush of 1849, California was made a state in 1850. The economic and social order was slow to change in the southern portion of the state, however, and rancheros were left in control of their vast estates through the 1860s. The Los Angeles region, which included the future Orange County area through the 19th century, was a part of the “Cow Counties” and had little representation in the state legislature because of the sparse population. This allowed the predominantly Anglo population of the north to pass laws aimed at breaking up the ranches for settlement by Eastern farmers and, coupled with devastating droughts that crippled many livestock raisers, their dismemberment soon came. This helped pave the way for the “Boom of the Eighties” which saw an influx of people from the rest of the United States and the beginning of many of the towns we see today (Dumke, 1944). This was the first spurt of growth for Los Angeles, and smaller communities in the region started to form to the west, east, and the south such as Anaheim, Tustin and Santa Ana, serving as residential and commercial enters for the surrounding farms and orchards on the plains. Portions of the remaining ranchos, especially in the hill terrain, remained used largely for cattle ranching. Orange County, which included the area that became Placentia, separated from Los Angeles County in 1889.

2.2.3.2 The American Period to Founding of Placentia

In 1865, Daniel Kraemer purchased 3,900 acres of the Rancho San Juan Cajon de Santa Ana Mexican land grant from Juan Pacifico, followed by William McFadden who acquired an additional 100 acres in 1868 (Placentia.org, 2019). Churches and schools were developed to accommodate the influx of new residents. The community’s name came from the school district’s name that had been suggested by Sarah Jane McFadden in 1878. Placentia in Latin means “pleasant place to live.”

In 1880 the first commercial Valencia orange grove was planted by Richard Gilman and citrus orchards rapidly became the main business in the community (OrangeCounty.net, 2019). Packing houses were built to accommodate the area’s growing citrus industry and became the center of Valencia orange growing and packing (Placentia.org, 2019).

In 1910 the Santa Fe Railroad constructed a track through the area which shortened the rail's distance to Los Angeles. This change was initiated by A.S. Bradford who also laid out the main streets in the town (Placentia.org, 2019). Bradford, known as Placentia's founder, purchased 20 acres within the community in 1890 and helped develop the citrus industry as well as encouraged the US post office and water companies to set up facilities here (Tynes, 1977).

Oil was found in northeast Placentia in 1919 by Union Oil Co. on C.C. Chapman's land as well as on land owned by Daniels Kraemer's son, Samuel (OrangeCounty.net, 2019). This led to a population boom in the city.

In 1926, the 500 community members voted to incorporate the city, which at first was known as the "baby city" as it was the smallest in Orange County at the time (Placentia.org, 2019; OrangeCounty.net, 2019).

2.2.3.3 Project Site Land Use History

Historic aerial maps are available for Placentia, the earliest dating to 1946. These maps indicate that the project site continued to be used for farming through the 1950s. The roads were unpaved and in a different configuration than the current ones. In the 1963 aerial, the church is present at the south end of an L-shaped structure with landscaping to the east and north. The residences directly to the north and east were also present by then. The larger area surrounding the project is more developed with less agriculture taking place. By the 1972 aerial the entire project area is developed save for a small patch 0.5 miles to the south. The roads are in their current configuration and completely paved. The north-south oriented church building had been extended by double the length to the north. Directly to the south agriculture was still active. A new east-west wing of the church (the parish hall) was added by the time of the 1980 aerial map. This wing was attached to the north portion of the church structure. The parking lot is paved and more residences and commercial buildings have been developed to the west (NETROnline, 2019).

Topographic maps are also available for the project area with the earliest in 1896 (USGS, 1896). The 1896-1950 topographic maps do not indicate that any buildings are present at the project site. The 1965 map does show some development of the area to the north of the site as well while agriculture still dominated to the west, south and east of the project site (USGS, 1965). The 1982 map is the first to show the presence of the Blessed Sacrament church (USGS, 1982).

The Blessed Sacrament Episcopal Church campus occupies the entire project site. The church parish was formed in 1956 and ground was broken for the church building on December 7, 1957 with Fr. Ernest Scully as the founding priest. Initially there was the church itself, offices and a small parish hall (visible in the 1963 aerial photo map). At this time the land surrounding the church parcel was still predominantly orange orchards and the commercial city center was still about two miles south of the church site; Kraemer Avenue was the site's frontage street, not Angelina Drive (USGS, 1965). A larger parish hall and expanded kitchen were added in 1976 (visible in the 1980 aerial photo map). The Children's Learning Center, behind and to the east of the church and hall, was opened in 1998, completing the current campus (Church of the Blessed Sacrament, 2019).

3.0 RESEARCH METHODS

This cultural resources inventory and related archival research included a background cultural resources records check (archival research) at the SCCIC, California State University, Fullerton. Additionally, a SLF search was requested from the NAHC, as well as a list of local Native American groups and individuals for outreach. Finally, a pedestrian cultural resource survey of the entire project area was conducted.

3.1 Records Search

A cultural resource records search was completed by Megan Black Doukakis at the SCCIC on November 13, 2019. That research was completed to identify cultural resources on or near the project site. The CHRIS local facility for Los Angeles County maintained at the SCCIC was reviewed to identify resources that have been previously evaluated for historic significance, as well as to identify any previous completed cultural resources survey reports for the area.

Also searched and reviewed were the official records and maps for cultural resources and surveys in Orange County, National Register of Historic Places; Listed Properties and Determined Eligible Properties (2012), and the California Register of Historical Resources (2012).

For the current study, the scope of the records search included a 0.5-mile buffer zone from the project's footprint (see **Attachment A, Figure 3**). The research effort was completed to assess the sensitivity of the project site for both surface and subsurface cultural resources and to assist in determining the potential to encounter such resources, especially prehistoric—i.e., Native American—cultural remains, during earth-moving activities associated with the undertaking.

3.2 Field Survey

On December 19, 2019, archaeologist Stephen O'Neil visited the project site to conduct a pedestrian survey. During the survey, the project site was carefully inspected for any indication of human activities dating to the prehistoric or historic periods (i.e., 50 years or older).

3.3 Native American Outreach

On November 8, 2019, Mr. O'Neil contacted the NAHC via email notifying them of the project activities, requesting a search of their SLF and requesting a list of local tribal organizations and individuals to contact for project outreach. The NAHC replied on November 26, 2019 with a letter dated the same day reporting on the SLF search findings and a list of 21 individuals to contact representing 16 tribal organizations. Letters to local tribes were sent on December 6, 2019 (the letter was incorrectly dated November 5, 2019) to all of the tribal organizations and individuals listed in the NAHC November 26, 2019 letter (**Attachment C**).

4.0 FINDINGS

4.1 Records Search

4.1.1 Recorded Archaeological Sites

Based on the cultural resources records search, it was determined that no cultural resources have been previously recorded within the project site boundary. Within the half-mile buffer zone, there have been no recorded prehistoric resources and six previously recorded historic-era cultural resources. **Table 4.1-1** summarizes these resources.

The Pierotti Ranch, also known as the Pierotti-Strain House, is located at 1731 Bradford Avenue, approximately 1,500 feet west of the project site. Recorded as 30-157208, it is a two-story white wood-sided frame house surrounded by various gardens and remnants of past fruit orchards. It was constructed by the Pierotti family in 1909 who grew oranges; the Strain family bought land nearby and raised several crops and grazed livestock; the two families intermarried (Vasquez, 2002a). This site was listed in the National Register of Historic Places (NTHP) in 1993. The A. S. Bradford Home, located at 136 Palm Circle, Placentia, is located approximately 1,100 feet to the northwest of the project site. It was built by the founder of Placentia, Albert S. Bradford, in 1902, in the Colonial Revival style and is a two-story, 15 room residence (Tynes, 1977). It is recorded as 30-160084, and is listed in the NRHP and the Orange County Point of Historic Interest listing in 1978.

The John Tuffree House is located at 1612 Kingston Road, approximately 2,200 feet north of the project site. John Tuffree, son of one of Placentia's pioneers, built this residence in 1918 near the family dairy farm and orchard. It is a two-story Spanish Colonial House with a flat roof and unbroken parapet; stucco-clad, red brick pattern on the parapet (Vasquez 2002b:1). Recorded as 30-177091, it "appears to be eligible on the basis of its architecture, its place as a center of community social life, and for its associations with John and Mable Tuffree, prominent members of the community" for a NRHP (Vasquez, 2002b:3). The E. Boynton House is located at 1027 N. Kraemer Boulevard, approximately 1,800 feet south of the project site. A large two-story Spanish Colonial Revival residence with hipped-roof with red clay tiles and pueblo-style chimney, it was built by Boynton, a citrus rancher, in 1931. Recorded as 30-177108, it has not been evaluated for the NRHP (Orr, 2002a:2).

The oldest building on the Valencia High School campus is a remaining wing of the Bradford School that was built in 1912. The entire campus is recorded as 30-177090; the "complex appears to be eligible for the National Register for its architecture and its place in the broad patterns of Placentia's history" (Orr 2002b:3). The high school is located at 500 N. Bradford Avenue, the closest portion of which is 2,000 feet to the south of the project site; however this portion of the campus contains only athletic fields, while the campus structures, which includes the Bradbury School building, lie beyond the half-mile buffer zone of the project's APE. The "Church of the Lord" Annex is located at 1022 N. Bradford Avenue, approximately 2,000 feet southwest of the project site. A single-story structure with a bell-cast hipped roof, narrow shiplap siding and five-panel doors all suggest construction around the turn of the 20th century. The site is recorded as 30-177066. Other work to the building does not appear original and "the architectural integrity appears to have been compromised…", so that "…while this property may not be a National Register potential, it could be made a local landmark by the City of Placentia" (Orr, 2002c:3).

Table 4.1-1
KNOWN CULTURAL RESOURCES WITHIN A 0.5-MILE RADIUS

Site Number	Author(s)	Date	Type	Description
30-157208	Diann Marsh Liliana Vasquez	1993 2002	Historic	Pierotti Ranch, aka Pierotti-Strain House, located at 1731 Bradford Avenue, Placentia, is a two-story white wood-sided frame house surrounded by various gardens and remnants of fruit orchards. Constructed 1909. This site is listed in the NRHP, 1993.
30-160084	Clairee Tynes Diann Marsh Liliana Vasquez	1977 1989 2002	Historic	The A. S. Bradford Home, located at 136 Palm Circle, Placentia, was built in 1902 in the Colonial Revival style and is a two-story, 15-room residence. Built by the founder of Placentia, Albert S. Bradford. This site is listed in the NRHP and the Orange County Point of Historic Interest listing, 1978.
30-177066	Shannon Orr	2002	Historic	Church of the Lord Annex, located at 1022 N. Bradford Avenue, Placentia. This single-storied church was built in 1905. May not be eligible for the NRHP but may be eligible as a local landmark by the City of Placentia.
30-177090	Shannon Orr	2002	Historic	A wing of the Bradford School, built 1912, is the oldest structure on the Valencia High School campus. Located at 500 N. Bradford Avenue, Placentia. This site appears to be eligible for listing in the NRHP.
30-177091	Liliana Vasquez	2002	Historic	The John Tuffree House located at 1612 Kingston Road, Placentia. A two-story Spanish Colonial House with a flat roof and unbroken parapet; stucco-clad, red brick pattern on the parapet. Built 1919. This site appears to be eligible for the NRHP.
30-177108	Shannon Orr	2002	Historic	The E. Boynton House located at 1027 N. Kraemer Boulevard, Placentia. A large two-story Spanish Colonial Revival residence with hipped-root with red clay tiles and pueblo-style chimney. It appears to have been a citrus ranch home. Built 1931. Not evaluated for the NRHP.

4.1.2 Previous Cultural Resource Investigations

According to the records at the SCCIC, there have been three previous cultural resource studies within the half-mile buffer of the project site (**Table 4.1-2**) (see **Attachment D**). All of these studies are located outside of the project boundary.

Two of the nearby cultural resource investigations involve potential wireless communication facilities at structures of no historic interest (OR-02067 and OR-04393). In 2002 a Historic Resources Inventory update was conducted (OR-04104) that encompassed the entire City of Placentia. His study noted the several historic period buildings described above, but did not record any properties on the project site (**Attachment D**).

Table 4.1-2
KNOWN CULTURAL RESOURCE STUDIES WITHIN A 0.5-MILE RADIUS

Report Number	Author(s)	Date	Title	Resources
OR-02067	Lapin, Philippe	2000	Cultural resources Assessment for Pacific Bell Wireless Facility CM 183-01, County of Orange, California	NA
OR-04104	Antram, Marie, Shannon Orr, Liliana Vasquez, L. de Graff, and Pat Jertberg	2002	Historic Resource Inventory for the City of Placentia; Update 2002	30-157208, 30-160084, 30-160085, 30-162291, 30-162555, 30-176705, 30-176707, 30-176749, 30-177066, 30-177080, 30-177081, 30-177082, 30-177083, 30-177084, 30-177085, 30-177086, 30-177087, 30-177088, 30-177089, 30-177090, 30-177091, 30-177092, 30-177093, 30-177094, 30-177095, 30-177096, 30-177097, 30-177098, 30-177099, 30-177100, 30-177101, 30-177102, 30-177103, 30-177104, 30-177105, 30-177106, 30-177107, 30-177108, 30-177109, 30-177110, 30-177111, 30-177112
OR-04393	Bonner, Diane, Carrie Wills, and Kathleen Crawford	2014	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate IE041831 (CM183 Palm Drive Office Building) 319 East Palm Drive, Placentia, Orange County, California	30-157208, 30-160084, 30-177091

NA = not applicable.

4.2 Native American Outreach

On November 8, 2019, Mr. O'Neil contacted the NAHC via email and facsimile notifying them of the project, requesting a search of their SLF and asking for a list of local tribal organizations and individuals to contact for project outreach. The results of the search request were received November 26, 2019, at the office of UEI from Mr. Steven Quinn, Associate Governmental Program Analyst. The NAHC letter stated that "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]." (See **Attachment C**.)

UEI prepared letters to each of the 21 tribal contacts representing 16 tribal organizations describing the project and a map showing the project's location, requesting a reply if they have knowledge of cultural resources in the area, and asked if they had any questions or concerns regarding the project (see **Attachment C**). On December 6, 2019, Mr. O'Neil mailed the letters (incorrectly dated November 26, 2019) with accompanying maps to all 21 tribal contacts, and also emailed identical letters and maps to each of the tribal contacts for which email addresses were known (19), as well as sending facsimiles on December 6, 2019 to the 13 tribes with facsimile capability. There have been five responses to the letters and emails to date.

On December 6, 2019, Deneen Pelter, Administrative Assistant with the Rincon Band of Luiseño Indian's Cultural Resource Department, replied by email stating that the project site was not within Luiseño Aboriginal Territory. Similarly, Arysa Gonzales Romero, Historic Preservation Technician for the Agua Caliente Band of Cahuilla Indians, replied by email on December 10th and 16th of 2019 stating that the project site is not located within the Tribe's Traditional Use Area and therefore they defer to other tribes closer to the area. Joyce Perry, representing the Juaneño Band of Mission Indians – Acjachemen Nation (Matias Belardes, Chairperson), replied by email on December 10, 2019 and asked if the Blessed Sacrament church had been constructed before the 1980s, noting that if it had been then there would not have a cultural resources study conducted, and if that was the case then the tribe would request both Native American and archaeological monitoring be conducted during ground-disturbing construction for the present project; Mrs. Doukakis replied the same day that records indicate the church had been constructed circa 1956, and therefore the Juaneño Band's request for monitoring would be included in this report's recommendations. The Administrative Specialist for the Gabrieleño Band of Mission Indians – Kizh Nation, replied for Chairperson Andrew Salas by email on December 13, 2019 stating that they wished to have AB 52 consultation on the project; Doukakis replied by email the same day explaining that such consultation would be between the tribe and the project's lead agency, which would be the City of Placentia's Planning Division, and not with the project proponent's cultural resource consultant (i.e. UEI).

Following up on the initial letter and email contacts, telephone calls were conducted on January 9, 2020, to complete the outreach process. These calls were to the 13 tribal contacts who had not already responded to UEI mailing and email. Sonia Johnston, Chairperson of the Juaneño Band of Mission Indians was not contacted over telephone because a phone number was not provided. Seven telephone calls were placed with no answer and so messages were left describing the project and requesting a response. These were to Chairperson Anthony Morales, Chairperson of the Gabrielino/Tongva San Gabriel Band of Mission Indians; Chairperson Sandonne Goad, Chairperson of the Gabrielino/Tongva Nation; Mr. Charles Alvarez of the Gabrieleno-Tongva Tribe; Chairperson Fred Nelson, Chairperson of the La Jolla Band of Luiseño Indians; Shasta Gaughen, Tribal Historic Preservation Officer of the Pala Band of Mission Indians; Chairperson Mark Macarro, Chairperson of the Pechanga Band of Luiseño Indians; Scott Cozart, Chairperson of the Soboba Band of Luiseño Indians. There have been no responses to date of the preparation of this report from these individuals.

During the telephone calls of November 9, 2020, Chairperson Robert Dorame of the Gabrielino Tongva Indians of California Tribal Council asked if we were performing consultation and we explained UEI was not the lead agency for AB 52 consultation, rather we were gathering data for our cultural resources report. The Chairperson asked for us to resend through email our original request to him; this was done the same day. Teresa Romero, Chairperson of the Juaneño Band of Mission Indians Acjachemen Nation was not available to take our call and the receptionist directed me to Cultural Resource Manager, Heidi Lucero. An email was sent to Ms. Lucero the same day. The Pauma Band of Luiseño Indians Chairperson, Temet Aguilar's assistant indicated that the tribe has a Cultural Committee that deals with cultural resources. She requested that UEI email her our request and that she would provide this directly to the committee; an email was sent to her the same day. The San Luis Rey Band of Mission Indians' receptionist indicated that all cultural resources questions should be directed to "Cami" and provided her telephone number. She was called; there was no answer and a message was left. Joseph Ontiveros, of Cultural Resource Department of the Soboba Band of Luiseño Indians asked if he could call UEI back; no further response has been received. Juan Ochoa of the Pechanga Band of Luiseño Indians, assistant to the Cultural Resources Coordinator Paul Macarro, called and indicated that the project is outside of the tribe's area and that they would defer response to closer tribes. There have been no further responses from these tribes to date (see **Attachment C**).

4.3 Pedestrian Survey Results

A pedestrian survey was conducted at the Blessed Sacrament Episcopal Church campus on December 19, 2019 by Mr. Stephen O'Neil. The survey consisted of walking, visually inspecting, and photographing the exposed ground surface and landscaped areas of the project site using standard archaeological procedures and techniques. Both the church and associated preschool on the church campus are actively used; therefore, before proceeding with the survey O'Neil met with the parish secretary and the school director to let them know of his presence and planned activities.

Survey of the ground surface was conducted in an opportunistic manner; walking transects over open space of landscaped grass fields where possible and along the sides of the landscape planters surrounding the buildings. There are three areas of large open grass with scattered ornamental trees of various species (sycamore, pepper trees and pines), in the southeast corner facing Morse Avenue (containing *Ficus* and oaks plus the other mentioned species' in the northeast corner) (**Figure 4.3-1**), on the north side of the parcel (**Figure 4.3-2**), and on the west side in front of the church and facing Angelina Drive (**Figure 4.3-3**). There is also a 10-foot-wide grass strip between Angelina Drive and the sidewalk along the front of the church. These grass fields occupy approximately almost half of the 3.89-acre lot. Due to several recent rain storms starting in mid-November through December, all the fields were covered with a dense carpet of low-growing weeds (including filaree [*Erodium* sp.] with clover [*Trifolium repens*] and cheeseweed [*Malva parviflora*]) with some grass that did not allow direct observation of the ground. There was a lack of burrow tailings by gophers, ground squirrels or other rodents that are normally common in Southern California that might have allowed observation of soil contents immediately below the surface. These lawns were walked in standard ten-meter east/west transects.

Limited amounts of soil surface were visible in the flower beds in front of the church and other beds to the side of the church all planted with various ornamental shrubs (**Figure 4.3-4**) and along the corridor between the church and parish hall (**Figure 4.3-5**), as well as a memorial garden at the back (east end) of the parish hall with rose bushes (**Figure 4.3-6**). There is a 3.5-foot-wide landscape bed between Morse Avenue and the south parking lot with the same mix of ornamental trees, as well as some bamboo and Natal plum shrubs with surface soil visible; also, three small planters containing an eclectic mix of shrubs and low growing plants within the south parking lot itself. All of these planters were inspected.

The result of the pedestrian survey was negative for both historic and prehistoric cultural resources, except for the Blessed Sacrament church itself which is approximately 63 years old (see **Section 4.4** below). Photographs of the project site were taken during the cultural resources survey.

4.4 Blessed Sacrament Episcopal Church Site Record

The Blessed Sacrament Episcopal Church was constructed circa 1957, making the building approximately 63 years old. Structures 50 years and older are considered "historic." Therefore, the church will be recorded in a Department of California Parks and Recreation Primary Record Form 523A. This record will be included as **Attachment E** and will be submitted to the SCCIC.

Figure 4.3-1
Southeast Corner Field Facing Morse Avenue, View to the North

Figure 4.3-2
North Field; View to the West

Figure 4.3-3
West Field in Front of the Hall and Church Facing Angelina Drive; View to the East

Figure 4.3-4
Landscape Beds on South Side of Church; View to the North

Figure 4.3-5
Landscape Bed in Front of Corridor Between Church and Hall; View to the North

Figure 4.3-6
Memorial Garden on East (Back) Side of Hall; View to the Southwest

5.0 MANAGEMENT CONSIDERATIONS

5.1 Site Evaluation Criteria

Evaluation of significance under the California Environmental Quality Act (CEQA) uses criteria found in eligibility descriptions from the California Register of Historical Resources (CRHR). Generally, a resource is to be considered historically significant if it meets the criteria for listing in the California Register [Public Resources Code § 5024.1; California Code of Regulations § 15064.5(a)(3)]. These criteria provide that a resource may be listed as potentially significant if it:

- Is associated with the events that have made a significant contribution to the broad patterns of California history and cultural heritage.
- Is associated with the lives of persons important in our past.
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value.
- Has yielded, or may be likely to yield, information important in prehistory or history.

5.2 Potential Effects

No cultural resources will be adversely affected by the project. However, the presence of buried cultural (prehistoric and/or historic archaeological) resources cannot be ruled out. If prehistoric and/or historic artifacts are observed during subsurface excavation, work should be stopped in that area and a qualified archaeologist monitor should be called to assess the finds.

6.0 CONCLUSIONS AND RECOMMENDATIONS

No prehistoric or historic archaeologic resources were identified during the pedestrian field survey of the project. The potential for subsurface cultural deposits is also minimal.

Five Native American responses have been received to date. The Rincon Band of Luiseño Indians, Agua Caliente Band of Cahuilla Indians and the Pechanga Band of Luiseño Indians have stated that the project site is outside their traditional territories and defer to more local tribes. The Juaneño Band of Mission Indians – Acjachemen Nation (Belardes) requests that both Native American and archaeological monitoring take place during subsurface construction work because when the original church structure was built in the 1950s there was no cultural resource investigation. The Gabrieleño Band of Mission Indians – Kizh Nation replied that they wished to have AB 52 consultation on the project, but did not mention any known tribal resources at or in the area of the project site. (See **Section 4.2** and **Attachment C**).

While six historic properties were identified within the half-mile buffer zone, none are within the APE. The Blessed Sacrament church itself was determined to be an historic building as it was constructed circa 1957, making it approximately 63 years old. The church will be recorded in a Department of California Parks and Recreation Primary Record Form 523A to be submitted to the SCCIC. The results of the pedestrian assessment indicate no impacts to historical resources are anticipated during project construction. The cultural resources study findings suggest that there is a low potential for the presence of prehistoric cultural resources. However, the topography of the project site and immediate neighborhood is very flat and suggests that there has been minimal grading in the past for construction projects. The extensive grass landscaping in the north, southeast and west-central portions of the church campus has relatively undisturbed ground surface, and the parking lot occupying approximately the southern third of the campus would contain minimally disturbed subsurface soil below the asphalt topping. All of the open landscaped area and the eastern half of the southern parking lot will be converted to structures built with foundations and utility lines that would entail considerable ground disturbance, grading, and trenching. Therefore, it is recommended that archaeological monitoring be conducted during subsurface ground construction work.

If human remains are encountered during excavations associated with this project, work will halt in that area and the Los Angeles County Coroner will be notified (§ 5097.98 of the Public Resources Code). The Coroner will determine whether the remains are of recent human origin or older Native American ancestry. If the coroner, with the aid of the supervising archaeologist, determines that the remains are prehistoric, they will contact the NAHC. The NAHC will be responsible for designating the most likely descendant (MLD), who will make recommendations as to the manner for handling these remains and further provide for the disposition of the remains, as required by § 7050.5 of the California Health and Safety Code. Following notification by the NAHC, the MLD will make these recommendations within 48 hours of having access to the project site following notification by the NAHC. These recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials (§ 7050.5 of the Health and Safety Code).

7.0 REFERENCES

Anaheim Public Library
2019 Juan Pacifico Ontiveros and his wife, Maria Martina [graphic]. http://content.cdlib.org/ark:/13030/kt6v19q2dj/?layout=metadata&brand=calisphere. Accessed December 26, 2019.

Bandy, Marcy, and Maurice Bandy
1998 *Saddleback Ancestors: Rancho Families of Orange County, California*. Revised Edition. Orange County Genealogical Society, Orange, California.

Bean, Lowell John, and Charles R. Smith
1978 Gabrielino. In Handbook of North American Indians, William C. Sturtevant, general editor, vol. 8, *California*, edited by Robert F. Heizer, pp. 538-549. Smithsonian Institution, Washington, DC.

Chartkoff, Joseph L., and Kerry Kona Chartkoff
1984 *The Archaeology of California*. Stanford University Press, Stanford, California.

Church of the Blessed Sacrament
2019 Parish History. https://www.blessedsacramentplacentia.org/parish-history. Accessed December 27, 2019.

Dumke, Glenn S.
1944 *The Boom of the Eighties*. Huntington Library, San Marino, California.

Engelhardt, Zephryn, O.F.M.
1931 *San Gabriel Mission and the Beginnings of Los Angeles*. Franciscan Herald Press, Chicago.

Golla, Victor
2011 *California Indian Languages*. University of California Press: Berkeley.

Howard, W. J., and L. M. Raab
1993 Olivella Grooved Rectangle Beads as Evidence of an Early Period Southern California Channel Island Interaction Sphere. *Pacific Coast Archaeological Society Quarterly* 29(3):1-11.

Kroeber, Alfred
1925 Handbook of the Indians of California. *Bureau of American Ethnology Bulletin* No. 78, Washington, D.C.

McCawley, William
1996 *The First Angelinos: The Gabrielino Indians of Los Angeles*. Malki Museum Press, Banning, California/Ballena Press, Novato, California.

McLeod, Samuel A.
2019 Letter to Stephen O'Neil: Re: Paleontological Records Search for the proposed Affordable Housing Project, UltraSystems Environmental Project No. 7038, in the City of Placentia, Orange County, project area. Vertebrate Paleontology Section, Natural History Museum of Los Angeles County. Dated 20 December 2019.

NETR Online

2019 Aerial photographs of the project vicinity, taken in 1946, 1952, 1963, 1972, 1980, 1995, 2002, 2003, 2004, 2005, 2009, 2010, 2012, 2014 and 2016. http://www.historicaerials.com. Accessed December 12, 2019.

OrangeCounty.net

2019 City Guide-Placentia. https://www.orangecounty.net/cities/Placentia_history.html. Accesses December 26, 2019.

Orr, Shannon

2002a E. Boynton House (30-177108). Primary Record. On file, South Central Coastal Information Center, California State University Fullerton.

2002b Valencia High School (includes Bradford School) (30-177090). Primary Record. On file, South Central Coastal Information Center, California State University Fullerton.

2002c Church of the Lord Annex (30-177066). Primary Record. On file, South Central Coastal Information Center, California State University Fullerton.

Placentia.org

2019 History of Placentia. https://www.placentia.org/178/History-of-Placentia. Accessed December 26, 2019.

Porcasi, Judith F.

1998 Middle Holocene Ceramic Technology on the Southern California Coast: New Evidence from Little Harbor, Santa Catalina Island. *Journal of California and Great Basin Anthropology* 20:270-284.

Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen

2007 Advances in Understanding Mojave Desert Prehistory. In *California Prehistory: Colonization, Culture, Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 229-257. AltaMira Press, Lanham, Maryland.

True, Delbert L.

1958 An Early Complex in San Diego County, California. *American Antiquity* 23(3):255-263.

1970 Investigations of a Late Prehistoric Complex in Cuyamaca Rancho State Park, San Diego County, California. *Archaeological Survey Monographs 1*. University of California, Los Angeles.

Tynes, Clairee

1977 A. S. Bradford Home (30-160084). National Register of Historic Places Inventory. On file, South Central Coastal Information Center, California State University Fullerton.

Vasquez, Liliana

2002a Pierotti Ranch (30-157208). Primary Record. On file, South Central Coastal Information Center, California State University Fullerton.

2002b John Tuffree House (30-177091). Primary Record. On file, South Central Coastal Information Center, California State University Fullerton.

Wallace, William J.

1978 Post-Pleistocene Archeology, 9,000 to 2,000 BC. In Handbook of North American Indians, William C. Sturtevant, general editor, vol. 8, *California*, edited by Robert F. Heizer, pp. 25-36. Smithsonian Institution, Washington, D.C.

Warren, Claude N.

1968 Cultural Traditions and Ecological Adaptations on the Southern California Coast. In *Archaic Prehistory in Western United States*, Cynthia Irwin-Williams (ed.), pp. 1-14. Eastern New Mexico University Contributions in Anthropology 1(3). Portales, New Mexico.

Warren, Claude N., and Robert H. Crabtree

1986 Prehistory of the Southwestern Area. In Warren L. D'Azevedo (ed.), Handbook of North American Indians, Vol. 11: *Great Basin*, pp. 183-193. Smithsonian Institution, Washington, D.C.

USGS (United States Geological Survey, U.S. Department of the Interior)

1896 *Yorba Linda*, *Calif*. 7.5', USGS Quadrangle map.

1965 *Yorba Linda, Calif*. 7.5', USGS Quadrangle map.

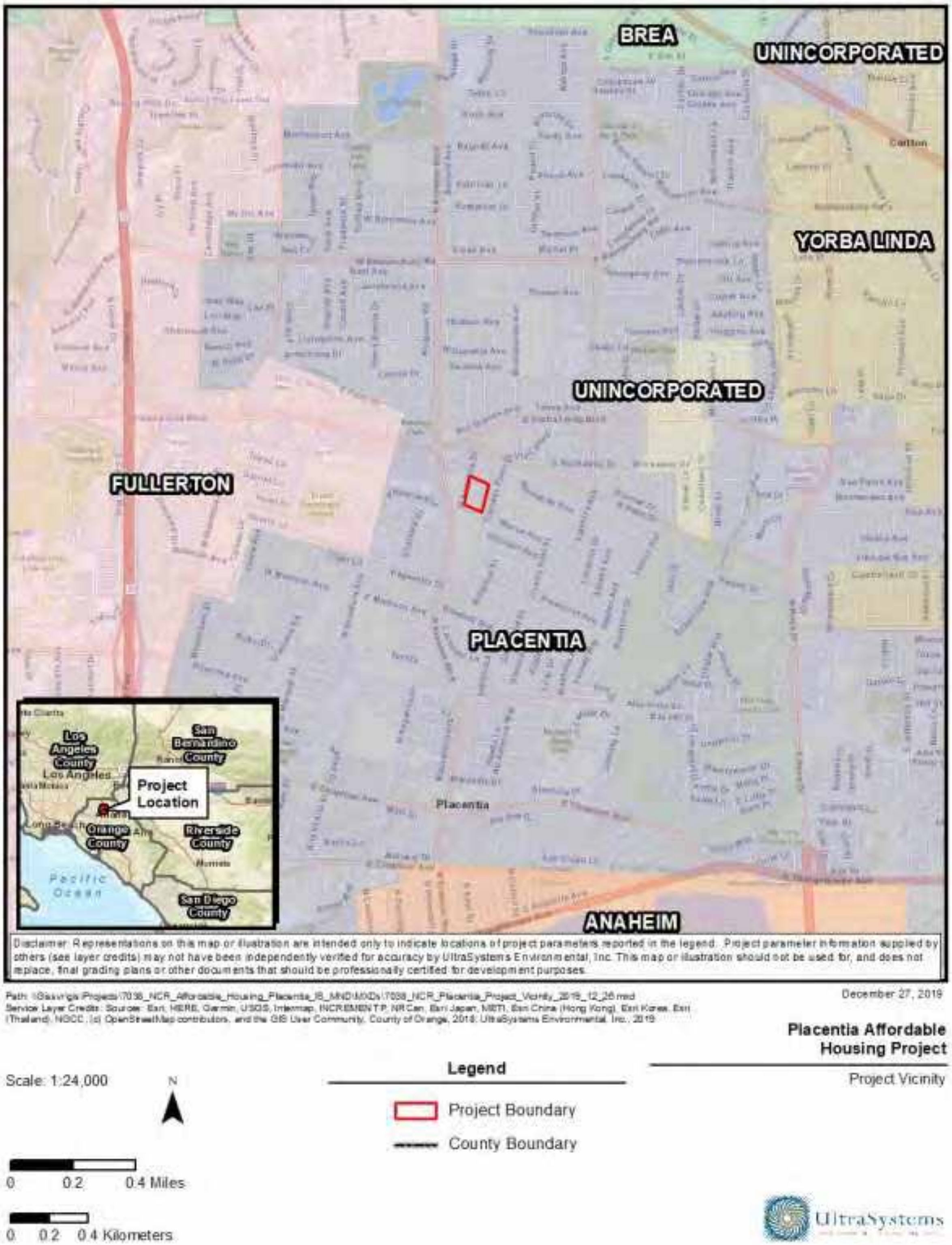
1982 *Yorba Linda, Calif*. 7.5', USGS Quadrangle map.

ATTACHMENTS

ATTACHMENT A

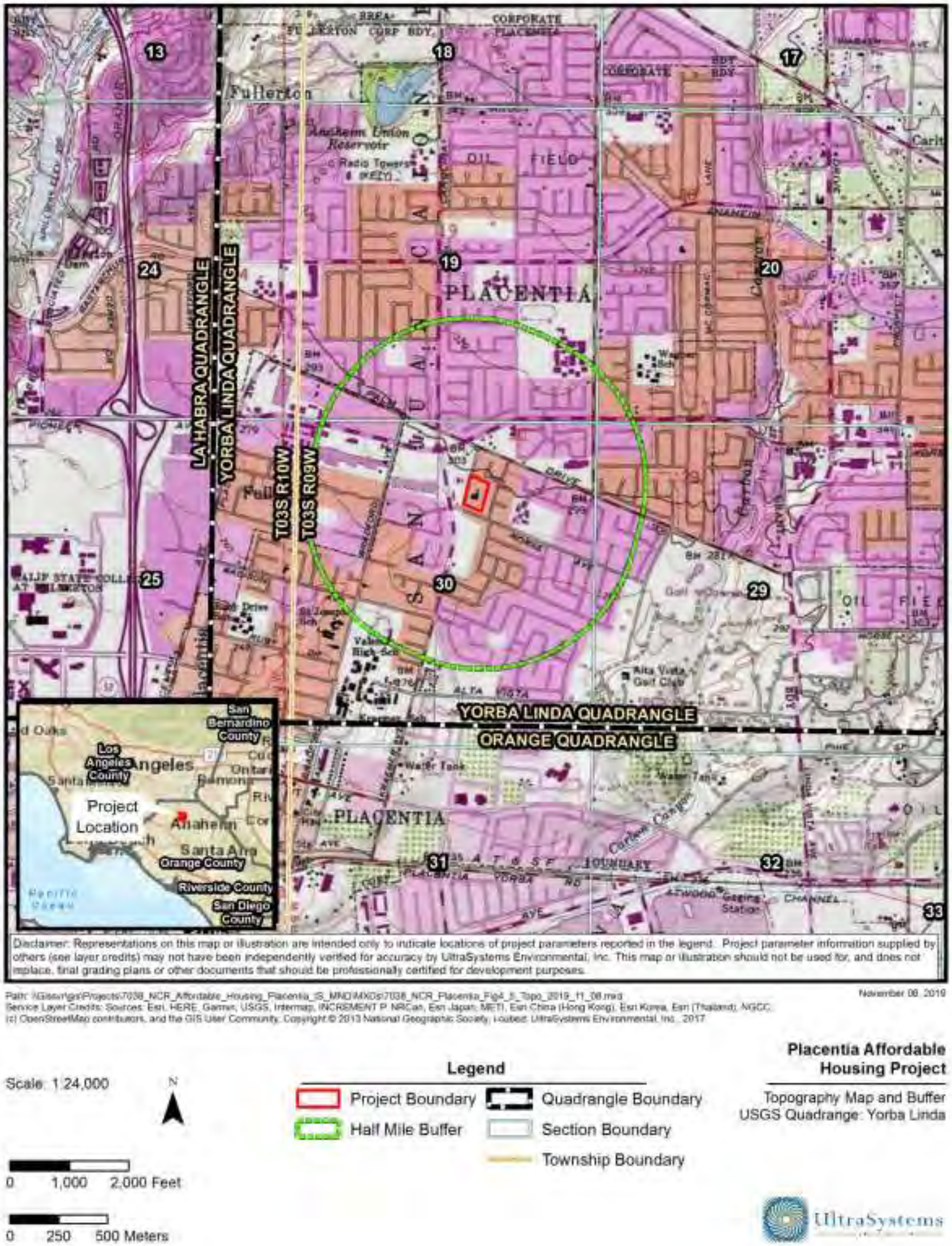
PROJECT MAPS

Figure 5
Project Regional Location Map



<u>Figure 6</u>
Project Study Area

<u>Figure 7</u>
USGS Topo Map of Project Study Area



ATTACHMENT B

PERSONNEL BACKGROUND

Stephen O'Neil, M.A., RPA

Cultural Resources Manager, Cultural Anthropology/Archaeology

Education

- M.A., Anthropology (Ethnography emphasis), California State University, Fullerton, CA, 2002
- B.A., Anthropology, California State University, Long Beach, CA, 1979

Professional and Institutional Affiliations

- California Mission Studies Association
- City of Laguna Beach Environmental Sustainability Committee, appointed 2012
- Orange County Natural History Museum; Board Member
- Pacific Coast Archaeological Society; Board Member and Past President
- Society of California Archaeology

Professional Registrations and Licenses

- Register of Professional Archaeologists (No. 16104) (current)
- Riverside County, CA, Cultural Resource Consultant (No. 259) (current)
- Cultural Resource Field Director, BLM Permit (CA-13-19) – California, 2013
- NEPA and CEQ Consultation for Environmental Professionals; course by the National Association of Environmental Professionals, 2013

Professional Experience

Mr. O'Neil has 30 years of experience as a cultural anthropologist in California. He has researched and written on archaeology, ethnography, and history. Mr. O'Neil has archaeological experience in excavation, survey, monitoring, and lab work. Most of this has been on Native American prehistoric sites, but also includes Spanish, Mexican, and American period adobe sites. His supervisory experience includes excavation and survey crew chief and project director of an adobe house excavation. He has a wide range of expertise in Phase I & II Environmental Site Assessments, archaeological resource assessment surveys, salvage operations, and cultural background studies for various EIR projects. Mr. O'Neil has worked for cultural resource management firms as well as government agencies and Native American entities. He has prepared technical reports as well as published journal articles.

Select project experience

Inglewood Avenue Corridor Widening Project, City of Lawndale, Los Angeles County, CA: 2013–2014

Mr. O'Neil directed and conducted archaeological field survey, cultural resource records search, Native American contacts and report writing for this project. The City of Lawndale is widening Inglewood Avenue from Marine Avenue north. The project uses Caltrans funds and the cultural resources report was prepared in Caltrans format. A separate historic properties report was prepared for Huitt-Zollars Engineering.

Via Ballena Storm Drain Relocation, City of San Clemente, Orange County, CA: 2013

Mr. O'Neil directed and conducted archaeological field survey, cultural resource records search, Native American contacts and report writing for this project. This residential area has a damaged storm drain under Via Ballena that was causing earth movement and erosion. The meet requirements for state funding, and cultural resources inventory report was required. Prepared for the City of San Clemente

Pine Canyon Road – Three Points Road to Lake Hughes Road, Los Angeles County, CA: 2013

Mr. O'Neil directed and conducted archaeological field survey, cultural resource records search, Native American contacts and report writing for this project. This nine-mile portion of Pine Canyon Road lies partially within the Angeles National Forest. A series of widening and culvert repairs is planned by the Los Angeles County Department of Public Works (LACDPW). An assessment was made of possible cultural resources, historic and prehistoric that may be affected by the construction, and four historic sites were recorded. Prepared for LACDPW.

Alton Parkway Extension Project, Cities of Irvine and Lake Forest, Orange County, CA: 2012

Mr. O'Neil directed and conducted archaeological and paleontological monitoring, archaeological excavation, cultural resource records search, Native American contacts and report writing for this project. Alton Parkway was extended 2.1 miles between the cities of Irvine and Lake Forest. For the portion within the City of Irvine, UltraSystems conducted monitoring and excavation services. One prehistoric site was excavated and reported on; a series of living features were discovered and also reported. The final monitoring report described the paleontological and archaeological findings. A separate technical report on the archaeological excavations was also prepared. Mr. O'Neil directed research into historic and prehistoric background, and prepared the final assessment of potential impacts. Prepared for the Orange County Department of Public Works.

NEPA and CEQA Documentation, Los Angeles Regional Interoperable Communications System (LA-RICS), Los Angeles County, CA: 2011–2014

Mr. O'Neil is part of UltraSystems team currently preparing technical studies and NEPA and CEQA documentation toward the construction of LA-RICS, an $800-million emergency communications system due to be operational in 2016. LA-RICS will provide a highly coordinated emergency communications system to all first-responders to natural and man-made disasters throughout Los Angeles County. Mr. O'Neil is the cultural and historical resources studies team leader, directing five researchers. These studies include coordination of field visits to all 260-plus locations for an archaeologist and/or an architectural historian with agency escorts to observe and record any onsite prehistoric and historic features, performing records and literature searches at archaeology information centers and local archives, contacting local agencies for historically listed structures and districts, coordinate public notices of the project throughout Los Angeles County, consultation with the NAHC and all local tribal organizations, and direct consultation with the California State Historic Preservation Officer (SHPO). This information was compiled by Mr. O'Neil and is used to prepare FCC historical resource forms which were submitted to the SHPO for review.

Megan B. Doukakis, M.A.

Archaeological Technician

Education

- M.A. Public Archaeology, California State University, Northridge, 2012–2018
- B.A., Anthropology, California State University, Long Beach, 2011
- University of California, Los Angeles - Pimu Catalina Archaeological Field School, 2010
- International Scholar Laureate Program: Delegation on Anthropology and Archaeology in China, 2009
- Earthwatch Institute, "Unearthing Mallorca's Past" archaeological excavation, Mallorca, Spain, 2005

Professional and Institutional Affiliations

- Phi Kappa Phi National Honor Society, 2011
- Sigma Alpha Lambda, National Leadership and Honor Organization, 2010
- Society for California Archaeology Membership 2012–2015

Professional Experience

Mrs. Doukakis has worked in the field of cultural resource management for seven years at environmental firms. Before this Mrs. Doukakis had participated in multiple field schools in Southern California and abroad. She has experience in survey, excavation, laboratory work, and information searches. Mrs. Doukakis holds the title of Archaeological Technician at UltraSystems Environmental. Prior to this, she completed a CRM internship at UltraSystems. These positions have provided her with the opportunity to contribute to proposals, final reports, project scheduling, archaeological record searches and paleontological, archaeological and Native American monitor organizing for projects.

Select project experience

Results of the Condition Assessment, Site Monitoring, and Effects Treatment Plan (CASMET) Marine Corps Base Camp Pendleton, San Diego County, CA

Client: Marine Corps Base Camp Pendleton, Duration: 5/11 to 9/11

Mrs. Doukakis conducted survey and excavation for the USMC Base Camp Pendleton condition assessment project. Areas were tested around Camp Pendleton for the presence and condition of cultural material previously recorded. She also conducted laboratory work and curation for the material collected within excavations. Mrs. Doukakis contributed to the final report with background records searches and prehistoric and historic background writing for the report.

Archaeological Excavation Results Report for the Alton Parkway Extension Project, Orange County, CA

Client: Orange County Department of Public Works; Contract: $357,170, 10/10 to 6/12

Mrs. Doukakis participated in the Alton Parkway project, City of Irvine, Orange County, CA. She was responsible for cleaning and cataloging the artifacts recovered from the excavation and surface collections. She also contributed to the final report by compiling the historical background information.

Identification and Evaluation of Historic Properties ADA Wheelchair Access Ramp Improvement Project, City of Lake Forest, Orange County, CA

Client: City of Lake Forest/Penco, Contract: $2,981.62, Duration: 6/12 to 7/12

Mrs. Doukakis contributed to the cultural resource records search, field survey, Native American contacts and report writing for this project. This residential area required wheelchair access ramps on every corner in this neighborhood. An assessment of the possible cultural resources that may be affected with this construction was made for the City of Lake Forest. Mrs. Doukakis contributed the historic and prehistoric background, and the assessment of the possible resources in the area.

Tenaska Solar Projects Imperial Solar Energy Center–South; Imperial Solar Energy Center–West; and Wistaria Ranch, Imperial County, CA

Client: Tenaska/CSOLAR Development, Contract: $3,441,809, 10/13 to 8/15.

Mrs. Doukakis conducted Native American contacts for field monitoring, coordinated with subcontractors to initiate cultural and paleontological field surveys, for the several solar energy projects being handled by UltraSystems Environmental in the El Centro area, Imperial County, CA. She contributed different parts of the survey report and monitoring program documents, including historic and prehistoric background, editorial review. At ISEC- West, Mrs. Doukakis was responsible for contacting and organizing Tribal monitors for this project. She contacted tribal organizations and inquired about their interest in providing tribal monitors for this project, directly organized with Native American groups to sign agreements, and fill out tax paperwork. She was also responsible for organizing and keeping track of and gathering field log from monitors from six tribal groups. She also recovered previously recorded artifacts in the field before the start of the project.

NEPA and CEQA Documentation, Los Angeles Regional Interoperable Communications System -Long Term Evolution, Los Angeles County, CA

Client: LARICS Joint Powers Authority, Contract: $3,051,312, 1/12 to 1/15.

UltraSystems' team prepared technical studies and NEPA and CEQA documentation toward the construction of LA-RICS-LTE, an $800-million emergency communications system that will provide a highly coordinated emergency communications system to all first-responders to natural and man-made disasters throughout Los Angeles County. For this project Mrs. Doukakis conducted record searches at the South Central Coastal Information Center for the Department of Commerce on over 300 project sites throughout the County of Los Angeles. She helped prepare letters to the NAHC and tribal organizations associated with the project area. Mrs. Doukakis contributed to contacting, organizing, and scheduling architectural historians to conduct historical research around the project areas. Letters were written for contact to local agencies and cities. A public notice was constructed and published in three local newspapers. Mrs. Doukakis also constructed hundreds of Federal Communications Commission 620 and 621 forms for submission to California State Historic Preservation Office.

Newton Canyon Monitoring Project, CA

Client: County of Los Angeles Department of Public Works, Contract: $2,930.00, Duration: 7/13 to 12/13

Mrs. Doukakis was an archaeological monitor for this project. She monitored all ground disturbing activities as well as lightly surveying the area for cultural material. Mrs. Doukakis also conducted the records center research at the South Central Coastal Information Center at CSUF. Through email, letter, and telephone correspondence, Mrs. Doukakis contacted the NAHC and associated tribal groups.

ATTACHMENT C

NATIVE AMERICAN HERITAGE COMMISSION RECORDS SEARCH AND NATIVE AMERICAN CONTACTS

UltraSystems
environmental • management • planning

November 8, 2019

Government Program Analyst
Native American Heritage Commission
1550 Harbor Blvd., Suite 100
West Sacramento, California 95691

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear NAHC Staff,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, California. I am requesting a Native American contact list of interested tribes, organizations and individuals in the general Project area, and a search of the Sacred Lands File for potential traditional cultural sites.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is composed of the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in Section 30. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

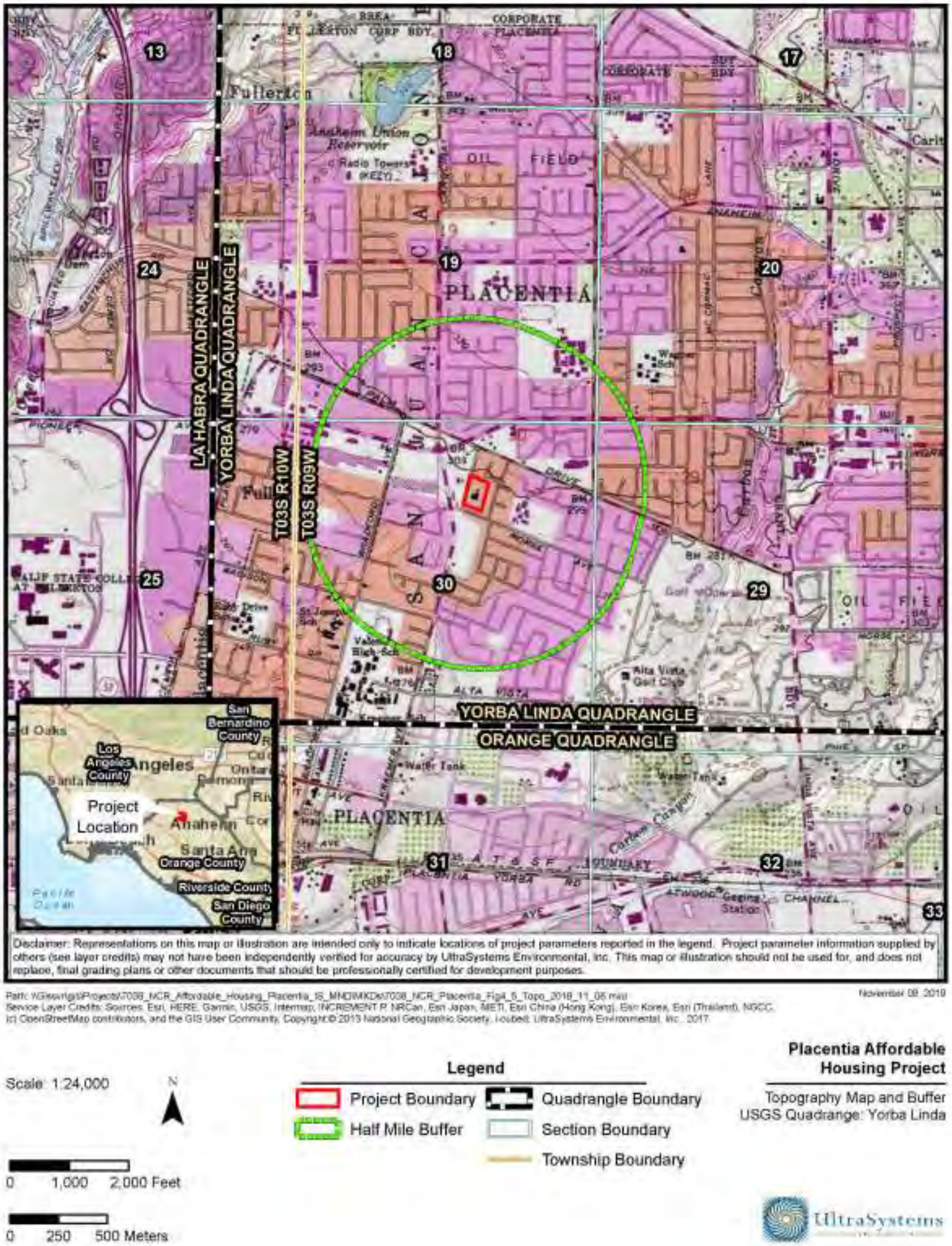
If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 276
Facsimile: 949.788.4901
Website: www.ultrasystems.com


PLACENTIA
LA HABRA QUADRANGLE
YORBA LINDA QUADRANGLE
T03S R10W
T03S R09W
YORBA LINDA QUADRANGLE
ORANGE QUADRANGLE
Anaheim Union Reservoir
Project Location
San Bernardino County
Los Angeles County
Orange County
Riverside County
San Diego County
Disclaimer: Representations on this map or illustration are intended only to indicate locations of project parameters reported in the legend. Project parameter information supplied by others (see layer credits) may not have been independently verified for accuracy by UltraSystems Environmental, Inc. This map or illustration should not be used for, and does not replace, final grading plans or other documents that should be professionally certified for development purposes.
November 08, 2019
Placentia Affordable Housing Project
Topography Map and Buffer
USGS Quadrange: Yorba Linda
Scale: 1:24,000
Legend
Project Boundary
Half Mile Buffer
Quadrangle Boundary
Section Boundary
Township Boundary
0 1,000 2,000 Feet
0 250 500 Meters
UltraSystems

STATE OF CALIFORNIA GAVIN NEWSOM, Governor

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

November 26, 2019

Stephen O'Neil
UltraSystems

VIA Email to: soneil@ultrasystems.com

RE: Affordable Housing Project, Orange County

Dear Mr. O'Neil:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information. If you have any questions or need additional information, please contact me at my email address: steven.quinn@nahc.ca.gov.

Sincerely,

Steven Quinn

Steven Quinn
Associate Governmental Program Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Orange County
11/26/2019

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393 — Gabrieleno
Covina, CA, 91723
Phone: (626) 926 - 4131
admin@gabrielenoindians.org

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 — Gabrieleno
San Gabriel, CA, 91778
Phone: (626) 483 - 3564
Fax: (626) 286-1262
GTTribalcouncil@aol.com

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 — Gabrielino
Los Angeles, CA, 90012
Phone: (951) 807 - 0479
sgoad@gabrielino-tongva.com

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490 — Gabrielino
Bellflower, CA, 90707
Phone: (562) 761 - 6417
Fax: (562) 761-6417
gtongva@gmail.com

Gabrielino-Tongva Tribe
Charles Alvarez,
23454 Vanowen Street — Gabrielino
West Hills, CA, 91307
Phone: (310) 403 - 6048
roadkingcharles@aol.com

Juaneno Band of Mission Indians
Sonia Johnston, Chairperson
P.O. Box 25628 — Juaneno
Santa Ana, CA, 92799
sonia.johnston@sbcglobal.net

Juaneno Band of Mission Indians Acjachemen Nation - Belardes
Matias Belardes, Chairperson
32161 Avenida Los Amigos — Juaneno
San Juan Capistrano, CA, 92675
Phone: (949) 293 - 8522
kaamalam@gmail.com

Juaneno Band of Mission Indians Acjachemen Nation - Belardes
Joyce Perry, Tribal Manager
4955 Paseo Segovia — Juaneno
Irvine, CA, 92603
Phone: (949) 293 - 8522
kaamalam@gmail.com

Juaneno Band of Mission Indians Acjachemen Nation - Romero
Teresa Romero, Chairperson
31411-A La Matanza Street — Juaneno
San Juan Capistrano, CA, 92675
Phone: (949) 488 - 3484
Fax: (949) 488-3294
tromero@juaneno.com

La Jolla Band of Luiseno Indians
Fred Nelson, Chairperson
22000 Highway 76 — Luiseno
Pauma Valley, CA, 92061
Phone: (760) 742 - 3771

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Affordable Housing Project, Orange County.

PROJ-2019-006080 — 11/26/2019 09:09 AM — 1 of 2

Native American Heritage Commission
Native American Contact List
Orange County
11/26/2019

Pala Band of Mission Indians
Shasta Gaughen, Tribal Historic Preservation Officer
PMB 50, 35008 Pala Temecula Rd.
Pala, CA, 92059
Phone: (760) 891 - 3515
Fax: (760) 742-3189
sgaughen@palatribe.com
Cupeno
Luiseno

Pauma Band of Luiseno Indians
Temet Aguilar, Chairperson
P.O. Box 369
Pauma Valley, CA, 92061
Phone: (760) 742 - 1289
Fax: (760) 742-3422
bennaecalac@aol.com
Luiseno

Pechanga Band of Luiseno Indians
Paul Macarro, Cultural Resources Coordinator
P.O. Box 1477
Temecula, CA, 92593
Phone: (951) 770 - 6306
Fax: (951) 506-9491
pmacarro@pechanga-nsn.gov
Luiseno

Pechanga Band of Luiseno Indians
Mark Macarro, Chairperson
P.O. Box 1477
Temecula, CA, 92593
Phone: (951) 770 - 6000
Fax: (951) 695-1778
epreston@pechanga-nsn.gov
Luiseno

Rincon Band of Luiseno Indians
Cheryl Madrigal, Tribal Historic Preservation Officer
One Government Center Lane
Valley Center, CA, 92082
Phone: (760) 297 - 2635
crd@rincon-nsn.gov
Luiseno

Rincon Band of Luiseno Indians
Bo Mazzetti, Chairperson
One Government Center Lane
Valley Center, CA, 92082
Phone: (760) 749 - 1051
Fax: (760) 749-5144
bomazzetti@aol.com
Luiseno

San Luis Rey Band of Mission Indians
1889 Sunset Drive
Vista, CA, 92081
Phone: (760) 724 - 8505
Fax: (760) 724-2172
cjmojado@slrmissionindians.org
Luiseno

San Luis Rey Band of Mission Indians
San Luis Rey, Tribal Council
1889 Sunset Drive
Vista, CA, 92081
Phone: (760) 724 - 8505
Fax: (760) 724-2172
cjmojado@slrmissionindians.org
Luiseno

Soboba Band of Luiseno Indians
Scott Cozart, Chairperson
P. O. Box 487
San Jacinto, CA, 92583
Phone: (951) 654 - 2765
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov
Cahuilla
Luiseno

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487
San Jacinto, CA, 92581
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov
Cahuilla
Luiseno

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Affordable Housing Project, Orange County.

PROJ-2019-006030 | 11/26/2019 09:09 AM | 2 of 2

UltraSystems

November 5, 2019

Temet Aguilar, Chairperson
Pauma Band of Luiseno Indians
P.O. Box 369
Pauma Valley, CA, 92061

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Aguilar,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Pauma Band of Luiseno Indians' input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 278
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems
environmental • management • planning

November 5, 2019

Charles Alvarez
Gabrielino-Tongva Tribe
23454 Vanowen Street
West Hills, CA, 91307

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Mr. Alvarez,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Gabrielino-Tongva Tribe's input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 270
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems

environmental • management • planning

November 5, 2019

Matias Belardes, Chairperson
Juaneno Band of Mission Indians Acjachemen Nation
32161 Avenida Los Amigos
San Juan Capisttrano, CA, 92675

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Belardes,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Juaneno Band of Mission Indians Acjachemen Nation's input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 270
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems
environmental • management • planning

November 5, 2019

Scott Cozart, Chairperson
Soboba Band of Luiseno Indians
P. O. Box 487
San Jacinto, CA, 92583

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Cozart,

UltraSystems Environmental, Inc. (USI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Soboba Band of Luiseno Indians' input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 270
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems

environmental • management • planning

November 5, 2019

Robert Dorame, Chairperson
Gabrielino Tongva Indians of California Tribal Council
P.O. Box 490
Bellflower, CA 90707

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Dorame,

UltraSystems Environmental, Inc. (USE) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Gabrielino Tongva Indians of California Tribal Council's input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were <u>negative</u> [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 278
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems
environmental • management • planning

November 5, 2019

Shasta Gaughen, Tribal Historic Preservation Officer
Pala Band of Mission Indians
PMB 50, 35008 Pala Temecula Rd.
Pala, CA, 92059

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Ms. Gaughen,

UltraSystems Environmental, Inc. (USI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Pala Band of Mission Indians' input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 270
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems

environmental • management • planning

November 5, 2019

Sandonne Goad, Chairperson
Gabrielino /Tongva Nation
106 1/2 Judge John Aiso St., #231
Los Angeles, CA, 90012

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Goad,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Gabrielino /Tongva Nation's input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 276
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems

November 5, 2019

Jeff Grubbe, Chairperson
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA, 92264

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Grubbe:

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Agua Caliente Band of Cahuilla Indians's input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 276
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems
environmental • management • planning

November 5, 2019

Sonia Johnston, Chairperson
Juaneno Band of Mission Indians
P.O. Box 25628
Santa Ana, CA, 92799

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Johnston,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Juaneno Band of Mission Indians' input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 270
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems
environmental • management • planning

November 5, 2019

Mark Macarro, Chairperson
Pechanga Band of Luiseno Indians
P.O. Box 1477
Temecula, CA, 92593

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Macarro,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Pechanga Band of Luiseno Indians's input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 278
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems

November 5, 2019

Paul Macarro, Cultural Resources Coordinator
Pechanga Band of Luiseno Indians
P.O. Box 1477
Temecula, CA, 92593

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Coordinator Macarro,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Pechanga Band of Luiseno Indians's input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 276
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems
environmental • management • planning

November 5, 2019

Cheryl Madrigal, Tribal Historic Preservation Officer
Rincon Band of Luiseno Indians
One Government Center Lane
Valley Center, CA, 92082

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Ms. Madrigal,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Rincon Band of Luiseno Indians' input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 270
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems
environmental • management • planning

November 5, 2019

Bo Mazzetti, Chairperson
Rincon Band of Luiseno Indians
One Government Center Lane
Valley Center, CA, 92082

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Mazzetti,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Rincon Band of Luiseno Indians' input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 278
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems

environmental • management • planning

November 5, 2019

Anthony Morales, Chairperson
Gabrieleno/Tongva San Gabriel Band of Mission Indians
P.O. Box 693
San Gabriel, CA, 91778

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Morales,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Gabrieleno/Tongva San Gabriel Band of Mission Indians' input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 276
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems
environmental • management • planning

November 5, 2019

Fred Nelson, Chairperson
La Jolla Band of Luiseno Indians
22000 Highway 76
Pauma Valley, CA, 92061

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Nelson,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the La Jolla Band of Luiseno Indian's input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 270
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems
environmental • management • planning

November 5, 2019

Joseph Ontiveros, Cultural Resource Department
Soboba Band of Luiseno Indians
P. O. Box 487
San Jacinto, CA, 92583

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Mr. Ontiveros,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Soboba Band of Luiseno Indians' input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 276
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems
environmental • management • planning

November 5, 2019

Joyce Perry, Tribal Manager
Juaneno Band of Mission Indians Acjachemen Nation
4955 Paseo Segovia
Irvine, CA, 92603

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Ms. Perry,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Juaneno Band of Mission Indians Acjachemen Nation's input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 276
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems

November 5, 2019

Patricia Garcia-Plotkin, Director
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA, 92264

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Director Garcia-Plotkin

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Agua Caliente Band of Cahuilla Indians's input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 278
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems
environmental • management • planning

November 5, 2019

Teresa Romero, Chairperson
Juaneno Band of Mission Indians Acjachemen Nation
31411-A La Matanza Street
San Juan Capistrano, CA, 92675

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Romero,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Juaneno Band of Mission Indians Acjachemen Nation's input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 270
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems
environmental • management • planning

November 5, 2019

Andrew Salas, Chairperson
Gabrieleno Band of Mission Indians - Kizh Nation
P.O. Box 393
Covina, CA 91723

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Chairperson Salas,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the Gabrieleno Band of Mission Indians - Kizh Nation's input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 270
Facsimile: 949.788.4901
Website: www.ultrasystems.com

UltraSystems

environmental • management • planning

November 5, 2019

Tribal Council
San Luis Rey Band of Mission Indians
1889 Sunset Drive
Vista, CA, 92081

Subject: Cultural Resources Study, Affordable Housing Project, in the City of Placentia, Orange County, California. UltraSystems Environmental Project No. 7038.

Dear Tribal Council,

UltraSystems Environmental, Inc. (UEI) has been contracted by National Community Renaissance to conduct a cultural resources inventory in support of the Placentia Affordable Housing Project (Project). The Project consists of the proposed development of two residential buildings and a parish hall in the City of Placentia, Orange County, California. UltraSystems is conducting a cultural resources study to evaluate the potential presence of prehistoric and historic resources within the project boundary.

The proposed Project would include the development of two residential buildings accommodating 65 units. Building 1 would be a linear two-story structure. Building 2 would be a two-story L-shaped building. The proposed Project would also include the removal and replacement of the Blessed Sacrament Episcopal Church parish hall. At present, the entire Project site is occupied by the church in the center of the project site with a large parking lot located on the southern half and landscaped grass area and trees to the north, east, and west in the Project area.

As part of the cultural resources study for the project I am writing to request the San Luis Rey Band of Mission Indians' input on potential Native American resources in or near the Area of Potential effect (APE). In a letter dated November 26, 2019, the Native American Heritage Commission stated: "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative [emphasis in the original]."

The Project is located in the city of Placentia, and is specifically located at 1314 N. Angelina Drive, on the *Yorba Linda, Calif.*, USGS topographical quadrangles, R 9W, T 03S, in an unsectioned area. This is on the southwest corner of the Morse Street/North Angelina Drive intersection, in the City of Placentia, Orange County. The Project site is located in a fully urbanized area with single family residences to the north, east and south, and a shopping center to the west. This is shown on the enclosed map and the Project area is depicted with a half-mile buffer zone.

If you require additional information or have any questions, please contact me.

Thank you for your help.

Sincerely,

Stephen O'Neil, M.A., RPA
Cultural Resources Manager
soneil@ultrasystems.com

Corporate Office – Orange County
16431 Scientific Way
Irvine, CA 92618-7443
Telephone: 949.788.4900, ext. 270
Facsimile: 949.788.4901
Website: www.ultrasystems.com

Santa Angelina Senior Apartment Homes, Orange County, California. [UEI #7038]
Native American Contact Log

Name	Tribe/Affiliation	Letter and Fax Contacts	E-mail Contacts	Telephone Contact	Comments
Steven Quinn, Associate Governmental Program Analyst	Native American Heritage Commission	November 8, 2019 (Fax)	November 8, 2019; November 26, 2019	N/A	Request for Sacred Lands File search and local Native American representatives contact information. Response from Mr. Quinn on November 26, 2019 stating negative findings in the Sacred Lands File and providing a list of 22 local tribal contacts.
Jeff Grubbe, Chairperson	Agua Caliente Band of Cahuilla Indians	December 6, 2019 (letter & fax)	No email available.	N/A	Letter and fax describing project and requesting input on concerns was sent December 6, 2019. An email response was received on December 10th and 16th of 2019 from Ms. Romero, Historic Preservation Technician representing the Agua Caliente Band of Cahuilla Indians that the project area is not within the Tribe's Traditional Use Area and that they defer to other tribes in the area.
Patricia Garcia-Plotkin, Director	Agua Caliente Band of Cahuilla Indians	December 6, 2019 (letter& fax)	December 6, 2019 (email)	N/A	Letter and fax describing project and requesting input on concerns was sent December 6, 2019. An email response was received on December 10th and 16th of 2019 from Ms. Romero, Historic Preservation Technician that the project area is not within the Tribe's Traditional Use Area and that they defer to other tribes in the area.
Andrew Salas, Chairperson	Gabrieleno Band of Mission Indians – Kizh Nation	December 6, 2019 (letter)	December 6, 2019 (email)	N/A	Letter and email describing project and requesting input on concerns was sent December 6, 2019. Email response was received on December 13, 2019 from the Kizh Nation Admin Specialist stating that they would like to conduct consultation regarding the project. Doukakis replied the same date explaining that AB-52 consultation would be conducted between the tribe and the project Lead Agency, the City of Placentia Planning Department.

Name	Tribe/Affiliation	Letter and Fax Contacts	E-mail Contacts	Telephone Contact	Comments
Anthony Morales, Chairperson	Gabrieleno/ Tongva San Gabriel Band of Mission Indians	December 6, 2019 (letter& fax)	December 6, 2019 (email)	Telephone call made January 9, 2020	Letter, email and fax describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020. There was no answer; a message was left. No response to date.
Sandonne Goad, Chairperson	Gabrielino /Tongva Nation	December 6, 2019 (letter)	December 6, 2019 (email)	Telephone call made January 9, 2020	Letter and email describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020. There was no answer; a message was left. No response to date.
Robert Dorame, Chairman	Gabrielino - Tongva Indians of California Tribal Council	December 6, 2019 (letter& fax)	December 6, 2019 (email)	Telephone call made January 9, 2020	Letter, email and fax describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020. The Chairman asked if we are doing AB-52 consultation, we indicated that UEI was only gathering data for our report. He asked us to email him information about this project.
Charles Alvarez, Councilmember	Gabrielino - Tongva Tribe	December 6, 2019 (letter)	December 6, 2019 (email)	Telephone call made January 9, 2020	Letter and email describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020. There was no answer; a message was left. No response to date.
Sonia Johnston, Chairperson	Juaneño Band of Mission Indians	December 6, 2019 (letter)	December 6, 2019 (email)	No phone number provided.	Letter and email describing project and requesting input on concerns was sent December 6, 2019. No phone number was provided. No response to date.
Matias Belardes, Chairperson	Juaneño Band of Mission Indians Acjachemen Nation	December 6, 2019 (letter)	December 6, 2019, December 10, 2019 (email)	N/A	Letter and email describing project and requesting input on concerns was sent December 6, 2019. An email was received from Joyce Perry representing the Juaneño Band of Mission Indians (Belardes) on December 10, 2019, that if the church was built pre-1980s then they request native and archaeological monitoring during all ground-disturbing activities. UEI responded on the same day that that the church was built circa 1956 and that we would be including their recommendations.

Name	Tribe/Affiliation	Letter and Fax Contacts	E-mail Contacts	Telephone Contact	Comments
Joyce Perry, Tribal Manager	Juaneño Band of Mission Indians Acjachemen Nation	December 6, 2019 (letter)	December 6, 2019 December 10, 2019 (email)	N/A	Letter and email describing project and requesting input on concerns was sent December 6, 2019. An email was received from Joyce Perry on December 10, 2019, that if the church was built pre 1980s then they request native and archaeological monitoring during all ground disturbing activities. UEI responded on the same day that that the church was built circa 1956 and that we would be including their recommendations.
Teresa Romero, Chairperson	Juaneño Band of Mission Indians Acjachemen Nation	December 6, 2019 (letter& fax)	December 6, 2019 (email)	Telephone call made January 9, 2020	Letter, email and fax describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020. The Chairperson was no in the office. The receptionist directed me to email their cultural resource manager Heidi Lucero. An email was sent to Lucero the same day. There was no answer, a message was left. No response to date.
Fred Nelson, Chairperson	La Jolla Band of Luiseno Indians	December 6, 2019 (letter)	No email available.	Telephone call made January 9, 2020	Letter describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020. There was no answer; a message was left. No response to date.
Shasta Gaughen, Tribal Historic Preservation Officer	Pala Band of Mission Indians	December 6, 2019 (letter& fax)	December 6, 2019 (email)	Telephone call made January 9, 2020	Letter, email and fax describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020. There was no answer; a message was left. No response to date.
Temet Aguilar, Chairperson	Pauma Band of Luiseno Indians	December 6, 2019 (letter& fax)	December 6, 2019 (email)	Telephone call made January 9, 2020	Letter, email and fax describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020. The chairperson was not in the office. The receptionist, Wendy DeBell, indicated that the tribe has a cultural committee that reviews all projects. She said to email her the information and she would get it directly to committee. An email was sent to her the same day. No response to date.

Name	Tribe/Affiliation	Letter and Fax Contacts	E-mail Contacts	Telephone Contact	Comments
Paul Macarro, Cultural Resources Coordinator	Pechanga Band of Luiseno Indians	December 6, 2019 (letter& fax)	December 6, 2019 (email)	Telephone call made January 9, 2020	Letter, email and fax describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020. There was no answer, a message was left. Received a call back from P. Macarro's assistant, Juan Ochoa that the project is outside of their cultural area and they defer to closer groups.
Mark Macarro, Chairperson	Pechanga Band of Luiseno Indians	December 6, 2019 (letter& fax)	December 6, 2019 (email)	Telephone call made January 9, 2020	Letter, email and fax describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020 to M. Macarro. There was no answer; a message was left. No response to date.
Cheryl Madrigal, Tribal Historic Preservation Officer	Rincon Band of Luiseno Indians	December 6, 2019 (letter)	December 6, 2019, December 9, 2019 (email)	N/A	Letter and email describing project and requesting input on concerns was sent December 5, 2019. A response was received from Cheryl Madrigal's assistant on the same day that the project location is not within the Luiseño Aboriginal Territory.
Bo Mazzetti, Chairperson	Rincon Band of Luiseno Indians	December 6, 2019 (letter& fax)	December 6, 2019, December 9, 2019 (email)	N/A	Letter, email and fax describing project and requesting input on concerns was sent December 5, 2019. A response was received from Cheryl Madrigal's assistant representing the Rincon Band of Luiseño Indians on the same day that the project location is not within the Luiseño Aboriginal Territory.
Tribal Council	San Luis Rey Band of Mission Indians	December 6, 2019 (letter& fax)	December 6, 2019 (email)	Telephone call made January 9, 2020	Letter, email and fax describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020. The receptionist provided a phone number for an individual from the cultural department, "Cami." A phone call was made to Cami the same day. There was no answer; a message was left. No further response to date.
Scott Cozart, Chairperson	Soboba Band of Luiseno Indians	December 6, 2019 (letter& fax)	December 6, 2019 (email)	Telephone call made January 9, 2020	Letter, email and fax describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020. There was no answer; a message was left. No response to date.

Name	Tribe/Affiliation	Letter and Fax Contacts	E-mail Contacts	Telephone Contact	Comments
Joseph Ontiveros, Cultural Resource Department	Soboba Band of Luiseno Indians	December 6, 2019 (letter& fax)	December 6, 2019 (email)	Telephone call made January 9, 2020	Letter, email and fax describing project and requesting input on concerns was sent December 6, 2019. Phone call was made January 9, 2020. Ontiveros asked to call UEI back. No further response to date.

megan black

From:	Joyce Perry <kaamalam@gmail.com> on behalf of Joyce Perry
Sent:	Tuesday, December 10, 2019 10:40 AM
To:	megan black; Steve O'Neil
Subject:	Re: Affordable Housing Project, in the City of Placentia- UEI Proj# 7038
Follow Up Flag:	Follow up
Flag Status:	Flagged

Good Morning Megan and Steve,

On behalf of the Juaneno Band of Mission Indians, Acjachemen Nation-Belardes, I am responding to your letter and email regarding the City of Placentia, UltraSystems Environmental Project No. 7038. Before we make our recommendations, can you please advise on when the the Parish hall was built? If it was built prior to the 1980s this land wouldn't have been evaluated for cultural resources. If that is the case, we will be requesting native and archaeological monitoring during all ground disturbing activities. I look forward to hearing from you.

Hùu'uni 'óomaqati yáamaqati.
Teach peace
Joyce Stanfield Perry
Payomkawichum Kaamalam - President
Juaneño Band of Mission Indians, Acjachemen Nation
Tribal Manager, Cultural Resource Director

---

megan black

From:	megan black
Sent:	Tuesday, December 10, 2019 11:01 AM
To:	'Joyce Perry'
Cc:	steve oneil
Subject:	RE: Affordable Housing Project, in the City of Placentia- UEI Proj# 7038

Good morning Joyce,

Thank you for your response. Through our research it appears that the Blessed Sacrament Episcopal Church was built in October of 1956. We will include your recommendations in our report.

Best regards,

Megan Black Doukakis | Archaeological Technician | M.A.

UltraSystems Environmental | WBE/DBE/SBE/WOSB
16431 Scientific Way Irvine, CA 92618
Office 949.788.4900 Ext. 228 Fax 949.788.4901
Cell 310.850.8127

UltraSystems

please consider the environment before printing this e-mail. Thank you.

1994 – 2019 | Celebrating 25 Years in Business!

megan black

From:	Joyce Perry <kaamalam@gmail.com> on behalf of Joyce Perry
Sent:	Tuesday, December 10, 2019 11:02 AM
To:	megan black
Subject:	Re: Affordable Housing Project, in the City of Placentia- UEI Proj# 7038

Thank you

Húu'uni 'óomaqati yiamaqati.
Teach peace
Joyce Stanfield Perry
Payomkawichum Kaamalam - President
Juaneño Band of Mission Indians, Acjachemen Nation
Tribal Manager, Cultural Resource Director

---

megan black

From:	Deneen Pelton <DPelton@rincon-nsn.gov> on behalf of Deneen Pelton
Sent:	Friday, December 06, 2019 12:52 PM
To:	megan black
Cc:	Cheryl Madrigal
Subject:	RE: Affordable Housing Project, in the City of Placentia- UEI Proj# 7038
Attachments:	Cultural Resources Information Response.doc
Follow Up Flag:	Follow up
Flag Status:	Flagged

Please see attached response for the above mentioned project. Thank you.

Deneen Pelton
Administrative Assistant II
Cultural Resources Department
Rincon Band of Luiseño Indians
One Government Center Lane | Valley Center, CA 92082
Office: 760-297-2635
Fax: 760-749-8901
Email: dpelton@rincon-nsn.gov

Rincon Band of Luiseño Indians
www.rincon-nsn.gov

RINCON BAND OF LUISEÑO INDIANS
Cultural Resources Department
One Government Center Lane · Valley Center · California 92082
(760) 297-2330 Fax (760) 749-8901

December 6, 2019

Stephen O'Neil
UltraSystems
16431 Scientific Way
Irvine, CA 92618-7443

Re: Affordable Housing Project, Placentia

Dear Mr. O'Neil:

This letter is written on behalf of the Rincon Band of Luiseño Indians. Thank you for inviting us to submit comments on the above mention project. Rincon is submitting these comments concerning your projects potential impact on Luiseño cultural resources.

The Rincon Band has concerns for the impacts to historic and cultural resources and the finding of items of significant cultural value that could be disturbed or destroyed and are considered culturally significant to the Luiseño people. This is to inform you, your identified location is not within the Luiseño Aboriginal Territory. We recommend that you locate a tribe within the project area to receive direction on how to handle any inadvertent findings according to their customs and traditions.

If you would like information on tribes within your project area, please contact the Native American Heritage Commission and they will assist with a referral.

Thank you for the opportunity to protect and preserve our cultural assets.

Sincerely,

Deneen Pelton

Deneen Pelton, Administrative Assistant for
Cheryl Madrigal, M.A.
Cultural Resources Manager
Cultural Resources Department
Office 760-297-2635 ext. 318|Cell: 760-648-3000
Email: cmadrigal@rincon-nsn.gov

megan black

From:	megan black
Sent:	Monday, December 09, 2019 12:34 PM
To:	'Deneen Pelton'
Cc:	'Cheryl Madrigal'
Subject:	RE: Affordable Housing Project, in the City of Placentia- UEI Proj# 7038

Your response has been received and will be included in our report. Thank you

Best regards,

Megan Black Doukakis | Archaeological Technician | M.A.

UltraSystems Environmental | WBE/DBE/SBE/WOSB
16431 Scientific Way Irvine, CA 92618
Office **949.788.4900 Ext. 228** Fax 949.788.4901
Cell 310.850.8127

UltraSystems
environmental | management | planning

please consider the environment before printing this e-mail. Thank you.

megan black

From:	THPO Consulting <ACBCI-THPO@aguacaliente.net> on behalf of THPO Consulting
Sent:	Tuesday, December 10, 2019 4:27 PM
To:	megan black
Subject:	RE: Affordable Housing Project, in the City of Placentia - UEI Proj# 7038
Follow Up Flag:	Follow up
Flag Status:	Flagged

Greetings,

A records check of the Tribal Historic preservation office's cultural registry revealed that this project is not located within the Tribe's Traditional Use Area. Therefore, we defer to the other tribes in the area. This letter shall conclude our consultation efforts.

Thank you,

Arysa Gonzalez Romero
Historic Preservation Technician
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive Palm Springs, CA 92264
D: 760-883-1327 | C: 760-831-2484

---

megan black

From:	megan black
Sent:	Wednesday, December 11, 2019 10:03 AM
To:	'THPO Consulting'
Subject:	RE: Affordable Housing Project, in the City of Placentia- UEI Proj# 7038

Thank you for your response. We will include it in our report.

Best regards,

Megan Black Doukakis | **Archaeological Technician** | **M.A.**

UltraSystems Environmental | WBE/DBE/SBE/WOSB
16431 Scientific Way Irvine, CA 92618
Office **949.788.4900 Ext. 228** Fax 949.788.4901
Cell 310.850.8127

UltraSystems

please consider the environment before printing this e-mail. Thank you.

1994 – 2019 / Celebrating 25 Years in Business!

ATTACHMENT D

CHRIS RECORDS SEARCH BIBLIOGRAPHY

Report List

7038 Placential Housing

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
OR-02067	Cellular -	2000	Lapin, Philippe	Cultural Resource Assessment for Pacific Bell Wireless Facility Cm 183-01, County of Orange, California	LSA Associates, Inc.	
OR-04104		2002	Antram, Mark, Orr, Shannon, Vasquez, Liliana L. de Graf, and Jertberg, Pat	Historic Resource Inventory for the City of Placentia: Update 2002	City of Placentia and Placentia Historical Committee	30-157208, 30-160084, 30-160085, 30-162291, 30-162555, 30-176705, 30-176707, 30-176749, 30-177066, 30-177080, 30-177081, 30-177082, 30-177083, 30-177084, 30-177085, 30-177086, 30-177087, 30-177088, 30-177089, 30-177090, 30-177091, 30-177092, 30-177093, 30-177094, 30-177095, 30-177096, 30-177097, 30-177098, 30-177099, 30-177100, 30-177101, 30-177102, 30-177103, 30-177104, 30-177105, 30-177106, 30-177107, 30-177108, 30-177109, 30-177110, 30-177111, 30-177112
OR-04383	Cellular -	2014	Bonner, Diane, Wills, Carrie, and Crawford, Kathleen	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate IE04183A (CM183 Palm Drive Office Building) 319 East Palm Drive, Placentia, Orange County, California	EAS	30-157208, 30-160084, 30-177091

Page 1 of 1

SCCIC 11/13/2019 2:28:19 PM

ATTACHMENT E

Blessed Sacrament Episcopal Church Site Record

APPENDIX E – PRELIMINARY WATER QUALITY MANAGEMENT PLAN

PRELIMINARY WATER QUALITY MANAGEMENT PLAN (PWQMP)

PLACENTIA SENIOR HOUSING

PLACENTIA, CA

PREPARED FOR
NATIONAL COMMUNITY RENAISSANCE
9421 Haven Avenue
Rancho Cucamonga, CA 91730
909.483.2444

FUSCOE ENGINEERING, INC.
16795 Von Karman, Suite 100
Irvine, California 92606
949.474.1960
www.fuscoe.com

PROJECT MANAGER
Josh Ruiz, PE

DATE PREPARED: July 10, 2020

PROJECT NUMBER: 1653-010-01

full circle thinking®

PRELIMINARY
WATER QUALITY MANAGEMENT PLAN (WQMP)

PLACENTIA SENIOR HOUSING

1314 North Angelina Drive, Placentia, County of Orange

APN: 340-273-25

Prepared for:

THE NATIONAL COMMUNITY RENAISSANCE
9421 Haven Avenue
Rancho Cucamonga, CA 91730
909-483-2444

Prepared by:

FUSCOE ENGINEERING, INC.
16795 Von Karman, Suite 100
Irvine, CA 92618
949.474.1960
Josh Ruiz, PE

Date Prepared: July 10, 2020

ENGINEER'S CERTIFICATION

WATER QUALITY MANAGEMENT PLAN

Preparer (Engineer) Certification			
Preparer (Engineer): Joshua Ruiz			
Title	Project Manager	PE Registration #	90418
Company	Fuscoe Engineering, Inc.		
Address	16795 Von Karman Ave		
Email	jruiz@fuscoe.com		
Telephone #	949-474-1960		
I hereby certify that this Water Quality Management Plan is in compliance with, and meets the requirements set forth in, Order No. R8-2009-0030/NPDES No. CAS618030, of the Santa Ana Regional Water Quality Control Board.			
Preparer Signature		Date	07/08/2020
Place Stamp Here			

PROJECT OWNER'S CERTIFICATION			
Permit/Application No.:	Pending	Grading Permit No.:	Pending
Tract/Parcel Map and Lot(s)No.:		Building Permit No.:	Pending
Address of Project Site and APN:	1314 North Angelina Drive, Placentia, CA 92870 APN: 340-273-25		

This Water Quality Management Plan (WQMP) has been prepared for BLESSED SACRAMENT CHURCH by FUSCOE ENGINEERING, INC. The WQMP is intended to comply with the requirements of the County of Orange NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan , including the ongoing operation and maintenance of all best management practices (BMPs), and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

OWNER:			
Name:	Michael Ruane		
Title:	Executive Vice President		
Company:	National Community Renaissance		
Address:	9421 Haven Avenue Rancho Cucamonga, CA 91730		
Email:	mruane@nationalcore.org		
Telephone #:	(909) 204-3451		
I understand my responsibility to implement the provisions of this WQMP including the ongoing operation and maintenance of the best management practices (BMPs) described herein.			
Owner Signature:		Date:	7/9/2020

TABLE OF CONTENTS

APPENDICES

EXHIBITS & BMP DETAILS (INCLUDED IN SECTION VI)

- Vicinity Map
- Site Plan
- WQMP Exhibit
- Typical Cross Sections
- Underground Detention BMP Fact Sheet (HU-2)
- Hydrodynamic Separator BMP Fact Sheet (PRE-1)
- Drywell BMP Fact Sheet (INF-5)

EDUCATIONAL MATERIALS (INCLUDED IN APPENDIX C)

- The Ocean Begins at Your Front Door
- Homeowners Guide for Sustainable Water Use
- Household Tips
- Proper Disposal of Household Hazardous Waste
- Recycle at Your Local Used Oil Collection Center (North County)
- Responsible Pest Control
- Tips for Landscaping and Gardening
- Tips for Pet Care
- Tips for Protecting your Watershed
- DF-1 Drainage System Operation & Maintenance
- R-5 Disposal of Pet Waste
- R-6 Disposal of Green Waste

SECTION I DISCRETIONARY PERMITS AND WATER QUALITY CONDITIONS

PROJECT INFORMATION			
Permit/Application No.:	Pending	**Grading or Building Permit No.:**	Pending
Address of Project Site (or Tract Map and Lot Number if no address) and APN:	1314 North Angelina Drive, Placentia, CA 92870 APN: 340-273-25		
WATER QUALITY CONDITIONS OF APPROVAL OR ISSUANCE			
Discretionary Permit(s):	Copies of Resolutions will be included in Appendix E.		
Water Quality Conditions of Approval or Issuance applied to this project: **(Please list verbatim.)**	Pending – to be provided in Final WQMP		
CONCEPTUAL WQMP			
Was a Conceptual Water Quality Management Plan previously approved for this project?	No – This serves as the conceptual Water Quality Management Plan.		
WATERSHED-BASED PLAN CONDITIONS			

<table>
<tr>
<td>Applicable conditions from watershed - based plans including WIHMPs and TMDLs:</td>
<td>
Runoff from the project site ultimately drains into Carbon Creek Channel, which confluences with Coyote Creek and San Gabriel River downstream of the project site.

No TMDLs have been established for Carbon Creek by the Santa Ana RWQCB. However, the Los Angeles RWQCB has adopted TMDLs for the San Gabriel River that apply to the portions of Orange County that drain to Coyote Creek:

• Indicator Bacteria (2016), Sediment Toxicity (2008), pH(2009), Metals (Copper 2007)

Section XII.D5 of the Santa Ana Region MS4 Permit (Order No. R8-2009-0030) requires Watershed Infiltration and Hydromodification Master Plan (WIHMPs) to be developed by the County of Orange for San Diego Creek and other watersheds within the North Orange County permit area. Each WIHMP must include maps to identify areas susceptible to hydromodification, and a hydromodification tool.

A Model WIHMP has been developed for the San Gabriel River / Coyote Creek Watershed, and was submitted to the Santa Ana RWQCB on May 23, 2011. The WIHMP includes information related to infiltration feasibility and hydromodification susceptibility at the watershed and sub-watershed scale to aid in BMP selection and design for priority projects.
</td>
</tr>
</table>

SECTION II PROJECT DESCRIPTION

II.1 PROJECT DESCRIPTION

The proposed Placentia Senior Housing project site encompasses approximately 4.0 acres in the City of Placentia. The project site is bounded by North Angelina Drive to the west, single family residences to the north and east, and Morse Avenue to the south. A Vicinity Map is included in Section VI.

Under existing conditions, the project site is occupied by Blessed Sacrament Episcopal Church. There are currently two existing structures, the westerly one is used for church gatherings and the easterly structure is used as a school facility. Associated parking areas are located along the southern boundary with vegetation occupying the remainder of the site. Adjacent land uses include low density residential to the north and east, commercial to the west, and medium density residential to the south

The table below summarizes the proposed project.

DESCRIPTION OF PROPOSED PROJECT	
Development Category (Model WQMP, Table 7.11-2; or 7.11-3):	Category 6 Parking lots 5,000 square feet or more including associated drive aisle, and potentially exposed to urban stormwater runoff. A parking lot is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. Category 8 All significant redevelopment projects, where significant redevelopment is defined as the addition or replacement of 5,000 or more square feet of impervious surface on an already developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of the facility, or emergency redevelopment activity required to protect public health and safety.
Project Area (ft^2):	174,296 ft^2 (4.0 acres)
# of Dwelling Units:	65
SIC Code:	N/A
Narrative Project Description:	The proposed project includes Senior Housing on the Church of the Blessed Sacrament property. The development will consist of two residential buildings accommodating 65 units to be managed by the lessee, National Community Renaissance. Building 1, at the north end of the site, is a linear two-story structure. Building 2 is a two-story, L-shaped building located interior to the site with a three-story element at the northern end of the building transitioning to two-stories toward the single-family neighborhood along the eastern property line. Associated parking, underground utilities and a storm water disposal system are also planned. The project will retain the existing Church Sanctuary, classroom space, and children's play yard and add two residential buildings, a new Parish Hall, church plaza, and children's picnic/lunch area.

DESCRIPTION OF PROPOSED PROJECT				
Project Area:	Pervious Area	Pervious Area Percentage	Impervious Area	Impervious Area Percentage
Pre-Project Conditions:	2.2 ac	55%	1.8 ac	45%
Post-Project Conditions:	1.0 ac	25%	3.0 ac	75%
Drainage Patterns/ Connections:	Under existing conditions, runoff sheet flows in a southwesterly direction. Some flows enter a ribbon gutter within the existing parking lot which conveys runoff toward the southwest corner of the project. From there flows exit into a catch basin at the corner of North Angelina Drive and Morse Avenue. Flows enter the Carbon Creek Channel, Coyote Creek Channel, San Gabriel River, and eventually the San Gabriel River Estuary out to the Pacific Ocean. Under proposed conditions, runoff from the entire project site will be captured by area drains and routed to a detention system to ensure that stormwater discharges do not exceed the existing conditions for flood control purposes. A diversion structure will divert low flows to a hydrodynamic separator (Contech CDS or similar) for pre-treatment before entering the detention system (Contech CMP or similar) designed to capture water quality and hydromod flows. The detention system will be drawn down by one of five drywells for infiltration. Low flows will be retained onsite while high flows will follow existing drainage patterns with a connection at the existing discharge location at the southwest corner of the site along North Angelina Drive and Morse Avenue. Flows exiting the site will continue to discharge into the Carbon Creek Channel, Coyote Creek, San Gabriel River Reach 1, the San Gabriel River Estuary, and eventually the San Pedro Bay Near/Offshore Zone and the Pacific Ocean. Please see the WQMP exhibit in Section VI for locations of BMPs and direction of flow.			

PROJECT FEATURES

Building Summary:

	One Bedroom	Two Bedroom	Total
Building 1	28	4	32
Building 2	31	2	33
Total	59	6	65

Amenities:	Amenities associated with the residential buildings include laundry, garden and terrace gathering areas, and open landscape and hardscape space.
Landscaped Areas:	Common area landscaping surrounding the perimeter of buildings will be provided throughout the project site and will comprise of approximately 25% of the entire site.

PROJECT FEATURES	
Parking Facilities:	The project currently has 85 existing parking spaces for the church and proposes to add an additional 46 for senior housing for a total of 131 parking spaces. A total of 6 ADA stalls will be provided along with 14 EV stalls.
Other Project Features:	The property will include two trash enclosures. One will be located at the northeast corner of the project site and the other will be located north of Building 2 within the parking lot. The trash enclosure will be walled on 3 sides with an access gate comprising the remaining side, and covered to preclude precipitation and runoff consistent with local design standards. The site will not have any loading docks, outdoor storage areas, vehicle/ community car wash racks, vehicle/equipment wash areas, or commercial kitchens/food preparation areas.
Outdoor Activities:	Outdoor areas throughout the residential area of site will be used for recreational and open space purposes. The central recreation area will include a garden and terrace and open lawn and hardscape areas. All other outdoor areas will be used for walkways, common areas and landscaping, and other recreational purposes.
Materials Stored:	No outdoor storage of materials is anticipated (materials will be stored indoors). Materials anticipated to be stored on-site include those associated with residential developments, including cleaning products, maintenance equipment, storage, etc. No hazardous waste will be stored on-site.
Wastes Generated:	The project is not anticipated to generate any wastes other than landscape clippings, typical trash, debris and refuse from the tenants. Outdoor trash receptacles will be provided throughout the common areas of the site for the tenants to dispose of their refuse in a proper manner, and property maintenance will provide trash and waste material removal to maintain a trash-free property. All wastes shall be collected and properly disposed of off-site.

II.2 POTENTIAL STORM WATER POLLUTANTS

The table below, derived from Table 2 of the Countywide Model WQMP Technical Guidance Document (December 2013), summarizes the categories of land use or project features of concern and the general pollutant categories associated with them.

ANTICIPATED & POTENTIAL POLLUTANTS GENERATED BY LAND USE TYPE								
Priority Project Categories and/or Project Features	**General Pollutant Categories**							
	Suspended Solid/ Sediments	**Nutrients**	**Heavy Metals**	**Pathogens (Bacteria/ Virus)**	**Pesticides**	**Oil & Grease**	**Toxic Organic Compounds**	**Trash & Debris**
Detached Residential Development	E	E	N	E	E	E	N	E

ANTICIPATED & POTENTIAL POLLUTANTS GENERATED BY LAND USE TYPE								
Priority Project Categories and/or Project Features	General Pollutant Categories							
	Suspended Solid/ Sediments	Nutrients	Heavy Metals	Pathogens (Bacteria/ Virus)	Pesticides	Oil & Grease	Toxic Organic Compounds	Trash & Debris
Attached Residential Development	E	E	N	E	E	E(2)	N	E
Commercial/Industrial Development	E(1)	E(1)	E(5)	E(3)	E(1)	E	E	E
Automotive Repair Shops	N	N	E	N	N	E	E	E
Restaurants	E(1)(2)	E(1)	E(2)	E	E(1)	E	N	E
Hillside Development >5,000 ft²	E	E	N	E	E	E	N	E
Parking Lots	E	E(1)	E	E(4)	E(1)	E	E	E
Streets, Highways, & Freeways	E	E(1)	E	E(4)	E(1)	E	E	E
Retail Gasoline Outlets	N	N	E	N	N	E	E	E

Notes:
E = expected to be of concern N = not expected to be of concern
(1) Expected pollutant if landscaping exists on-site, otherwise not expected.
(2) Expected pollutant if the project includes uncovered parking areas, otherwise not expected.
(3) Expected pollutant if land use involves food or animal waste products, otherwise not expected.
(4) Bacterial indicators are routinely detected in pavement runoff.
(5) Expected if outdoor storage or metal roofs, otherwise not expected.
Source: County of Orange. (2013, December 20). Technical Guidance Document for the Preparation of Conceptual/ Preliminary and/or Project Water Quality Management Plans (WQMPs). Table 2.1.

Priority Project Categories and/or Features: Attached Residential Development, Parking Lot

POLLUTANTS OF CONCERN		
Pollutant	E = Expected to be of concern N =Not Expected to be of concern	Additional Information and Comments
Suspended Solid/ Sediment	E	
Nutrients	E	303(d) listed impairment for downstream receiving waters.

POLLUTANTS OF CONCERN		
Pollutant	E = Expected to be of concern N =Not Expected to be of concern	Additional Information and Comments
Heavy Metals	E	303(d) listed impairment for downstream receiving waters; TMDL established for San Gabriel River/Coyote Creek
Pathogens (Bacteria/Virus)	E	303(d) listed impairment for downstream receiving waters.
Pesticides	E	303(d) listed impairment for downstream receiving waters.
Oil & Grease	E	
Toxic Organic Compounds	E	303(d) listed impairment for downstream receiving waters.
Trash & Debris	E	

II.3 HYDROLOGIC CONDITIONS OF CONCERN

The purpose of this section is to identify any hydrologic conditions of concern (HCOC) with respect to downstream flooding, erosion potential of natural channels downstream, impacts of increased flows on natural habitat, etc. As specified in Section 2.3.3 of the 2011 Model WQMP, projects must identify and mitigate any HCOCs. A HCOC is a combination of upland hydrologic conditions and stream biological and physical conditions that presents a condition of concern for physical and/or biological degradation of streams.

In the North Orange County permit area, HCOCs are considered to exist if any streams located downstream from the project are determined to be potentially susceptible to hydromodification impacts and either of the following conditions exists:

- Post-development runoff volume for the 2-yr, 24-hr storm exceeds the pre-development runoff volume for the 2-yr, 24-hr storm by more than 5 percent

or

- Time of concentration (Tc) of post-development runoff for the 2-yr, 24-hr storm event exceeds the time of concentration of the pre-development condition for the 2-yr, 24-hr storm event by more than 5 percent.

If these conditions do not exist or streams are not potentially susceptible to hydromodification impacts, an HCOC does not exist and hydromodification does not need to be considered further. In the North Orange County permit area, downstream channels are considered not susceptible to hydromodification, and therefore do not have the potential for a HCOC, if all downstream conveyance channels that will receive runoff from the project are engineered, hardened, and regularly maintained to ensure design flow capacity, and no sensitive habitat areas will be affected.

Is the proposed project potentially susceptible to hydromodification impacts?

☒ Yes ☐ No (show map)

2-YEAR, 24-HOUR STORM SUMMARY				
Condition	Acreage	Tc (min)	Peak Runoff (cfs)	Volume (ac-ft)
Pre-development	4.0	11.08	4.01	0.2724
Proposed	4.0	9.52	5.35	0.5011
Difference	**0**	**-1.56**	**+1.34**	**+0.2287**
% Change		**-14%**	**+33%**	**+84%**

The proposed project will increase the 2-year volumes compared to existing conditions. The results indicate the 2-year time of concentration (Tc) decreases by 14% and runoff increases by 33% compared to existing conditions.

As depicted in the table above, the post-condition runoff volumes increase by 84%, which is greater than 105% percent of the pre-development runoff volumes. Therefore, the project is subject to HCOCs. Infiltration BMPs to reduce proposed runoff volume rates to within 105% of the existing 2-year storm are proposed, and the hydromodification volumes (delta 2-year volume of at least 9,370 cu-ft) will be retained on-site via detention systems and drywells located on the southwest side of the project site within the parking lot (refer to Section IV.3.2 for further information). Since volumes will be infiltrated and retained onsite and any HCOC will be mitigated by Low Impact Development (LID) design elements, hydromodification does not need to be considered further. Onsite infiltration BMPs are discussed further in Section IV.3.2 of this report.

II.4 POST DEVELOPMENT DRAINAGE CHARACTERISTICS

Under proposed conditions, runoff from the entire project site will be captured by area drains and routed to a detention system to ensure that stormwater discharges do not exceed the existing conditions for flood control purposes. A diversion structure will divert low flows to a hydrodynamic separator (Contech CDS or similar) for pre-treatment before entering the detention system (Contech CMP or similar) designed to capture water quality and hydromod flows. The detention system will be drawn down by one of five drywells for infiltration. Low flows will be retained onsite while high flows will follow existing drainage patterns with a connection at the existing discharge location at the southwest corner of the site along North Angelina Drive and Morse Avenue. Flows exiting the site will continue to discharge into the Carbon Creek Channel, Coyote Creek, San Gabriel River Reach 1, the San Gabriel River Estuary, and eventually the San Pedro Bay Near/Offshore Zone and the Pacific Ocean. Please see the WQMP exhibit in Section VI for locations of BMPs and direction of flow.

II.5 PROPERTY OWNERSHIP/MANAGEMENT

PROPERTY OWNERSHIP/MANAGEMENT	
Public Streets:	City of Placentia
Private Streets:	National Community Renaissance / Church of the Blessed Sacrament
Landscaped Areas:	National Community Renaissance / Church of the Blessed Sacrament
Open Space:	National Community Renaissance / Church of the Blessed Sacrament
Buildings:	National Community Renaissance / Church of the Blessed Sacrament
Structural BMPs:	National Community Renaissance / Church of the Blessed Sacrament

The Owner, Church of the Blessed Sacrament, will maintain existing structures and ultimately be responsible for the project site. A maintenance agreement between the owner and lessee, National Community Renaissance, will be drafted. National Community Renaissance shall assume all BMP maintenance and inspection responsibilities for the proposed project. Inspection and maintenance responsibilities are outlined in Section V of this report.

SECTION III SITE DESCRIPTION

III.1 PHYSICAL SETTING

Planning Area/ Community Name:	Placentia Senior Housing on Church of the Blessed Sacrament
Address:	1314 N. Angelina Drive, Placentia, CA 92870
Project Area Description:	The project site is bounded by North Angelina Drive to the west, single family residences to the north and east, and Morse Avenue to the south.
Land Use:	Existing R-1, Proposed is High Density Residential
Zoning:	Residential; Existing R-1, Proposed R-3
Acreage:	4.0
Predominant Soil Type:	HSG Soils Type D and B (see TGD Figure XVI-2a in Appendix A)
Impervious Conditions:	Existing Impervious: 45% (55% Pervious) Proposed Impervious: 75% (25% Pervious)

III.2 SITE CHARACTERISTICS

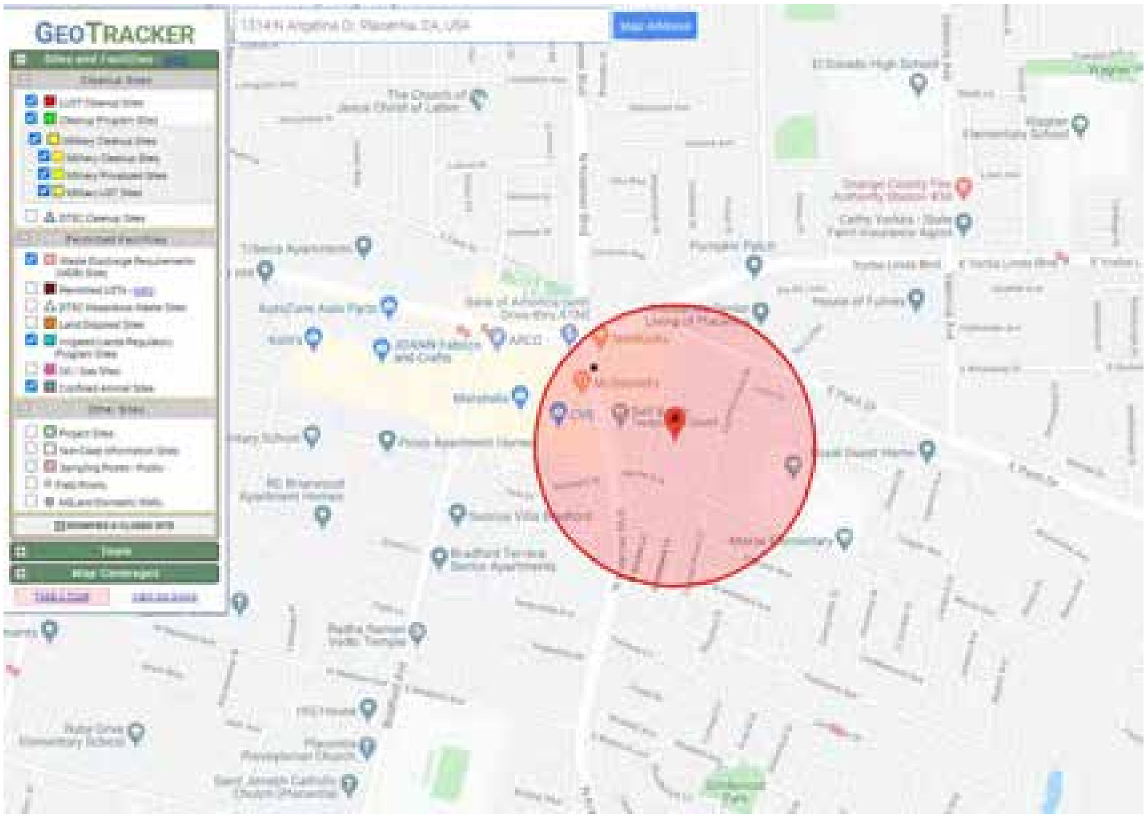
Precipitation Zone:	0.9 inches per TGD Figure XVI-1 (see Appendix A)
Topography:	The site is relatively flat, with the topography sloping westerly and southwesterly direction toward the corner of N. Angelina drive and Morse Avenue.
Existing Drainage Patterns/ Connections:	Under existing conditions, runoff sheet flows in a southwesterly direction. Some flows enter a ribbon gutter within the existing parking lot which conveys runoff toward the southwest corner of the project. From there flows exit into a catch basin at the corner of North Angelina Drive and Morse Avenue. Flows enter the Carbon Creek Channel, Coyote Creek Channel, San Gabriel River, and eventually the San Gabriel River Estuary out to the Pacific Ocean.

Proposed Drainage Patterns/ Connections:	Under proposed conditions, runoff from the entire project site will be captured by area drains and routed to a detention system to ensure that stormwater discharges do not exceed the existing conditions for flood control purposes. A diversion structure will divert low flows to a hydrodynamic separator (Contech CDS or similar) for pre-treatment before entering the detention system (Contech CMP or similar) designed to capture water quality and hydromod flows. The detention system will be drawn down by one of five drywells for infiltration. Low flows will be retained onsite while high flows will follow existing drainage patterns with a connection at the existing discharge location at the southwest corner of the site along North Angelina Drive and Morse Avenue. Flows exiting the site will continue to discharge into the Carbon Creek Channel, Coyote Creek, San Gabriel River Reach 1, the San Gabriel River Estuary, and eventually the San Pedro Bay Near/Offshore Zone and the Pacific Ocean. Please see the WQMP exhibit in Section VI for locations of BMPs and direction of flow.
Soil Type, Geology, and Infiltration Properties:	A geotechnical study was performed for the site in January 2020 by Albus-Keefe & Associates, Inc. Soils within the vicinity of the project site generally consist of artificial fill materials and Quaternary Alluvial. Artificial fill materials consist of sandy clay and was found to a depth of 4 feet bgs. Quaternary Alluvial beneath the artificial fill was found to 51.5 feet bgs and generally consist of layers of damp to moist, reddish brown and light reddish-brown sandy clay, silty sand, clayey sand, silty clay, and sand. The granular alluvial soils are typically medium dense and the fine-grained alluvial soils are typically very stiff to hard.
Hydrogeologic (Groundwater) Conditions:	Groundwater was not encountered to a depth of 51.5 feet below ground surface (bgs) during the geotechnical study. Additional review of the Department of Water Resources groundwater level indicates that groundwater for the area is below 150 feet. Albus-Keefe & Associates, Inc. anticipates groundwater will remain below a depth of 100 feet during the next 50 years.
Geotechnical Conditions (relevant to infiltration):	Infiltration tests were performed in 2020 on the project site and found that soils were favorable for infiltration. The Geotech performed drywell modeling and found a measured infiltration rate of 1.9 in/hr. A steady state analysis was performed to estimate the maximum inflow that the well can accommodate. A static total flow of 0.025 ft^3/sec was calculated. The average infiltration rate can be determined by taking the flow rate divided by the wetted surface area. The surface area is equal to 546.64 square feet which includes the side and bottom area. Based on the above flow rate and surface area, the average "measured" infiltration rate across the wetted surface area is 1.9 in/hr. Applying a factor of safety of 2, the design infiltration rate is then 0.95 in/hr and the design flow rate is 0.0125 cfs. Since rates exceeded the 0.3 in/hr minimum outlined in the OC TGD, infiltration is considered feasible for the project site.

Off-Site Drainage:	The project site does not receive any off-site storm water flows onto the property.
Utility and Infrastructure Information:	Dry and wet utilities will be incorporated into the proposed project and will tie into existing facilities associated with the existing development.

III.3 WATERSHED DESCRIPTION

Receiving Waters:	Carbon Creek Channel, Coyote Creek Channel, San Gabriel River 1, San Gabriel River Estuary, San Pedro Bay Near/Offshore Zones
303(d) Listed Impairments:	▪ **Carbon Creek Channel:** None ▪ **Coyote Creek (Region 4):** Dissolved Copper, Indicator Bacteria, Iron, Malathion, pH, Sediment Toxicity ▪ **San Gabriel River Reach 1 (Region 4):** pH, Temperature ▪ **San Gabriel River Estuary (Region 4):** Copper, Dioxin, Indicator Bacteria, Nickel, Dissolved Oxygen ▪ **San Pedro Bay Near/Offshore Zones (Region 4):** Chlordane, DDT (tissue & sediment), PCBs, Sediment Toxicity
Applicable TMDLs:	**Coyote Creek:** Indicator Bacteria (2016), Sediment Toxicity (2008) **San Gabriel River Reach 1:** pH(2009) **San Gabriel River Estuary:** Metals (Copper 2007), Indicator Bacteria (2016)
Pollutants of Concern for the Project:	Per Section II.2: ▪ Suspended Solids/Sediments, Nutrients, Pathogens/Bacteria/Virus, Heavy Metals, Pesticides, Oil & Grease, Trash & Debris
Hydrologic Conditions of Concern (HCOCs):	Refer to Section II.3 for details.
Environmentally Sensitive and Special Biological Significant Areas:	There are no Environmentally Sensitive Areas (ESAs) or Areas of Special Biological Significance (ASBS) within the project site or within the project's vicinity.
Existing Water Quality Conditions:	No LUST sites were found within 250 feet of the project site. One former Leaking Underground Storage Tank (LUST) site and one DTSC Cleanup site has been identified within 1000 feet of the project site. See location of LUST and DTSC in map below.



SECTION IV BEST MANAGEMENT PRACTICES (BMPs)

IV.1 PROJECT PERFORMANCE CRITERIA

Is there an approved WIHMP or equivalent for the project area that includes more stringent LID feasibility criteria or if there are opportunities identified for implementing LID on regional or sub-regional basis?

☐ Yes ☒ No

PROJECT PERFORMANCE CRITERIA	
Hydromodification Control Performance Criteria: **(Model WQMP Section 7.II-2.4.2.2)**	If a hydrologic condition of concern (HCOC) exists, priority projects shall implement onsite or regional hydromodification controls such that: ▪ Post-development runoff volume for the two-year frequency storm does not exceed that of the predevelopment condition by more than five percent, and ▪ Time of concentration of post-development runoff for the two-year storm event is not less than that for the predevelopment condition by more than five percent. Where the Project WQMP documents that excess runoff volume from the two-year runoff event cannot feasibly be retained and where in-stream controls cannot be used to otherwise mitigate HCOCs, the project shall implement on-site or regional hydromodification controls to: ▪ Retain the excess volume from the two-year runoff event to the MEP, and ▪ Implement on-site or regional hydromodification controls such that the post-development runoff two-year peak flow rate is no greater than 110 percent of the predevelopment runoff two-year peak flow rate.
LID Performance Criteria: **(Model WQMP Section 7.II-2.4.3)**	Infiltrate, harvest and use, evapotranspire, or biotreat/biofilter, the 85^{th} percentile, 24-hour storm event (Design Capture Volume). LID BMPs must be designed to retain, on-site, (infiltrate, harvest and use, or evapotranspire) storm water runoff up to 80 percent average annual capture efficiency.
Treatment Control BMP Performance Criteria: **(Model WQMP Section 7.II-3.2.2)**	If it is not feasible to meet LID performance criteria through retention and/or biotreatment provided on-site or at a sub-regional/regional scale, then treatment control BMPs shall be provided on-site or offsite prior to discharge to waters of the US. Sizing of treatment control BMP(s) shall be based on either the unmet volume after claiming applicable water quality credits, if appropriate.

PROJECT PERFORMANCE CRITERIA	
LID Design Storm Capture Volume:	DCV = C × d × A × 43560 sf/ac × 1/12 in/ft Where: DCV = design storm capture volume, cu-ft C = runoff coefficient = (0.75 × imp + 0.15) Imp = impervious fraction of drainage area (ranges from 0 to 1) d = storm depth (inches) A = tributary area (acres) Imp = 74.8 d = 0.9 inches A = 4.0 acres *DCV = (0.75 x 0.748 +0.15) x 0.9 inches x 4.0 ac x 43560 sf/ac x 1/12 in/ft* = 9,294 cu-ft *Refer to Section IV.2.2 for specific Drainage Manage Area (DMA) breakdown and Appendix A for detailed calculations (Worksheet B).*

IV.2 SITE DESIGN AND DRAINAGE PLAN

The following section describes the site design BMPs used in this project and the methods used to incorporate them. Careful consideration of site design is a critical first step in storm water pollution prevention from new developments and redevelopments.

IV.2.1 Site Design BMPs

Minimize Impervious Area

Impervious surfaces have been minimized by incorporating landscaped areas throughout the site surrounding the proposed building. Landscaping will be provided throughout the site within the common areas as well as around the perimeter and in the courtyards of the residence.

Maximize Natural Infiltration Capacity

Infiltration is deemed feasible based on the geotechnical study performed by Albus-Keefe & Associates, Inc. Refer to Section IV.3.2 for details.

Preserve Existing Drainage Patterns and Time of Concentration

Runoff from the site will continue to flow similar to existing conditions. Low-flows and first-flush runoff will drain to a detention system and infiltrate through drywells for water quality treatment via infiltration.

Disconnect Impervious Areas

Landscaping will be provided adjacent to sidewalks and between the proposed buildings in courtyards. Low-flows and first-flush runoff will drain to a detention system and infiltrate through drywells for water quality treatment via infiltration. Refer to Section IV.3.2 for further details.

Protect Existing Vegetation and Sensitive Areas, and Revegetate Disturbed Areas

Some existing trees and landscaping will be preserved. There are no sensitive areas to preserve on the project site. All disturbed areas will either be paved or landscaped.

Xeriscape Landscaping

Xeriscape landscaping is not proposed for the project. However, native and/or tolerant landscaping will be incorporated into the site design consistent with City guidelines.

IV.2.2 Drainage Management Areas

In accordance with the MS4 permit and the 2011 Model WQMP, the project site has been divided into Drainage Management Areas (DMAs) to be utilized for defining drainage areas and sizing LID and other treatment control BMPs. DMAs have been delineated based on the proposed site grading patterns, drainage patterns, storm drain and catch basin locations.

The design capture volumes (DCV) and treatment flow rates (Q_{Design}) for each DMA are summarized in the table below. These have been derived utilizing the "Simple Method" in accordance with the TGD Section III.1.1. Actual BMP sizing requirements, including 80 percent capture design volumes, flow rates, depths, and other design details for the specific BMPs proposed are provided in Sections IV.3.2 below. Locations of DMAs and associated LID and treatment BMPs are identified on the exhibits in Section VI. Additional calculations and TGD Worksheets are provided in Appendix A.

DRAINAGE MANAGEMENT AREAS (DMAs)

DMA/ Drainage Area ID(1)	Tributary Drainage Area (ft^2)	Tributary Drainage Area (ac)	% Imp.	Design Storm Depth(2) (in)	Estimated Tc (min)	Rainfall Intensity(3) (in/hr)	Simple Method DCV(4) (ft^3)	Q_{Design} (5) (cfs)
DMA 1	174,296	4.0	75	0.9	5	0.26	9,294	0.740

Notes:
1. Refer to exhibits in Section VI for locations of each DMA.
2. Per Figure XVI-1 of the Technical Guidance Document, dated December 20, 2013. See also Appendix A.
3. Per Figure III.4 of the Technical Guidance Document, dated December 20, 2013. See also Appendix A.
4. Per Section III.1.1 of the Technical Guidance Document.
5. Per Section III.3.3 and Worksheet D of the Technical Guidance Document.

IV.3 LID BMP SELECTION AND PROJECT CONFORMANCE ANALYSIS

Low Impact Development (LID) BMPs are required in addition to site design measures and source controls to reduce pollutants in storm water discharges. LID BMPs are engineered facilities that are designed to retain or biotreat runoff on the project site. The 4th Term MS4 Storm Water Permit (Order

R8-2009-0030) requires the evaluation and use of LID features using the following hierarchy of treatment: infiltration, evapotranspiration, harvest/reuse, and biotreatment. The following sections summarize the LID BMPs proposed for the project in accordance with the permit hierarchy and performance criteria outlined in Section IV.1.

IV.3.1 Hydrologic Source Controls (HSCs)

Hydrologic source controls (HSCs) can be considered to be a hybrid between site design practices and LID BMPs. HSCs are distinguished from site design BMPs in that they do not reduce the tributary area or reduce the imperviousness of a drainage area; rather they reduce the runoff volume that would result from a drainage area with a given imperviousness compared to what would result if HSCs were not used.

HYDROLOGIC SOURCE CONTROLS		
ID	**Name**	**Included?**
HSC-1	Localized on-lot infiltration	☐
HSC-2	Impervious area dispersion (e.g. roof top disconnection)	☐
HSC-3	Street trees (canopy interception)	☐
HSC-4	Residential rain barrels (not actively managed)	☐
HSC-5	Green roofs/Brown roofs	☐
HSC-6	Blue roofs	☐
HSC-7	Impervious area reduction (e.g. permeable pavers, site design)	☐

HSCs were not incorporated into the project's design at this stage in the project's development. Any HSC's will be accounted for during final design and the cumulative volume of the HSC's will be subtracted from the required treatment volume in the Final WQMP.

IV.3.2 Infiltration BMPs

Infiltration BMPs are LID BMPs that capture, store and infiltrate storm water runoff. These BMPs are engineered to store a specified volume of water and have no design surface discharge (underdrain or outlet structure) until this volume is exceeded. Examples of infiltration BMPs include infiltration trenches, bioretention without underdrains, drywells, permeable pavement, and underground infiltration galleries.

INFILTRATION		
ID	**Name**	**Included?**
INF-3 INF-4	Bioretention Without Underdrains	☐
	Rain Gardens	☐

INFILTRATION		
ID	Name	Included?
	Porous Landscaping	☐
	Infiltration Planters	☐
	Retention Swales	☐
INF-2	Infiltration Trenches	☐
INF-1	Infiltration Basins	☐
INF-5	Drywells	☒
INF-7	Subsurface Infiltration Galleries	☐
--	French Drains	☐
INF-6	Permeable Asphalt	☐
	Permeable Concrete	☐
	Permeable Concrete Pavers	☐
	Other:	☐

The results of the infiltration tests and drywell modeling found an infiltration flow rate of 0.025 cfs. A design flow rate of 0.0125 cfs was used for drywell sizing. These rates combined with Geotech drywell modeling deem infiltration feasible. Drywells were selected for infiltrating the DCV. Five (5) Maxwell IV drywell systems are proposed. Each drywell will be a total of 52 feet deep, with the lower 34 feet consisting of the infiltrating drywell, and the upper 18 feet a concrete settling chamber. The MaxWell IV system incorporates pre-treatment of runoff through a settling chamber that traps trash, floating debris, oil and grease, and large sediment. Pre-treated flows are then diverted to the drywell and surrounding soil. With the incorporation of pretreatment and infiltration, drywells have high removal effectiveness for all storm water pollutants of concern (see Section VI for drywell details).

In order to maximize infiltration within the drywells, underground detention systems will be located upstream of the drywells. These systems will temporarily detain the DCV and hydromodification volume and will provide constant head to the drywells during the drawdown process. A detention gallery system (Contech CMP or equivalent) is proposed to provide detention capacity in addition to the storage capacity of the drywell settling chambers (see Section VI for detention details). The detention gallery prior to the five drywells located in DMA 1 will have a total storage of approximately 7,666 cu-ft while the five drywells will have a total storage of approximately 1,734 cu-ft. The total amount of storage provided for infiltration is approximately 9,400 cu-ft, which exceeds the Simple Method DCV of 9,294 cu-ft (refer to Section IV.2.2 for the Simple Method DCV) as well as the volume detained for hydromod purposes (roughly 9,370 cu-ft). This volume will be drawn down within 42 hours by the five drywells at a design rate of 0.0125 cfs each, or a total infiltration flowrate of 0.0625 cfs. Refer to the Maxwell IV Drainage System Calculations in Appendix A for calculations on drywell and detention system sizing and the drywell modeling in the Geotech Report in Appendix F.

Runoff will drain in a southwest direction towards the parking lot south of Building 2. Low flows will be diverted to pretreatment and detention gallery for treatment prior to drywell infiltration while high flows beyond the storage capacity for water quality will be temporarily detained in a separate detention system for flood control purposes and slowly released to an existing catch basin along N. Angelina Drive.

Pre-Treatment BMPs

The most important part of all drywell systems is the incorporation of proper upstream pre-treatment to remove solids and fines from entering the final infiltration chamber. The MaxWell IV drywell system itself includes a pretreatment settling chamber and slotted inlet to provide treatment prior to entering the infiltration chamber. However, in order to provide additional pre-treatment and filtration of runoff prior to infiltrating, the detention systems will include upstream pre-treatment devices (Contech CDS or equivalent) to pre-treat runoff before entering the detention systems and drywells (see Section VI for standard CDS details). The Contech CDS hydrodynamic separator uses swirl concentration and continuous deflective separation to remove trash, debris, and hydrocarbons from stormwater runoff. Treatment of this level would be consistent with the treatment standards required in the Technical Guidance Document for removal of pollutants prior to discharge into the drywell and detention system. The CDS unit will be designed to pre-treat runoff from the Design Capture Storm (85th percentile, 24-hour), consistent with the requirements of the TGD, Section III.3.3 and Worksheet D. The table below shows the water quality flow rate for DMA 1. Further details on the proposed pretreatment systems including sizing calculations and design specifications will be provided in the Final WQMP.

PRETREATMENT BMP SIZING				
DMA/ Drainage Area ID(1)	BMP	Tributary Drainage Area (ac)	% Imp.	Q_{Design} (2) (cfs)
DMA 1	Hydrodynamic Separator	4.0	75	0.740

Notes:
1 Refer to exhibits in Section VI for locations of each DMA.
2 Per Section Worksheet D of the Technical Guidance Document.

IV.3.3 Evapotranspiration & Rainwater Harvesting BMPs

Evapotranspiration (ET) BMPs are a class of retention BMPs that discharges stored volume predominately to ET, though some infiltration may occur. ET includes both evaporation and transpiration, and ET BMPs may incorporate one or more of these processes. BMPs must be designed to achieve the maximum feasible ET, where required to demonstrate that the maximum amount of water has been retained on-site. Since ET is not the sole process in these BMPs, specific design and sizing criteria have not been developed for ET-based BMPs.

EVAPOTRANSPIRATION		
ID	Name	Included?
--	HSCs, *see Section IV.3.1*	☐

EVAPOTRANSPIRATION		
ID	Name	Included?
--	Surface-based infiltration BMPs	☐
--	Biotreatment BMPs, see *Section VI.3.4*	☐
	Other:	☐

Harvest and use (aka. Rainwater Harvesting) BMPs are LID BMPs that capture and store storm water runoff for later use. These BMPs are engineered to store a specified volume of water and have no design surface discharge until this volume is exceeded. Harvest and use BMPs include both above-ground and below-ground cisterns. Examples of uses for harvested water include irrigation, toilet and urinal flushing, vehicle washing, evaporative cooling, industrial processes and other non-potable uses.

HARVEST & REUSE / RAINWATER HARVESTING		
ID	Name	Included?
HU-1	Above-ground cisterns and basins	☐
HU-2	Underground detention	☐
--	Other:	☐

Since infiltration will be utilized for retaining the design capture volume on-site, evapotranspiration BMPs were not incorporated into the project's design.

IV.3.4 Biotreatment BMPs

Biotreatment BMPs are a broad class of LID BMPs that reduce storm water volume to the maximum extent practicable, treat storm water using a suite of treatment mechanisms characteristic of biologically active systems, and discharge water to the downstream storm drain system or directly to receiving waters. Treatment mechanisms include media filtration (though biologically-active media), vegetative filtration (straining, sedimentation, interception, and stabilization of particles resulting from shallow flow through vegetation), general sorption processes (i.e., absorption, adsorption, ion-exchange, precipitation, surface complexation), biologically-mediated transformations, and other processes to address both suspended and dissolved constituents. Examples of biotreatment BMPs include bioretention with underdrains, vegetated swales, constructed wetlands, and proprietary biotreatment systems.

BIOTREATMENT		
ID	Name	Included?
BIO-1	Bioretention with underdrains	☐
	Storm Water planter boxes with underdrains	☐

BIOTREATMENT		
ID	**Name**	**Included?**
	Rain gardens with underdrains	☐
BIO-5	Constructed wetlands	☐
BIO-2	Vegetated swales	☐
BIO-3	Vegetated filter strips	☐
BIO-7	Proprietary vegetated biotreatment systems	☐
BIO-4	Wet extended detention basin	☐
BIO-6	Dry extended detention basins	☐
--	Other:	☐

Since infiltration will be utilized for retaining the design capture volume on-site, biotreatment BMPs were not incorporated into the project's design.

IV.3.5 Hydromodification Control BMPs

Not applicable. See Section II.3 for further details.

IV.3.6 Regional/Sub-Regional LID BMPs

Not applicable. LID BMPs (infiltration) will be utilized for water quality treatment on-site in accordance with the MS4 Permit hierarchy identified at the beginning of this Section.

IV.3.7 Treatment Control BMPs

Treatment control BMPs can only be considered if the project conformance analysis indicates that it is not feasible to retain the full design capture volume with LID BMPs.

TREATMENT CONTROL BMPs		
ID	**Name**	**Included?**
TRT-1	Sand Filters	☐
TRT-2	Cartridge Media Filter	☐
PRE-1	Hydrodynamic Separation Device	☐
PRE-2	Catch Basin Insert	☐
	Other:	☐

Not applicable. LID BMPs (infiltration) will be utilized for water quality treatment on-site in accordance with the MS4 Permit hierarchy identified at the beginning of this Section.

IV.3.8 Non-Structural Source Control BMPs

The table below indicates all BMPs to be incorporated in the project. For those designated as not applicable (N/A), a brief explanation why is provided.

NON-STRUCTURAL SOURCE CONTROL BMPs				
ID	Name	Included?	Not Applicable?	If Not Applicable, Provide Brief Reason
N1	Education for Property Owners, Tenants and Occupants	☒	☐	
N2	Activity Restrictions	☒	☐	
N3	Common Area Landscape Management	☒	☐	
N4	BMP Maintenance	☒	☐	
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	Not applicable – no hazardous materials.
N6	Local Water Quality Permit Compliance	☐	☒	The City of Placentia does not issue water quality permits.
N7	Spill Contingency Plan	☐	☒	Not applicable – no hazardous materials.
N8	Underground Storage Tank Compliance	☐	☒	No underground storage tanks are proposed.
N9	Hazardous Materials Disclosure Compliance	☐	☒	Hazardous materials will not be stored on-site.
N10	Uniform Fire Code Implementation	☐	☒	Not applicable – no hazardous materials.
N11	Common Area Litter Control	☒	☐	
N12	Employee Training	☒	☐	
N13	Housekeeping of Loading Docks	☐	☒	No loading docks are proposed.
N14	Common Area Catch Basin Inspection	☒	☐	
N15	Street Sweeping Private Streets and Parking Lots	☒	☐	
N16	Retail Gasoline Outlets	☐	☒	No retail gasoline outlets are proposed.

N1, Education for Property Owners, Tenants and Occupants

Educational materials will be provided to tenants, including brochures and restrictions to reduce pollutants from reaching the storm drain system. Examples include tips for pet care, household tips, and proper household hazardous waste disposal. Tenants will be provided with these materials by the property management prior to occupancy, and periodically thereafter. Refer to Section VII for a list of materials available and attached to this WQMP. Additional materials are available through the County of Orange Stormwater Program website (http://ocwatersheds.com/PublicEd/) and the California Stormwater Quality Association's (CASQA) BMP Handbooks (http://www.cabmphandbooks.com/).

N2, Activity Restrictions

The Owner shall develop ongoing activity restrictions that include those that have the potential to create adverse impacts on water quality. Activities include, but are not limited to: handling and disposal of contaminants, fertilizer and pesticide application restrictions, litter control and pick-up, and vehicle or equipment repair and maintenance in non-designated areas, as well as any other activities that may potentially contribute to water pollution.

N3, Common Area Landscape Management

Management programs will be designed and implemented by the Owner to maintain all the common areas within the project site. These programs will cover how to reduce the potential pollutant sources of fertilizer and pesticide uses, utilization of water-efficient landscaping practices and proper disposal of landscape wastes by the owner/developer and/or contractors.

N4, BMP Maintenance

The Owner will be responsible for the implementation and maintenance of each applicable non-structural BMP, as well as scheduling inspections and maintenance of all applicable structural BMP facilities through its staff, landscape contractor, and/or any other necessary maintenance contractors. Details on BMP maintenance are provided in Section V of this WQMP, and the O&M Plan is included in Appendix D.

N11, Common Area Litter Control

The Owner will be responsible for performing trash pickup and sweeping of littered common areas on a weekly basis or whenever necessary. Responsibilities will also include noting improper disposal materials by the public and reporting such violations for investigation.

N12, Employee Training

All employees of the Owner and any contractors will require training to ensure that employees are aware of maintenance activities that may result in pollutants reaching the storm drain. Training will include, but not be limited to, spill cleanup procedures, proper waste disposal, housekeeping practices, etc.

N14, Common Area Catch Basin Inspection

All on-site catch basin inlets and drainage facilities shall be inspected and maintained by the Owner at least once a year, prior to the rainy season, no later than October 1st of each year.

<u>N15, Street Sweeping Private Streets and Parking Lots</u>

The Owner shall be responsible for sweeping all on-site drive aisles and parking lots within the project on a quarterly basis.

IV.3.9 Structural Source Control BMPs

The table below indicates all BMPs to be incorporated in the project. For those designated as not applicable (N/A), a brief explanation why is provided.

STRUCTURAL SOURCE CONTROL BMPs				
ID	**Name**	**Included?**	**Not Applicable?**	**If Not Applicable, Provide Brief Reason**
S1 SD-13	Provide storm drain system stenciling and signage	☒	☐	
S2 SD-34	Design and construct outdoor material storage areas to reduce pollution introduction	☐	☒	No outdoor storage areas are proposed.
S3 SD-32	Design and construct trash and waste storage areas to reduce pollution introduction	☒	☐	
S4 SD-12	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	
S5	Protect slopes and channels and provide energy dissipation	☐	☒	There are no slopes or channels on the project site.
S6 SD-31	Properly Design: Dock areas	☐	☒	No below-grade loading docks are proposed.
S7 SD-31	Properly Design: Maintenance bays	☐	☒	No maintenance bays are proposed.
S8 SD-33	Properly Design: Vehicle wash areas	☐	☒	No vehicle wash areas are proposed.
S9 SD-36	Properly Design: Outdoor processing areas	☐	☒	No outdoor processing areas are proposed.
S10	Properly Design: Equipment wash areas	☐	☒	No equipment wash areas are proposed.
S11 SD-30	Properly Design: Fueling areas	☐	☒	No fueling areas are proposed.
S12 SD-10	Properly Design: Hillside landscaping	☐	☒	Project is not located in a hillside area.

STRUCTURAL SOURCE CONTROL BMPs				
ID	Name	Included?	Not Applicable?	If Not Applicable, Provide Brief Reason
S13	Properly Design: Wash water control for food preparation areas	☐	☒	
S14	Properly Design: Community car wash racks	☐	☒	No community car wash racks are proposed.

S1/SD-13, Provide storm drain system stenciling and signage

The phrase "NO DUMPING! DRAINS TO OCEAN", or an equally effective phrase approved by the City, will be stenciled on all major storm drain inlets within the project site to alert the public to the destination of pollutants discharged into storm water. Stencils shall be in place prior to release of certificate of occupancy. Stencils shall be inspected for legibility on an annual basis and re-stenciled as necessary.

S3/SD-32, Design and construct trash and waste storage areas to reduce pollution introduction

All trash and waste shall be stored in containers that have lids or tarps to minimize direct precipitation into the containers. One trash enclosure will be located in the parking lot northeast of the existing classrooms and a second trash enclosure will be located towards the center of the project west of Building 2. The trash storage areas will be designed to City standards, and will be walled, roofed, have gates and proper drainage per City standards.

S4/SD-12, Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control

The Owner will be responsible for the installation and maintenance of all common landscape areas utilizing similar planting materials with similar water requirements to reduce excess irrigation runoff. The Owner will be responsible for implementing all efficient irrigation systems for common area landscaping including, but not limited to, provisions for water sensors and programmable irrigation cycles. This includes smart timers, rain sensors, and moisture shut-off valves. The irrigation systems shall be in conformance with water efficiency guidelines. Systems shall be tested twice per year, and water used during testing/flushing shall not be discharged to the storm drain system.

IV.4 ALTERNATIVE COMPLIANCE PLAN

IV.4.1 Water Quality Credits

Local jurisdictions may develop a water quality credit program that applies to certain types of development projects after they first evaluate the feasibility of meeting LID requirements on-site. If it is not feasible to meet the requirements for on-site LID, project proponents for specific project types can apply credits that would reduce project obligations for selecting and sizing other treatment BMPs or participating in other alternative programs.

WATER QUALITY CREDITS

Credit	Applicable?
Redevelopment projects that reduce the overall impervious footprint of the project site.	☐
Brownfield redevelopment, meaning redevelopment, expansion, or reuse of real property which may be complicated by the presence or potential presence of hazardous substances, pollutants or contaminants, and which have the potential to contribute to adverse ground or surface water quality if not redeveloped.	☐
Higher density development projects which include two distinct categories (credits can only be taken for one category): those with more than seven units per acre of development (lower credit allowance); vertical density developments, for example, those with a Floor to Area Ratio (FAR) of 2 or those having more than 18 units per acre (greater credit allowance)	☐
Mixed use development, such as a combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that can demonstrate environmental benefits that would not be realized through single use projects (e.g. reduced vehicle trip traffic with the potential to reduce sources of water or air pollution).	☐
Transit-oriented developments, such as a mixed use residential or commercial area designed to maximize access to public transportation; similar to above criterion, but where the development center is within one half mile of a mass transit center (e.g. bus, rail, light rail or commuter train station). Such projects would not be able to take credit for both categories, but may have greater credit assigned	☐
Redevelopment projects in an established historic district, historic preservation area, or similar significant city area including core City Center areas (to be defined through mapping).	☐
Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses.	☐
Developments in a city center area.	☐
Developments in historic districts or historic preservation areas.	☐
Live-work developments, a variety of developments designed to support residential and vocational needs together – similar to criteria to mixed use development; would not be able to take credit for both categories.	☐
In-fill projects, the conversion of empty lots and other underused spaces into more beneficially used spaces, such as residential or commercial areas.	☐

Not applicable. Water quality credits will not be applied for the project. LID BMPs will be utilized for water quality treatment on-site in accordance with the MS4 Permit hierarchy identified at the beginning of this Section.

IV.4.2 Alternative Compliance Plan Information

Not applicable. LID BMPs (infiltration) will be utilized for water quality treatment on-site in accordance with the MS4 Permit hierarchy identified at the beginning of this Section.

SECTION V INSPECTION/MAINTENANCE RESPONSIBILITY FOR BMPs

It has been determined that National Community Renaissance shall assume all BMP inspection and maintenance responsibilities for the Placentia Senior Housing project.

Contact Name:	Michael Ruane
Title:	Executive Vice President
Company:	National Community Renaissance
Address:	9421 Haven Ave, Rancho Cucamonga, CA 91730
Phone:	909-204-3451
Email:	mruane@nationalcore.org

Should the maintenance responsibility be transferred at any time during the operational life of Placentia Senior Housing, such as when an HOA or POA is formed for a project, a formal notice of transfer shall be submitted to the City of Placentia at the time responsibility of the property subject to this WQMP is transferred. The transfer of responsibility shall be incorporated into this WQMP as an amendment.

The lessee shall verify BMP implementation and ongoing maintenance through inspection, self-certification, survey, or other equally effective measure. The certification shall verify that, at a minimum, the inspection and maintenance of all structural BMPs including inspection and performance of any required maintenance in the late summer / early fall, prior to the start of the rainy season. A form that may be used to record implementation, maintenance, and inspection of BMPs is included in Appendix D.

The City of Placentia may conduct verifications to assure that implementation and appropriate maintenance of structural and non-structural BMPs prescribed within this WQMP is taking place at the project site. The lessee shall retain operations, inspections and maintenance records of these BMPs and they will be made available to the City or County upon request. All records must be maintained for at least five (5) years after the recorded inspection date for the lifetime of the project.

Long-term funding for BMP maintenance will be provided by National Community Renaissance.

The Operations and Maintenance (O&M) Plan can be found in Appendix D.

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX				
	BMP	**Inspection/Maintenance Activities**	**Minimum Frequency**	**Responsible Party**
INFILTRATION BMPs				
INF-5	Drywell	Performed in accordance with manufacturer's specifications. Typical maintenance includes conducting routine inspections for accumulation and cleaning/pollutant removal as necessary from the pre-treatment settling chamber. Quarterly inspections will help maintain optimal performance and to determine typical accumulation levels during both dry-weather and wet-weather flows. The pretreatment settling chamber shall be cleaned when sediment accumulation is at or above the "cleanout line" marked inside of the chamber, and at a minimum of once per year, prior to the start of the storm season. Care should be taken to prevent spills during pollutant removal and cleaning. Oil and other hydrocarbons shall be cleaned out of the settling chamber as needed, once per year at a minimum. See Appendix D for additional maintenance information provided by the manufacturer.	Quarterly Inspections Cleanout 2x per year	National Community Renaissance

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX				
	BMP	Inspection/Maintenance Activities	Minimum Frequency	Responsible Party
	Contech CMP (or similar) Detention System	The underground detention system shall be inspected annually and after major storm events, and cleaned at a minimum of once per year, prior to the start of the rainy season (October 1st). Cleaning and maintenance will be performed per manufacturer specifications and will typically include removal of any trash and debris and excess sediment within the pipes. Sediment shall be removed when deposits approach within 6 inches of the invert heights of the connecting pipes between the chamber rows or inlet structures. See Appendix D for additional maintenance information provided by the manufacturer.	Annually	National Community Renaissance
PRE-TREATMENT / GROSS SOLIDS REMOVAL BMPs				
PRE-1	Hydrodynamic Separator (Contech CDS or similar)	The hydrodynamic separator should be inspected for oil, sediment, trash and debris. The proposed system will need to be maintained in accordance with the manufacturer's specifications. Buildup of debris may block the inlet or outlet pipe which could result in ineffective operation of the system. Typical maintenance will include removal of sediment and solids using a vacuum truck when system is 75% full.	2x per year	National Community Renaissance
NON-STRUCTURAL SOURCE CONTROL BMPs				
N1	Education for Property Owners, Tenants and Occupants	Educational materials will be provided to tenants annually. Materials to be distributed are found in Appendix C of this WQMP. Tenants will be provided these materials by Property Management prior to occupancy and annually thereafter.	Annually	National Community Renaissance

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX				
	BMP	**Inspection/Maintenance Activities**	**Minimum Frequency**	**Responsible Party**
N2	Activity Restrictions	The lessee will prescribe activity restrictions to protect surface water quality, through lease terms or equally effective measure, for the property. Restrictions include but are not limited to prohibiting vehicle maintenance or vehicle washing.	Ongoing	National Community Renaissance
N3	Common Area Landscape Management	Maintenance shall be consistent with County requirements. Fertilizer and/or pesticide usage shall be consistent with County Management Guidelines for Use of Fertilizers (OC DAMP § 5.5). Maintenance includes mowing, weeding, and debris removal on a weekly basis. Trimming, replanting, and replacement of mulch shall be performed on an as-needed basis to prevent exposure of erodible surfaces. Trimmings, clippings, and other landscape wastes shall be properly disposed of in accordance with local regulations. Materials temporarily stockpiled during maintenance activities shall be placed away from water courses and drain inlets.	Monthly	National Community Renaissance
N4	BMP Maintenance	Maintenance of structural BMPs implemented at the project site shall be performed at the frequency prescribed in this WQMP (Appendix B). Records of inspections and BMP maintenance shall be kept by the lessee and shall be available for review upon request.	Ongoing	National Community Renaissance
N5	Title 22 CCR Compliance (How development will comply)	Not Applicable		
N6	Local Industrial Permit Compliance	Not Applicable		
N7	Spill Contingency Plan	Not Applicable		

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX				
	BMP	**Inspection/Maintenance Activities**	**Minimum Frequency**	**Responsible Party**
N8	Underground Storage Tank Compliance	Not Applicable		
N9	Hazardous Materials Disclosure Compliance	Not Applicable		
N10	Uniform Fire Code Implementation	Not Applicable		
N11	Common Area Litter Control	Litter patrol, violations investigations, reporting and other litter control activities shall be performed on a weekly basis and in conjunction with routine maintenance activities.	Weekly	National Community Renaissance
N12	Employee Training	The lessee shall educate all new employees/managers on storm water pollution prevention, particularly good housekeeping practices, prior to the start of the rainy season (October 1). Refresher courses shall be conducted on an as needed basis. Materials that may be utilized on BMP maintenance are included in Appendix B.	Annually	National Community Renaissance
N13	Housekeeping of Loading Docks	Not Applicable		
N14	Common Area Catch Basin Inspection	On-site catch basin inlets shall be inspected and, if necessary, cleaned prior to the storm season by October 1st each year.	Annually	National Community Renaissance
N15	Street Sweeping Private Streets and Parking Lots	All private streets, drive aisles and exposed parking areas within the project shall be swept at a minimum frequency quarterly as well as once per year prior to the storm season, no later than October 1 each year.	Quarterly	National Community Renaissance
N16	Retail Gasoline Outlets	Not Applicable		

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX				
	BMP	Inspection/Maintenance Activities	Minimum Frequency	Responsible Party
STRUCTURAL SOURCE CONTROL BMPs				
S1 SD-13	Provide storm drain system stenciling and signage	On-site storm drain stencils shall be inspected for legibility, at minimum, once prior to the storm season, no later than October 1st each year. Those determined to be illegible will be re-stenciled as soon as possible.	Annually	National Community Renaissance
S2 SD-34	Design and construct outdoor material storage areas to reduce pollution introduction	Not Applicable		
S3 SD-32	Design and construct trash and waste storage areas to reduce pollution introduction	Sweep trash area at least once per week and before October 1st each year. Maintain area clean of trash and debris at all times.	Weekly	National Community Renaissance
S4 SD-12	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	In conjunction with routine maintenance, verify that landscape design continues to function properly by adjusting systems to eliminate overspray to hardscape areas and to verify that irrigation timing and cycle lengths are adjusted in accordance to water demands, given the time of year, weather, and day or nighttime temperatures. System testing shall occur twice per year. Water from testing/flushing shall be collected and properly disposed to the sewer system and shall not discharge to the storm drain system.	2x per year	National Community Renaissance
S5	Protect slopes and channels and provide energy dissipation	Not Applicable		
S6 SD-31	Properly Design: Dock areas	Not Applicable		

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX				
	BMP	Inspection/Maintenance Activities	Minimum Frequency	Responsible Party
S7 SD-31	Properly Design: Maintenance bays	Not Applicable		
S8 SD-33	Properly Design: Vehicle wash areas	Not Applicable		
S9 SD-36	Properly Design: Outdoor processing areas	Not Applicable		
S10	Properly Design: Equipment wash areas	Not Applicable		
S11 SD-30	Properly Design: Fueling areas	Not Applicable		
S12 SD-10	Properly Design: Hillside landscaping	Not Applicable		
S13	Properly Design: Wash water control for food preparation areas	Not Applicable		
S14	Properly Design: Community car wash racks	Not Applicable		

Any waste generated from maintenance activities will be disposed of properly. Wash water and other waste from maintenance activities is not to be discharged or disposed of into the storm drain system. Clippings from landscape maintenance (i.e. prunings) will be collected and disposed of properly off-site, and will not be washed into the streets, local area drains/conveyances, or catch basin inlets.

SECTION VI SITE PLAN AND DRAINAGE PLAN

The exhibits provided in this section are to illustrate the post construction BMPs prescribed within this WQMP. Drainage flow information of the proposed project, such as general surface flow lines, concrete or other surface drainage conveyances, and storm drain facilities are also depicted. All structural source control and treatment control BMPs are shown as well.

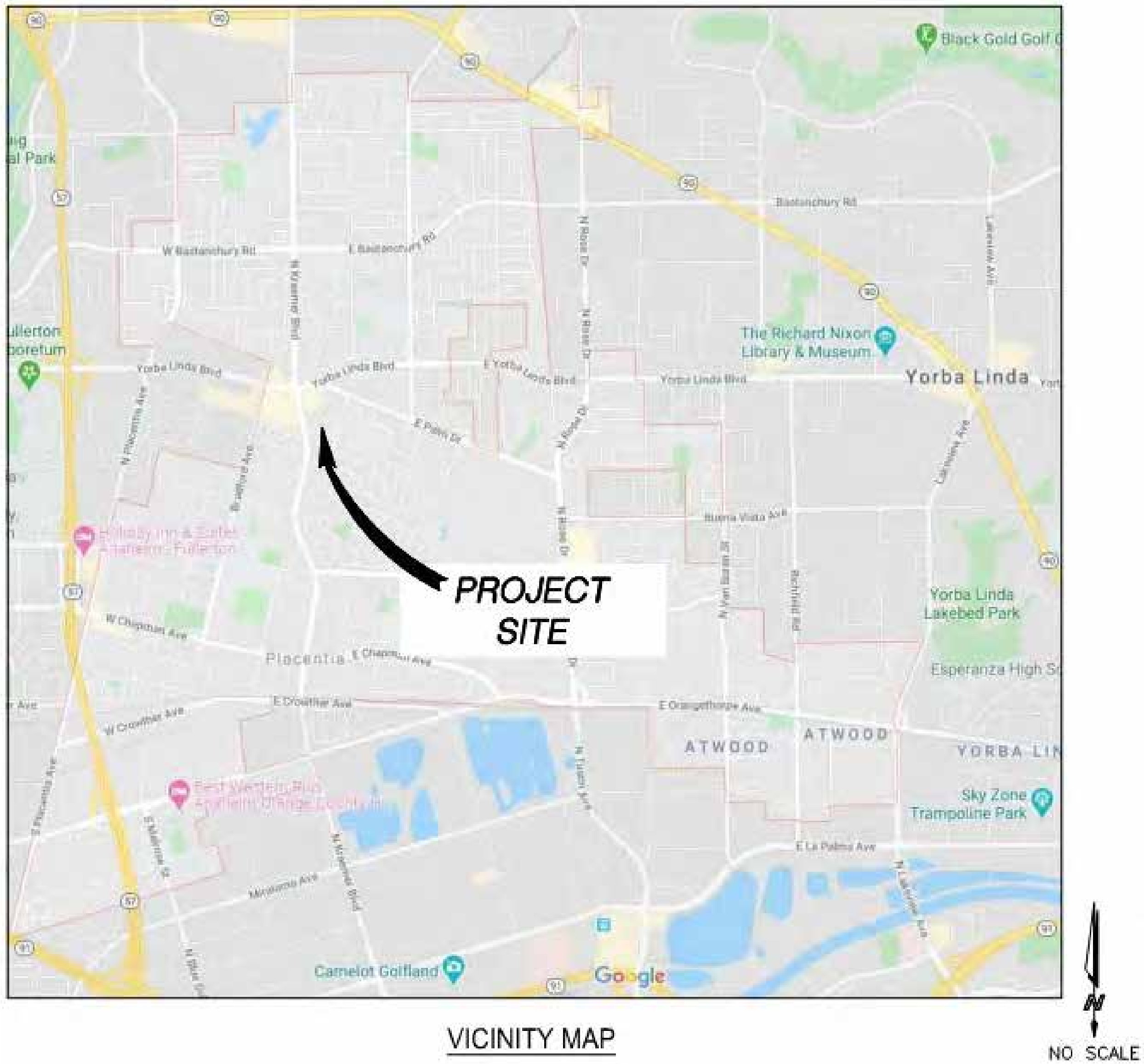
EXHIBITS

- Vicinity Map
- Site Plan
- WQMP Exhibit

BMP DETAILS & FACT SHEETS

- Torrent Drywell Details
- Contech CDS Details
- Contech CMP Details
- Underground Detention BMP Fact Sheet (HU-2)
- Hydrodynamic Separator BMP Fact Sheet (PRE-1)
- Drywell BMP Fact Sheet (INF-5)

VICINITY MAP



Note:
(E) Surrounding building heights are based off of digital source estimations

1 Site Plan
SCALE: 1" = 30'-0"

True North Project North

RRM Design Group
10 E. Figueroa St., Suite 1
Santa Barbara, CA 93101
Tel: 805.963.8283
Fax: 805.963.8184
www.rrmdesign.com

NATIONAL COMMUNITY CORE RENAISSANCE
9421 Haven Avenue
Rancho Cucamonga, CA 91730
Tel: 949.394.7996 Fax: 909.483.6524
nationalcore.org

Placentia Senior Housing
A.P.N. 340-273-25
1314 N. Angelina Drive, Placentia CA 92870.

Site Plan

A1
03/24/2020

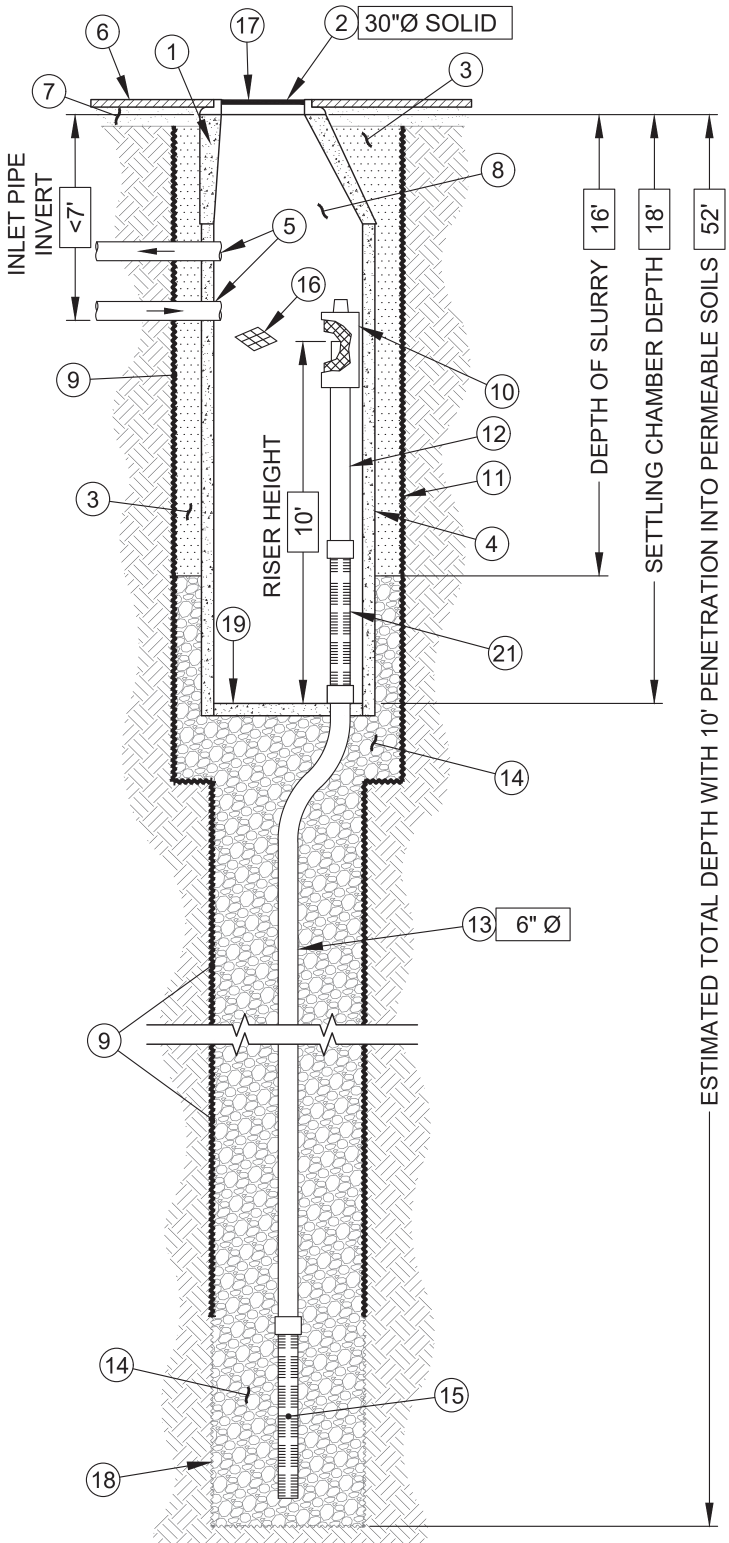

CYPRESS POINT DRIVE
ANNAJEANNE DRIVE
MORSE AVENUE
N. ANGELINA DRIVE
EXISTING CLASSROOMS
DMA 1
4.0 AC
BUILDING 1
BUILDING 2
NEW PARISH HALL
EXISTING CHURCH
LOW FLOWS ROUTED TO BMP
FLOOD CONTROL FLOWS ROUTED TO DETENTION
PRE-TREATED MODIFIED FLOWS ROUTED TO DETENTION
HIGH FLOWS CONNECT TO EXISTING CATCH BASIN
LEGEND
PROPERTY LINE
EXISTING STORM DRAIN
PROPOSED STORM DRAIN
BMP DRAINAGE AREA BOUNDARY
PROPOSED COMMON AREA LANDSCAPING
PROPOSED BUILDING
STREET SWEEPING PRIVATE STREETS & PARKING LOTS
PROPOSED DETENTION SYSTEM FOR 2-YEAR FLOWS
PROPOSED DRYWELL
PROPOSED PRE-TREATMENT (HYDRODYNAMIC SEPARATOR)
CATCH BASIN STENCILING & MAINTENANCE
TRASH ENCLOSURE
DIRECTION OF SURFACE FLOW
DIRECTION OF PIPED FLOW
DMA 1
X.X AC
DRAINAGE MANAGEMENT AREA AND ACREAGE
60' 0' 30' 60'
SCALE: 1" = 60'
FUSCOE
Scale: 1" = 60'
Exhibit Date: 07/10/2020
PRELIMINARY WATER QUALITY MANAGEMENT PLAN
PLACENTIA SENIOR HOUSING
PLACENTIA, CA

The MaxWell® IV

DRAINAGE SYSTEM DETAILS AND SPECIFICATIONS

1314 N Angelina Drive - DRAFT

Placentia, CA



ITEM NUMBERS

1. **MANHOLE CONE** - MODIFIED FLAT BOTTOM.

2. **BOLTED RING & GRATE/COVER** - DIAMETER & TYPE AS SHOWN. CLEAN CAST IRON WITH WORDING **"STORM WATER ONLY"** IN RAISED LETTERS. **BOLTED IN 2 LOCATIONS** AND SECURED TO CONE WITH MORTAR. RIM ELEVATION ±0.02' OF PLANS.

3. **STABILIZED BACKFILL** - TWO-SACK SLURRY MIX FROM BOTTOM OF SLURRY TO 5' BELOW GRADE AROUND CHAMBER. SIX-SACK SLURRY MIX FROM 5' BELOW GRADE TO GRADE AROUND CHAMBER.

4. **PRE-CAST LINER -** 4000 PSI CONCRETE 48" ID. X 54" OD. **CENTER IN HOLE** AND ALIGN SECTIONS **TO MAXIMIZE BEARING SURFACE.**

5. **INLET PIPE/OUTLET PIPE (BY OTHERS).** SEE SEPARATE PLAN FOR INVERT ELEVATIONS.

6. **GRADED BASIN OR PAVING** (BY OTHERS).

7. **COMPACTED BASE MATERIAL**, IF REQUIRED (BY OTHERS).

8. **FREEBOARD DEPTH VARIES** WITH INLET PIPE ELEVATION. INCREASE SETTLING CHAMBER DEPTH AS NEEDED TO MAINTAIN ALL INLET PIPE ELEVATIONS ABOVE RISER PIPE.

9. **NON-WOVEN GEOTEXTILE SLEEVE** - MIRAFI 140 NL. MIN. 6 FT Ø. HELD APPROX. 10 FEET OFF THE BOTTOM OF EXCAVATION.

10. **PUREFLO® DEBRIS SHIELD** - ROLLED 16 GA. STEEL X 24" LENGTH WITH VENTED ANTI-SIPHON AND INTERNAL 0.265" MAX. SWO FLATTENED EXPANDED STEEL SCREEN X 12" LENGTH. **FUSION BONDED EPOXY COATED**.

11. **MIN. 6' Ø DRILLED SHAFT.**

12. **RISER PIPE** - SCH. 40 PVC MATED TO DRAINAGE PIPE AT BASE SEAL.

13. **DRAINAGE PIPE** - ADS HIGHWAY GRADE OR SCH. 40 PVC WITH TRI-A COUPLER. SUSPEND PIPE DURING BACKFILL OPERATIONS. DIAMETER AS NOTED.

14. **ROCK** - WASHED, SIZED BETWEEN 3/8" AND 1-1/2".

15. **FLOFAST® DRAINAGE SCREEN** - SCH. 40 PVC 0.120" SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. OVERALL LENGTH VARIES, UP TO 120" WITH TRI-B COUPLER.

16. **ABSORBENT** - HYDROPHOBIC PETROCHEMICAL SPONGE. MIN. 128 OZ. CAPACITY. TYPICAL, 2 PER CHAMBER.

17. **FABRIC SEAL** - U.V. RESISTANT GEOTEXTILE - **TO BE REMOVED BY CUSTOMER** AT PROJECT COMPLETION. GRATED ONLY.

18. **MIN 4' Ø DRILLED SHAFT.**

19. **BASE SEAL** - CONCRETE SLURRY.

21. **DRAIN DOWN INTAKE SCREEN** - 6" Ø SCH. 40 PVC 0.120" MODIFIED SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. WRAPPED WITH NON-WOVEN GEOTEXTILE FABRIC. 48" OVERALL LENGTH WITH TRI-B COUPLER.

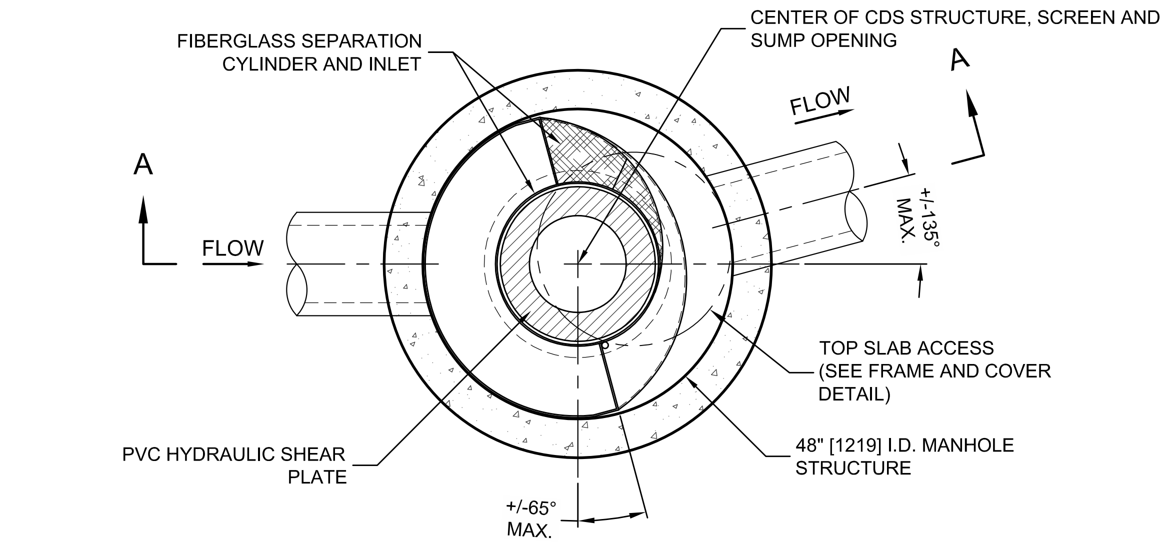
AZ Lic. ROC070465 A, ROC047067 B-4, ADWR 363
CA Lic. 886759, C-42, C-57, HAZ.
Also licensed in the following states: MT, NM, NV, OR, TX, UT, and WA.

U.S. Patent No. 4,923,330 - ™ Trademark 1974, 1990, 2004

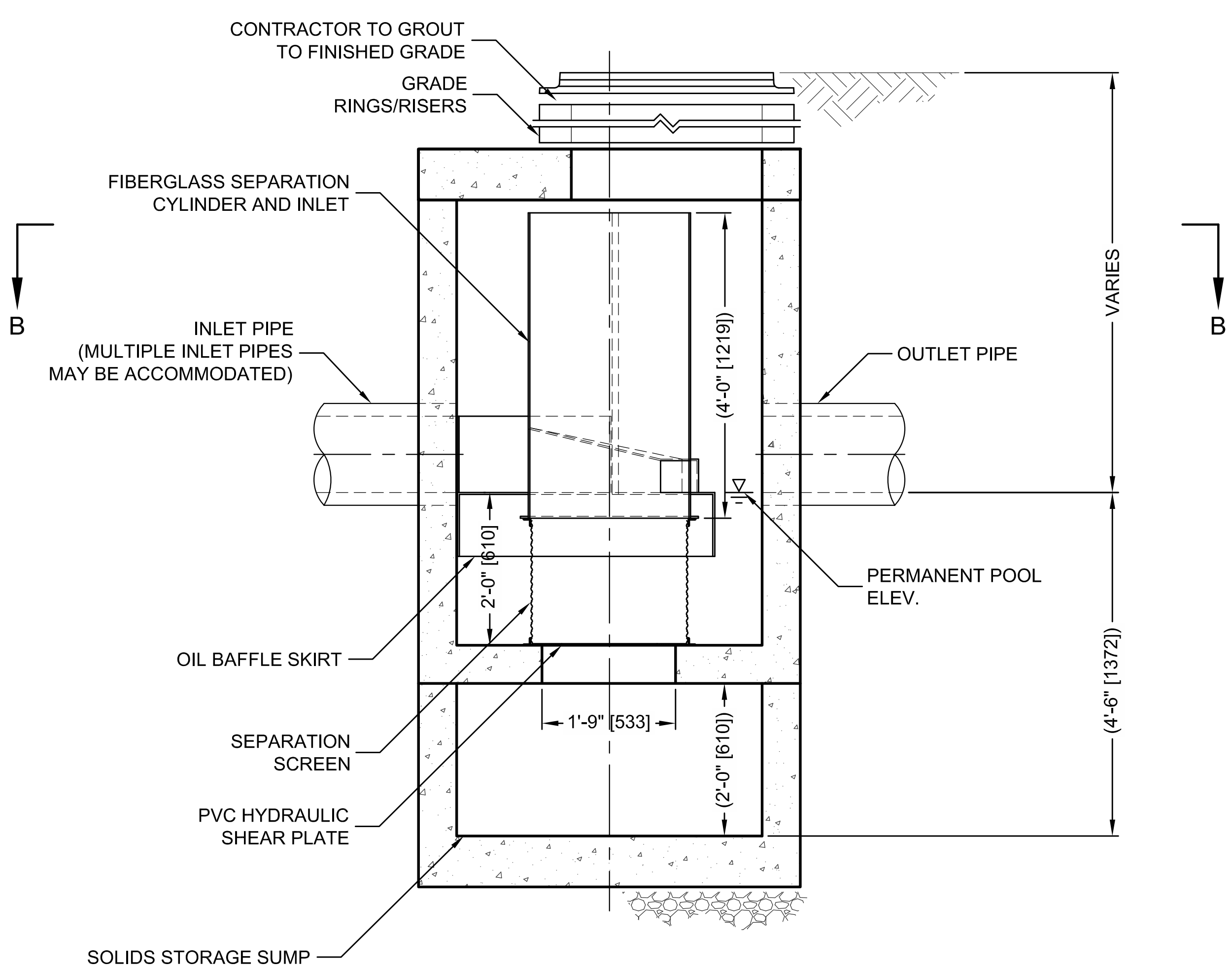
DETAIL : IV-4-SS-OC	REVISED BY: BDJ	
DRAWN ON: 08-28-19	REVISED DATE: 07-01-20	SCALE: N.T.S

Manufactured and Installed by

TORRENT® RESOURCES
An evolution of McGuckin Drilling
www.torrentresources.com
CALIFORNIA 909-829-0740
ARIZONA 602-268-0785



PLAN VIEW B-B
N.T.S.



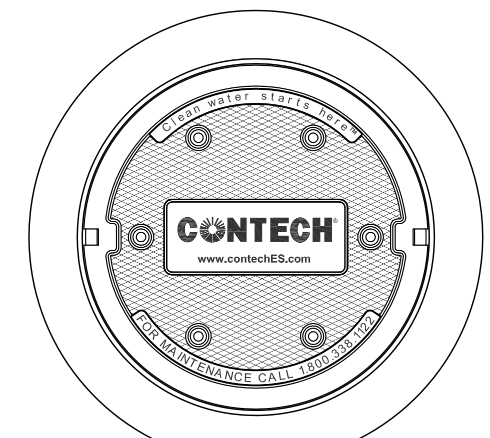
ELEVATION A-A
N.T.S.

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,788,848; 6,641,720; 6,511,595; 6,581,783; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

CDS2015-4-C DESIGN NOTES

THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

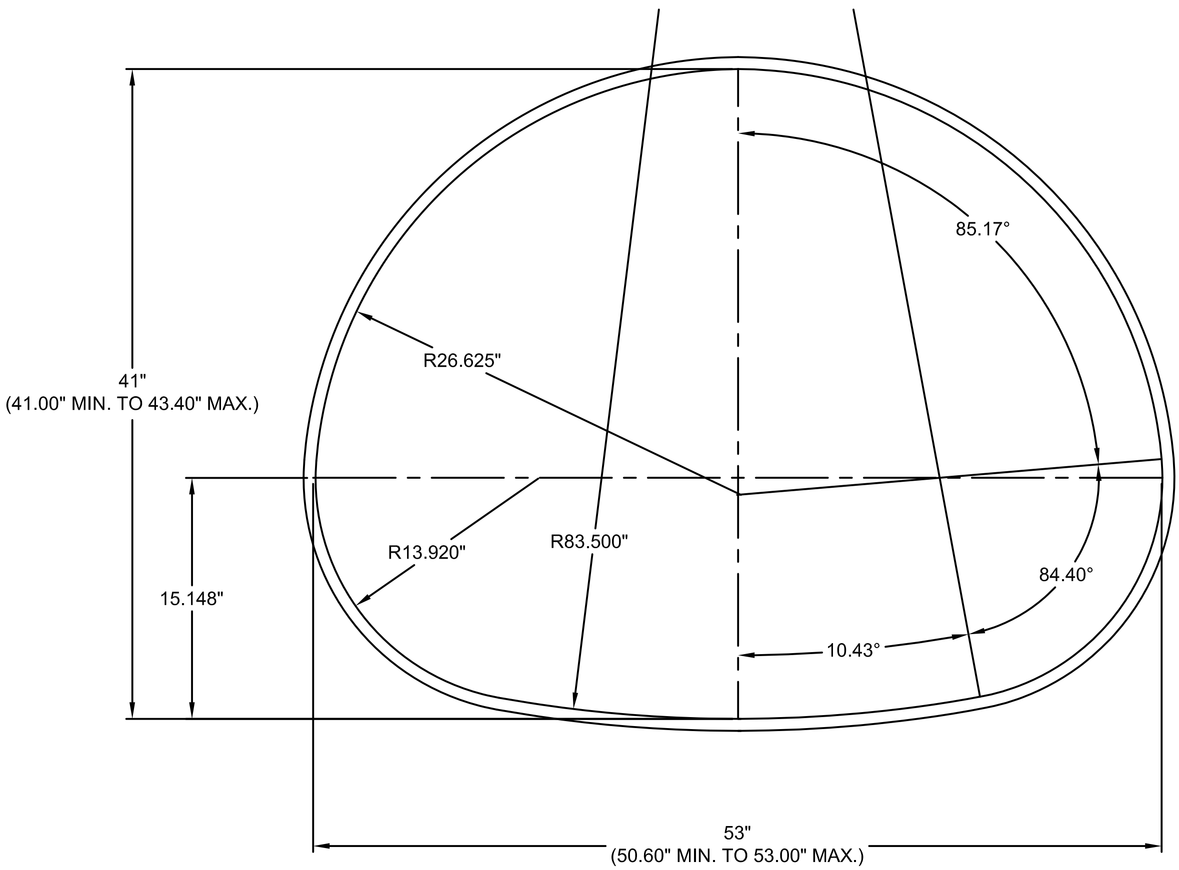
GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH®
ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS2015-4-C
INLINE CDS
STANDARD DETAIL

C:\USERS\SCHLACHTERH\DESKTOP\CDS DETAILS 180 MICRON SIZING\ACAD\CDS2015-4-C-DTL.DWG 5/19/2014 5:16 PM



NOMINAL 53" X 41" (48" ROUND EQUIVALENT)

AREA= 12.07 SF

NOTES:
1. ALL DIMENSIONS ARE TO THE INSIDE CORRUGATION CREST UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
3. RISE AND SPAN DIMENSIONS ACCOUNT FOR SPECIFICATION TOLERANCES FROM NOMINAL DIMENSIONS. (AASHTO M 36 STEEL, M 196 ALUMINUM, ASTM A 760 STEEL, B 745 ALUMINUM).

643 - CMP (ULTRA FLO) 48IN PA

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH PIPE SOLUTIONS

SHAPE DRAWING
ULTRA FLO CMP PIPE ARCH
48" EQ DIA 53"x41"

DATE DRAWN: 11/18/16	REV #:	REV DATE:	SCALE: N.T.S.	DRAWING TYPE:

XIV.4. Harvest and Use BMP Fact Sheets (HU)

HU-1: Above-Ground Cisterns

Cisterns are large rain barrels. While rain barrels are less than 100 gallons, cisterns range from 100 to more than 10,000 gallons in capacity. Cisterns collect and temporarily store runoff from rooftops for later use as irrigation and/or other non-potable uses. The following components are generally required for installing and utilizing a cistern: (1) pipes that divert rooftop runoff to the cistern, (2) an overflow for when the cistern is full, (3) a pump, and (4) a distribution system to supply the intended end uses.

Above-Ground Cisterns
Source: Sunset Publishing Corporation

Feasibility screening consideration, opportunity criteria, design criteria, etc. for this BMP are listed below under HU-2: Underground Detention.

HU-2: Underground Detention

Underground detention facilities are subsurface tanks, vaults, or oversized pipes that store stormwater runoff. Similar to cisterns, underground detention facilities can store water for later use as irrigation and/or other non-potable uses.

Underground detention tank
Source: www.webtecgeos.com

Feasibility Screening Considerations

≠ The primary feasibility considerations for harvest and use systems for stormwater management is the presence of consistent and reliable demand that is sufficient to drain the systems relatively quickly between storms. **Appendix X** provides guidance for calculating harvested water demand.

≠ Use of harvested water should not conflict with applicable plumbing and health codes at the time of project application.

Opportunity Criteria

≠ Cisterns may collect rooftop runoff, and if located underground, may collect ground-level runoff.

≠ Cisterns may be installed in any type of land use provided space is available and adequate water demand exists.

≠ Stored water may supply non-potable water use demands such as irrigation and toilet flushing.

≠ Cisterns and underground detention facilities may also be used for peak flow control if active storage volume and hydraulic controls are provided above the retained storage or systems are operated with advanced controllers.

OC-Specific Design Criteria and Considerations for Above-Ground Cisterns

☐ Cistern systems should include prescreening in the form of screens on gutters and downspouts to remove vegetative debris and sediment from the runoff prior to entering the cistern.

- [ ] Above-ground cisterns should be secured in place and comply with applicable building codes.
- [ ] Above-ground cisterns should not be located on uneven or sloped surfaces; if installed on a sloped surface, the base where the cistern will be installed should be leveled and designed for the weight of the filled cistern prior to installation.
- [ ] Child-resistant covers and mosquito screens should be placed on all water entry holes.
- [ ] A first flush diverter may be installed so that initial runoff bypasses the cistern.
- [ ] Above-ground cisterns should be installed in a location with easy access for maintenance or replacement.
- [ ] Plumbing systems should be installed in accordance with the current California Building and Plumbing Codes (CBC – part of California Code of Regulations, Title 24).
- [ ] When a potable water supply line is connected to a cistern system to provide dry-season make-up water, cross-contamination should be prevented by providing a backflow prevention system on the potable water supply line and/or an air gap.
- [ ] In cases where there is non-potable indoor use demand, proper pretreatment measures should be installed such as pre-filtration, cartridge filtration, and/or disinfection.

OC-Specific Design Criteria and Considerations for Underground Cisterns/Detention Systems

- [ ] Access entry covers (36” diameter minimum) should be locking and within 50 feet of all areas of the detention tank.
- [ ] In cases where the detention facility provides sediment containment, the facility should be laid flat and there should be at least ½ foot of dead storage within the tank or vault.
- [ ] Outlet structures should be designed using the 100-year storm as overflow and should be easily accessible for maintenance activities.
- [ ] For detention facilities beneath roads and parking areas, structural requirements should meet H-20 load requirements.
- [ ] In cases where shallow groundwater may cause flotation, buoyant forces should be counteracted with backfill, anchors, or other measures.
- [ ] Underground detention facilities should be installed on consolidated and stable native soil; if the facility is constructed in fill slopes, a geotechnical analysis should be performed to ensure stability.
- [ ] Plumbing systems should be installed in accordance with the current California Building and Plumbing Codes (CBC – part of California Code of Regulations, Title 24).
- [ ] When a potable water supply line is connected to a cistern system to provide dry-season make-up water, cross-contamination should be prevented by providing a backflow prevention system on the potable water supply line and/or an air gap.
- [ ] In cases where there is non-potable indoor reuse demand, proper pretreatment measures should be installed such as pre-filtration, cartridge filtration, and/or disinfection.

Types of Harvested Water Demands

Harvested rainwater can be used for irrigation and other non-potable uses (if local, State, and Federal ordinances allow). The use of captured stormwater allows a reduced demand on the potable water supply.

Irrigation Use

- Subsurface (or drip) irrigation should not require disinfection pretreatment prior to use; other irrigation types, such as spray irrigation, may require additional pretreatment prior to use
- Selecting native and/or drought tolerant plants for landscaped area will reduce irrigation demand, thereby reducing the needed size of the storage facility and the amount of tributary area that can be successfully managed with a harvest and use system.

Indoor Use

- Indoor uses generally require filtration and disinfection and should only be considered if permitted by local, State, or Federal codes and ordinances.
- Domestic uses (single-family uses) may include toilet flushing.
- Offices, commercial developments, and industrial facility indoor uses may use cisterns for toilet and urinal flushing. Demands for these specific land uses are include in Appendix X.
- Pretreatment requirements per local, State, or Federal codes and ordinances should be applied

Other Non-Potable Uses

- Other non-potable uses may include vehicle/equipment washing, evaporative cooling, industrial processes, and dilution water for recycled water systems (if local, State, and Federal ordinances allow)
- Pretreatment requirements per local, State, or Federal codes and ordinances should be applied

Harvested Water Demand Calculations and Feasibility Thresholds

Appendix X provides guidance for estimating harvesting water demand and determining whether demand is potentially sufficient to provide a significant benefit for stormwater management.

Simple Sizing Method for Cisterns

If the Simple Design Capture Volume Sizing Method described in **Appendix** III.3.1 is used to size harvest and use systems, the user calculates the DCV and determines whether demand is sufficient to drain the tank in 48 hours following the end of rainfall. The sizing steps are as follows:

Step 1: Determine Cistern DCV

Calculate the DCV using the Simple Design Capture Volume Sizing Method described in **Appendix** III.3.1. This is the required cistern size.

Step 2: Determine the 48-hour Required Demand

Calculate the daily demand needed to draw down the DCV in 48 hours using the following equation:

$$Demand_{48} = (DCV/2)*7.48$$

Where:

$Demand_{48}$ = daily demand required (gal/day)

DCV = design capture volume, cu-ft

Use the guidance in Appendix X determine the non-potable uses needed to generate the required demand.

Designing Cisterns to Achieve the Maximum Feasible Retention Volume

It is rare that cisterns can be sized to capture the full DCV and use this volume in 48 hours. However, if the demand exceeds minimum harvested water demand thresholds, cisterns should be sized to achieve at least 40 percent capture of average annual runoff volume.

Step 1: Determine if the Project Meets the Minimum Harvested Water Demand Thresholds

Determine the Project's design capture storm depth, then use the TUTIA thresholds table (Appendix X) for indoor uses, or the Irrigated Area thresholds table (Appendix X) for outdoor uses, to determine whether the project meets the minimum harvested water demand thresholds. If the project does not meet the minimum harvested water demand thresholds, harvest and use does not meet the minimum incremental benefit required to such that its use must be evaluated. .

If the project meets or exceeds the minimum harvested water demand thresholds, continue to Step 2 **or** Step 3 (equally-allowable pathways).

Step 2: Iteratively Determine the Cistern Volume for 80 percent capture of average annual stormwater runoff volume

Cisterns can be sized using the Capture Efficiency Method for Volume-Based, Constant Drawdown BMPs (See **Appendix** III.3.2). This approach requires an iterative sizing process in which the user selects the initial cistern size and the project harvested water demand, then calculates the time required for the cistern to drain. Based on the drain time, the cistern size is increased or decreased and the calculations are done again until the initially assumed size and the required size are within 10 percent.

a. Calculate wet season harvested water demand using guidance contained in Appendix X.
b. Select cistern size in terms of the design rainfall depth.
c. Calculate the cistern volume using hydrologic method described in **Appendix** III.1.1.
d. Compute the drawdown time of the cistern as:

   Drawdown Time (hr) = [Volume (cu-ft) × 7.48 gal/cu-ft× 24hr/day]/[Demand (gpd)]

e. Based on design rainfall depth and drawdown time using guidance provided in **Appendix III** to calculate long term average capture efficiency.
f. If capture is between 75 and 85 percent, further iterations are not required.
g. If capture is less than 80 percent capture of average annual stormwater runoff volume, return to Step (b) and increase design rainfall depth.
h. If capture is greater than 80 percent, return to Step (b) and increase design rainfall depth.

Step 3: Determine Cistern Volume and Drawdown to Achieve Maximum Practicable Capture Efficiency

The applicant is not required to provide a cistern greater than the DCV to demonstrate that BMPs have been designed to achieve the maximum feasible retention. The following steps should be used to compute the maximum feasible fraction of stormwater than can be retained with harvest and use BMPs:

a. Calculate wet season harvested water demand using guiance contained in Appendix X, accounting for all applicable demands.
b. Calculate the DCV using hydrologic method described in **Appendix** III.1.1 and size the cistern for this volume.

c. Compute the drawdown time of the cistern as:

   Drawdown Time (hr) = [Volume (cu-ft) × 7.48 gal/cu-ft× 24hr/day]/[Demand (gpd)]

d. Based on 1.0 × design capture storm depth and the drawdown time computed in Step I, calculate the long term average capture efficiency using the Capture Efficiency Method for Volume-Based, Constant Drawdown BMPs (See **Appendix** III.3.2).

e. If capture efficiency is less than 40 percent, harvest and use is not required to be considered for use on the project.

f. If capture efficiency is greater than 40 percent, provide a cistern sized for the DCV and provide volume or flowate to treat the remaining volume up to 80 percent total average annual capture using biotreatment BMP.

Configuration for Use in a Treatment Train

≠ Cisterns can be combined into a treatment train to provide enhanced water quality treatment and reductions in the runoff volume and rate. For example, if a green roof is placed upgradient of a cistern, the rate and volume of water flowing to the cistern can be reduced and the water quality enhanced.

≠ Cisterns can be incorporated into the landscape design of a site and can be aesthetically pleasing as well as functional for irrigation purposes.

≠ Treatment of the captured rainwater (i.e. disinfection) may be required depending on the end use of the water.

≠ Cisterns can be designed to overflow to biotreatment BMPs.

Additional References for Design Guidance

Santa Barbara BMP Guidance Manual, Chapter 6: http://www.santabarbaraca.gov/NR/rdonlyres/91D1FA75-C185-491E-A882-49EE17789DF8/0/Manual_071008_Final.pdf

≠ County of Los Angeles Low Impact Development Standards Manual, Chapter 5: http://dpw.lacounty.gov/wmd/LA_County_LID_Manual.pdf

≠ SMC LID Manual (pp 114): http://www.lowimpactdevelopment.org/guest75/pub/All_Projects/SoCal_LID_Manual/SoCalLID_Manual_FINAL_040910.pdf

San Diego County LID Handbook Appendix 4 (Factsheet 26): http://www.sdcounty.ca.gov/dplu/docs/LID-Appendices.pdf

XIV.7. Pretreatment/Gross Solids Removal BMP Fact Sheets (PRE)

PRE-1: Hydrodynamic Separation Device

Hydrodynamic separation devices are inline pretreatment units designed to remove trash, debris, and coarse sediment using screening, gravity settling, and centrifugal forces generated by forcing the influent into a circular motion. Several companies manufacture units with a variety of design components including separate chambers, baffles, sorbent media, screens, and flow control orifices. Therefore, additional constituents may be targeted depending on the design; however, the short residence time and potential for captured materials to be released during high flows limits the acceptable use of this BMP type as a standalone treatment control BMP.

Also known as:

- *Vortex Separators*
- *Swirl Concentrators*
- *Gross solids removal devices (GSRDs)*

Hydrodynamic Separation Device
Source: Contech Stormwater Solution, Inc.

Opportunity Criteria

- Hydrodynamic separation devices are effective for the removal of coarse sediment, trash, and debris, and are useful as pretreatment in combination with other BMP types that target smaller particle sizes. They are most effective in urban areas where coarse sediment, trash, and debris are pollutants of concern.
- Hydrodynamic devices represent a wide range of device types that have different unit processes and design elements (e.g., storage versus flow-through designs, inclusion of media filtration, etc.) that vary significantly within the category. These design features likely have significant effects on BMP performance; therefore, generalized performance data for hydrodynamic devices is not practical.

OC-Specific Design Criteria and Considerations

- [ ] Proprietary hydrodynamic device BMP vendors are constantly updating and expanding their product lines so refer to the latest design guidance from each of the vendors. General guidelines on the performance, operations and maintenance of proprietary devices are provided by the vendors.
- [ ] Operations and maintenance requirements include: clearing trash, debris, and sediment around insert grate and inside chamber, and repairing screens and media if damaged or severely clogged.

Computing Sizing Criteria for Hydrodynamic Devices

- Hydrodynamic separation devices should be adequately sized to pretreat the entire design volume or design flow rate of the downstream BMP.
- The required design flowrate should be calculated based on the Capture Efficiency Method for Flow-based BMPs (See **Appendix III**) to achieve 80 percent capture of the average annual stormwater runoff volume.

Proprietary Hydrodynamic Device Manufacturer Websites

- Table XIV.1 is a list of manufacturers that provide hydrodynamic separation devices. The inclusion of these manufacturers does not represent an endorse of their products. Other devices and manufacturers may be acceptable for pretreatment.

Table XIV.1: Proprietary Hydrodynamic Device Manufacturer Websites

Device	Manufacturer	Website
Rinker In-Line Stormceptor®	Rinker Materials™	www.rinkerstormceptor.com
FloGard® Dual-Vortex Hydrodynamic Separator	KriStar Enterprises Inc.	www.kristar.com
Contech® CDS[a]™	Contech® Construction Products Inc.	www.contech-cpi.com
Contech® Vortechs™	Contech® Construction Products Inc.	www.contech-cpi.com
Contech® Vorsentry™	Contech® Construction Products Inc.	www.contech-cpi.com
Contech® Vorsentry™ HS	Contech® Construction Products Inc.	www.contech-cpi.com
BaySaver BaySeparator	Baysaver Technologies Inc.	www.baysaver.com

Additional References for Design Guidance

- CASQA BMP Handbook for New and Redevelopment: http://www.cabmphandbooks.com/Documents/Development/MP-51.pdf
- Los Angeles County Stormwater BMP Design and Maintenance Manual, Chapter 9: http://dpw.lacounty.gov/DES/design_manuals/StormwaterBMPDesignandMaintenance.pdf

INF-5: Drywell

Also known as:

- *Soakaway Pits*
- *Infiltration Sumps*
- *Rock Sumps*
- *Underground Injection Controls*

Drywell
Source: K&A Enterprises

Drywells are similar to infiltration trenches in their design and function, but generally have a greater depth to footprint area ratio and can be installed at relatively large depths. A drywell is a subsurface storage facility designed to temporarily store and infiltrate runoff, primarily from rooftops or other impervious areas with low pollutant loading. A drywell may be either a small excavated pit filled with aggregate or a prefabricated storage chamber or pipe segment. Drywells can be used to reduce the volume of runoff from roofs and other relatively clean surfaces. While roofs are generally not a significant source of stormwater pollutants, they can be a major contributor of runoff volumes. Therefore, drywells can indirectly enhance water quality by reducing the water quality design volume that must be treated by other, downstream stormwater management facilities. *Note: A drywell is considered a "Class V Injection Wells" under the federal Underground Injection Control (UIC) Program regulated in California by U.S. EPA Region 9. A UIC permit may be required (for details see http://www.epa.gov/region9/water/groundwater/uic-classv.html).*

Feasibility Screening Considerations

- Drywells shall pass infiltration infeasibility screening criteria (**TGD Section 2.4.2.4**) to be considered for use.
- Dry wells provide a more direct pathway for stormwater to groundwater, therefore pose a greater risk to groundwater quality than surface infiltration systems.

Opportunity Criteria

- Drywells may be used to infiltrate roof runoff, either directly or from the overflow from a cistern.
- Soils are adequate for infiltration or can be amended to provide an adequate infiltration rate.
- Space available for pretreatment (biotreatment or treatment control BMP as described below).
- The drywell must be located in native soil; over-excavated by at least one foot in depth and replaced uniformly without compaction.
- Potential for groundwater contamination can be mitigated through isolation of pollutant sources, pretreatment of inflow, and/or demonstration of adequate treatment capacity of underlying soils.
- Infiltration is into native soil, or depth of engineered fill is ≤ 5 feet from the bottom of the facility to native material and infiltration into fill is approved by a geotechnical professional.

OC-Specific Design Criteria and Considerations

- [ ] Must comply with local, state, and federal UIC regulations; a permit may be required.
- [ ] Minimum set-backs from foundations and slopes should be observed

☐ Infiltration should not cause geotechnical concerns related to slope stability, liquefaction, or erosion.

☐ Minimum separation to mounded seasonally high groundwater of 10 feet shall be observed.

☐ Drywells should not receive untreated stormwater runoff, except rooftop runoff. Pretreatment of runoff from other surfaces is necessary to prevent premature failure that results from clogging with fine sediment, and to prevent potential groundwater contamination due to nutrients, salts, and hydrocarbons.

☐ Design infiltration rate should be determined with an infiltration test at each drywell location.

☐ Drywell should be encased by 1 foot of coarse (3/4" to 2 ½"), round river rock on sides and bottom of facility.

☐ Maximum facility depth is 25 feet with the approval of a geotechnical professional; preferred depth less than 10 feet does not require geotechnical approval.

☐ If inlet is an underground pipe, a fine mesh screen should be installed to prevent coarse solids from entering drywell.

☐ An overflow route must be installed for flows that overtop facility.

Sizing Criteria for Drywells

Drywell sizing is highly site-specific. Sizing calculations shall demonstrate via the methods described in Appendix III or via project-specific methods that the system captures and fully discharges the DCV within 48 hours following the end of precipitation, or captures and infiltrates 80 percent of average annual runoff volume.

Configuration for Use in a Treatment Train

- Drywells may be preceded in a treatment train by HSCs in the drainage area, which would reduce the required volume of the drywell.
- Drywells treating any areas other than roof tops must be preceded by a robust biotreatment or conventional treatment capable of addressing all potentially generated pollutants.
- Drywells may be used in conjunction with other infiltration BMPs to increase the infiltration capacity of the entire treatment train system.

Additional References for Design Guidance

- Stormwater Management in Western Washington (Volume III: Hydrologic Analysis and Flow Control Design BMPs) http://www.ecy.wa.gov/pubs/0510031.pdf
- Los Angeles Unified School District (LAUSD) Stormwater Technical Manual, Chapter 4: http://www.laschools.org/employee/design/fs-studies-and-reports/download/white_paper_report_material/Storm_Water_Technical_Manual_2009-opt-red.pdf?version_id=76975850
- City of Portland Stormwater Management Manual (Drywell, page 2-87) http://www.portlandonline.com/bes/index.cfm?c=47954&a=202883
- San Diego County LID Handbook Appendix 4 (Factsheet 25): http://www.sdcounty.ca.gov/dplu/docs/LID-Appendices.pdf
- City of Santa Barbara Storm Water BMP Guidance Manual, Chapter 6: http://www.santabarbaraca.gov/NR/rdonlyres/91D1FA75-C185-491E-A882-49EE17789DF8/0/Manual_071008_Final.pdf

SECTION VII EDUCATIONAL MATERIALS

The educational materials included in this WQMP are provided to inform people involved in future uses, activities, or ownership of the site about the potential pitfalls associated with careless storm water management. "The Ocean Begins at Your Front Door" provides users with information about storm water that is/will be generated on site, what happens when water enters a storm drain, and its ultimate fate, discharging into the ocean. Also included are activities guidelines to educate anyone who is or will be associated with activities that have a potential to impact storm water runoff quality, and provide a menu of BMPs to effectively reduce the generation of storm water runoff pollutants from a variety of activities. The educational materials that may be used for the proposed project are included in Appendix C of this WQMP and are listed below.

EDUCATION MATERIALS			
Residential Materials (http://www.ocwatersheds.com)	**Check If Attached**	**Business Materials (http://www.ocwatersheds.com)**	**Check If Attached**
The Ocean Begins at Your Front Door	☒	Tips for the Automotive Industry	☐
Tips for Car Wash Fund-raisers	☐	Tips for Using Concrete and Mortar	☐
Tips for the Home Mechanic	☐	Tips for the Food Service Industry	☐
Homeowners Guide for Sustainable Water Use	☒	Proper Maintenance Practices for Your Business	☐
Household Tips	☒	**Other Materials (http://www.ocwatersheds.com) (https://www.casqa.org/resources/bmp-handbooks)**	**Check If Attached**
Proper Disposal of Household Hazardous Waste	☒		
Recycle at Your Local Used Oil Collection Center (North County)	☒	DF-1 Drainage System Operation & Maintenance	☒
Recycle at Your Local Used Oil Collection Center (Central County)	☐	R-1 Automobile Repair & Maintenance	☐
Recycle at Your Local Used Oil Collection Center (South County)	☐	R-2 Automobile Washing	☐
Tips for Maintaining Septic Tank Systems	☐	R-3 Automobile Parking	☐
Responsible Pest Control	☒	R-4 Home & Garden Care Activities	☐
Sewer Spill	☐	R-5 Disposal of Pet Waste	☒
Tips for the Home Improvement Projects	☐	R-6 Disposal of Green Waste	☒
Tips for Horse Care	☐	R-7 Household Hazardous Waste	☒
Tips for Landscaping and Gardening	☒	R-8 Water Conservation	☒
Tips for Pet Care	☒	SD-10 Site Design & Landscape Planning	☒
Tips for Pool Maintenance	☐	SD-11 Roof Runoff Controls	☒
Tips for Residential Pool, Landscape and Hardscape Drains	☐	SD-12 Efficient Irrigation	☒
Tips for Projects Using Paint	☐	SD-13 Storm Drain Signage	☒
Tips for Protecting Your Watershed	☒	SD-31 Maintenance Bays & Docs	☐
Other: Children's Brochure	☐	SD-32 Trash Storage Areas	☒

APPENDICES

APPENDIX A

SUPPORTING CALCULATIONS

Table 2.7: Infiltration BMP Feasibility Worksheet

<table>
<tr><th></th><th>Infeasibility Criteria</th><th>Yes</th><th>No</th></tr>
<tr><td>1</td><td>Would Infiltration BMPs pose significant risk for groundwater related concerns? Refer to Appendix VII (Worksheet I) for guidance on groundwater-related infiltration feasibility criteria.</td><td></td><td>X</td></tr>
<tr><td colspan="4">Provide basis:

Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</td></tr>
<tr><td>2</td><td>Would Infiltration BMPs pose significant risk of increasing risk of geotechnical hazards that cannot be mitigated to an acceptable level? (Yes if the answer to any of the following questions is yes, as established by a geotechnical expert):
The BMP can only be located less than 50 feet away from slopes steeper than 15 percent
The BMP can only be located less than eight feet from building foundations or an alternative setback.
A study prepared by a geotechnical professional or an available watershed study substantiates that stormwater infiltration would potentially result in significantly increased risks of geotechnical hazards that cannot be mitigated to an acceptable level.</td><td></td><td>X</td></tr>
<tr><td colspan="4">Provide basis:

Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</td></tr>
<tr><td>3</td><td>Would infiltration of the DCV from drainage area violate downstream water rights?</td><td></td><td>X</td></tr>
<tr><td colspan="4">Provide basis:

Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</td></tr>
</table>

Table 2.7: Infiltration BMP Feasibility Worksheet (continued)

<table>
<tr><th></th><th>Partial Infeasibility Criteria</th><th>Yes</th><th>No</th></tr>
<tr><td>4</td><td>Is proposed infiltration facility located on HSG D soils or the site geotechnical investigation identifies presence of soil characteristics which support categorization as D soils?</td><td>X</td><td></td></tr>
<tr><td colspan="4">Provide basis:

The site has type D and B soils present. The Geotech performed drywell modeling and found infiltration to be feasible at deeper depths. The use of a dry well is not anticipated to result in worsening any adverse conditions or hazards that may be present for the proposed site development or adjacent properties including subsidence, land sliding, or liquefaction.

Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</td></tr>
<tr><td>5</td><td>Is measured infiltration rate below proposed facility less than 0.3 inches per hour? This calculation shall be based on the methods described in Appendix VII.</td><td></td><td>X</td></tr>
<tr><td colspan="4">Provide basis:

Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</td></tr>
<tr><td>6</td><td>Would reduction of over predeveloped conditions cause impairments to downstream beneficial uses, such as change of seasonality of ephemeral washes or increased discharge of contaminated groundwater to surface waters?</td><td></td><td>X</td></tr>
<tr><td colspan="4">Provide citation to applicable study and summarize findings relative to the amount of infiltration that is permissible:

Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</td></tr>
<tr><td>7</td><td>Would an increase in infiltration over predeveloped conditions cause impairments to downstream beneficial uses, such as change of seasonality of ephemeral washes or increased discharge of contaminated groundwater to surface waters?</td><td></td><td>X</td></tr>
</table>

Table 2.7: Infiltration BMP Feasibility Worksheet (continued)

<table>
<tr><td colspan="3">Provide citation to applicable study and summarize findings relative to the amount of infiltration that is permissible:

Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</td></tr>
<tr><td colspan="3">Infiltration Screening Results (check box corresponding to result):</td></tr>
<tr><td>8</td><td>Is there substantial evidence that infiltration from the project would result in a significant increase in I&I to the sanitary sewer that cannot be sufficiently mitigated? (See Appendix XVII)

Provide narrative discussion and supporting evidence:

Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.</td><td></td></tr>
<tr><td>9</td><td>If any answer from row 1-3 is yes: infiltration of any volume is not feasible within the DMA or equivalent.

Provide basis:

Summarize findings of infeasibility screening</td><td></td></tr>
</table>

Table 2.7: Infiltration BMP Feasibility Worksheet (continued)

10	If any answer from row 4-7 is yes, infiltration is **permissible but is not presumed to be feasible for the entire DCV.** Criteria for designing biotreatment BMPs to achieve the maximum feasible infiltration and ET shall apply. Provide basis: *Drywells are proposed on the site. The Geotech performed drywell modeling and found infiltration to be feasible at deeper depths. The use of a dry well is not anticipated to result in worsening any adverse conditions or hazards that may be present for the proposed site development or adjacent properties including subsidence, land sliding, or liquefaction.* Summarize findings of infeasibility screening	X
11	If all answers to rows 1 through 11 are no, infiltration of the full DCV is potentially feasible, BMPs must be designed to infiltrate the full DCV to the maximum extent practicable.	

Worksheet I: Summary of Groundwater-related Feasibility Criteria

1	Is project large or small? (as defined by Table VIII.2) circle one	**Large**		Small
2	What is the tributary area to the BMP?	A	4.0	acres
3	What type of BMP is proposed?	Infiltration		
4	What is the infiltrating surface area of the proposed BMP?	A_{BMP}	546.64	sq-ft
5	What land use activities are present in the tributary area (list all) Residential			
6	What land use-based risk category is applicable?	**L**	M	H
7	If M or H, what pretreatment and source isolation BMPs have been considered and are proposed (describe all): Hydrodynamic Separator – Contech CDS or similar			
8	What minimum separation to mounded seasonally high groundwater applies to the proposed BMP? See Section VIII.2 (circle one)	5 ft		**10 ft**
9	Provide rationale for selection of applicable minimum separation to seasonally high mounded groundwater:			
10	What is separation from the infiltrating surface to seasonally high groundwater?	SHGWT	>10	ft
11	What is separation from the infiltrating surface to mounded seasonally high groundwater?	Mounded SHGWT	>10	ft
12	Describe assumptions and methods used for mounding analysis:			

Worksheet I: Summary of Groundwater-related Feasibility Criteria

13	Is the site within a plume protection boundary (See Figure VIII.2)?	Y **N** N/A
14	Is the site within a selenium source area or other natural plume area (See Figure VIII.2)?	Y **N** N/A
15	Is the site within 250 feet of a contaminated site?	Y **N** N/A
16	If site-specific study has been prepared, provide citation and briefly summarize relevant findings:	
17	Is the site within 100 feet of a water supply well, spring, septic system?	Y **N** N/A
18	Is infiltration feasible on the site relative to groundwater-related criteria?	**Y** N
Provide rationale for feasibility determination: *Groundwater was not encountered to a depth of 51.5 feet below ground surface (bgs) during the geotechnical study. Additional review of the Department of Water Resources groundwater level indicates that groundwater for the area is below 150 feet. Albus-Keefe & Associates, Inc. anticipates groundwater will remain below a depth of 100 feet during the next 50 years. Since the project site has deep groundwater and rates exceeded the 0.3 in/hr minimum outlined in the OC TGD, infiltration is considered feasible for the project site.*		

Table VIII.1: Recommendations/Requirements for BMP Selection to Minimize Groundwater Quality Impacts

Tributary Area Risk Category	Narrative Description of Category	Example Land Use Activities	BMP Selection Requirements
Low Runoff Contamination Potential	BMP receives runoff from a mix of land covers that are expected to have relatively clean runoff; significant spills in tributary area are unlikely.	▪ Rooftops with roofing material and downspouts free of copper and zinc ▪ Patios, sidewalks, and other pedestrian areas ▪ Mixed residential land uses with applicable source controls ▪ Institutional land uses with applicable source controls ▪ Driveways and minor streets	▪ Any infiltration BMP type may be used ▪ Pretreatment for sediment is strongly recommended, as applicable, to mitigate clogging
Moderate Runoff Contamination Potential	BMP receives runoff from a mix of land covers, more than 10 percent of which have the potential to generate stormwater pollutants at levels that could potentially contaminate groundwater; there is potential for minor spills in the tributary area.	▪ Roadways greater than 5,000 ADT but less than 25,000 ADT ▪ Commercial and institutional parking lots ▪ Commercial land uses ▪ Light industrial that does not include usage of chemicals that ▪ are mobile in stormwater and groundwater ▪ Trash storage areas	▪ Any infiltration BMP type may be used ▪ Pretreatment shall be used ▪ The type of pretreatment shall be selected to address potential groundwater contaminants potentially found in stormwater runoff.
High Runoff Contamination Potential	BMP receives runoff from a mix of land covers, more than 10 percent of which have significant unavoidable potential to generate stormwater pollutants in quantities that could be detrimental to groundwater quality; and/or there is significant potential for major spills that could drain to BMPs.	▪ Roads greater than 25,000 ADT ▪ Heavy and light industrial pollutant source areas, including areas with exposed industrial activity and high use industrial truck traffic, and any areas that cannot be isolated these areas. Does not include lower risk source sources areas within industrial zones (e.g., roofs, offices, and parking areas) that are hydrologically isolated from industrial pollutant source areas ▪ Automotive repair shops ▪ Car washes ▪ Fleet storage areas ▪ Nurseries, agriculture, and heavily managed landscape areas with extensive use of fertilizer ▪ Fueling stations (infiltration prohibited under all conditions)	Infiltration is prohibited unless advanced pretreatment and spill isolation can be feasibly used and enhanced monitoring and inspection are implemented. Large projects* must evaluate feasibility of advanced pretreatment and spill isolation. Small projects may consider infiltration to be infeasible with narrative discussion

* See Table VII.2 for definition of “Large” and “Small” projects.

Table VIII.2: Definition of Project Site Categories

	Residential	Commercial, Institutional	Industrial
Small Projects	Less than 10 acres and less than 30 DU	Less than 5 acres and less than 50,000 SF	Less than 2 acres and less than 20,000 SF
Large Projects	Greater than 10 acres or greater than 30 DU	Greater than 5 acres or greater than 50,000 SF	Greater than 2 acres or greater than 20,000 SF

VIII.2. Depth to Groundwater and Mounding Potential

Minimum separation between the infiltrating surface (bottom of infiltration facility) and seasonally high mounded groundwater shall be observed in the design of infiltration BMPs, depending on BMP type.

- If the depth to unmounded seasonally high groundwater is greater than 15 feet, the depth to groundwater does not constrain infiltration
- If separation to unmounded seasonally high groundwater is greater than 10-feet and the infiltration area is less than 2,000 sq-ft, the depth to groundwater does not constrain infiltration.
- The separation between the infiltrating surface and the seasonally high mounded groundwater table shall not be less than 5 feet for all BMP types. BMPs for which 5-foot minimum separation applies include:
    - Rain gardens and dispersion trenches (small, residential applications)
    - Bioretention and planters
    - Permeable Pavement
    - Similar BMPs infiltrating over an extensive surface area and providing robust pretreatment or embedded treatment processes.
- Separation to mounded seasonally high groundwater shall be at least 10 feet for infiltration devices that inject water below the subsurface and surface infiltration BMPs with tributary area and land use activities that are considered to pose a more significant risk to groundwater quality. BMPs for which the 10-foot separation applies include:
    - Dry wells
    - Subsurface infiltration galleries or vaults
    - Surface Infiltration Basins
    - Infiltration Trenches
    - Other functionally similar devices or BMPs.

Worksheet B: Simple Design Capture Volume Sizing Method

Project: Placentia Senior Housing

Date: 07/10/2020

		DMA =	DMA 1	
Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.90	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.90	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP(s), *A* (acres)	A=	4.001	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	74.8%	%
3	Calculate runoff coefficient, $C = (0.75 \times imp) + 0.15$	C=	0.711	
4	Calculate runoff volume, $V_{design} = (C \times d_{remainder} \times A \times 43560 \times (1/12))$	V_{design}=	9,293.7	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate				
1	Enter measured infiltration rate, $K_{measured}$ (in/hr) (Appendix VII)	$K_{measured}$=	1.90	in/hr
2	Enter combined safety factor from Worksheet H, S_{final} (unitless)	S_{final}=	2.00	
3	Calculate design infiltration rate, $K_{design} = K_{measured} / S_{final}$	K_{design}=	0.95	in/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=	*See Drywell Sizing*	hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} \times T \times (1/12)$	D_{max}=		feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=		sq-ft

DRAFT

Maxwell® IV Drainage System Calculations Prepared on July 09, 2020

Project: **1314 N Angelina Drive - Placentia, CA**

Contact: Sarah Johnson at Fuscoe - Irvine, CA

Given:

Peak Flow Rate	0.025 CFS	
Safety Factor	2.00	
Design Flow Rate	0.0125 CFS	
Mitigated Volume	9,400 ft^3	
Required Drawdown Time	48 hours	
Depth to Emergency Overflow	5 ft	preliminary assumption
Min. Depth to Infiltration	10 ft	
Groundwater Depth for Design	80 ft	

Proposed:

Drywell Rock Shaft Diameter	4 ft
Drywell Chamber Depth	18 ft
Rock Porosity	40 %
Depth to Infiltration	13 ft
Drywell Bottom Depth	52 ft

Volume of disposal for each drywell based on various time frames are included below.

48 hrs: 0.0125 CFS x 48 hours x $\frac{3600\ sec}{1\ hr}$ = 2,160 cubic feet of retained water disposed of.

Chamber diameter = 4 feet. Drywell rock shaft diameter = 4 feet.

Volume provided in each drywell with chamber depth of 18 feet and a depth to overflow of 5 feet.

$13\ ft \times 12.57\ ft^2 + 2\ ft \times 28.27\ ft^2 \times 40\ \% + 32\ ft \times 12.57\ ft^2 \times 40\ \% = 347\ ft^3$

The MaxWell System is composed of 5 drywell(s) .

Total volume provided = 1,734 ft^3

Total 48 hour infiltration volume = 10,800 ft^3

Total infiltration flowrate = 0.06250 $\frac{ft^3}{sec}$

Based on the total mitigated volume of 9400 CF, after subtracting the volume stored in the MaxWell System, the residual volume of 7666 CF could be stored in a separate detention system and connected to the drywell system.

For any questions, please contact Bill De Jong at 909-915-9490 or via email at BDejong@TorrentResources.com

Torrent Resources (CA) Incorporated
9950 Alder Avenue
Bloomington, CA 92316
Phone 909-829-0740

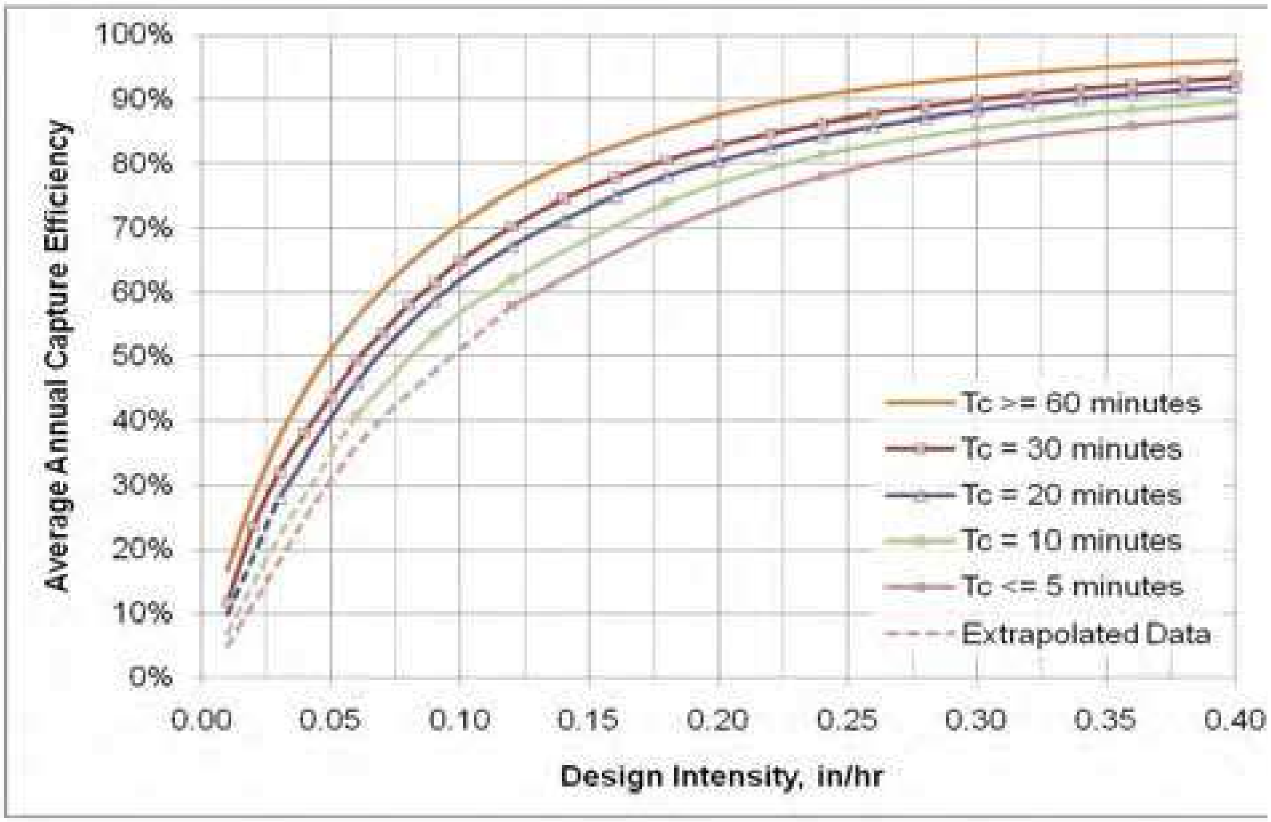
Worksheet D: Capture Efficiency Method for Flow-Based BMPs

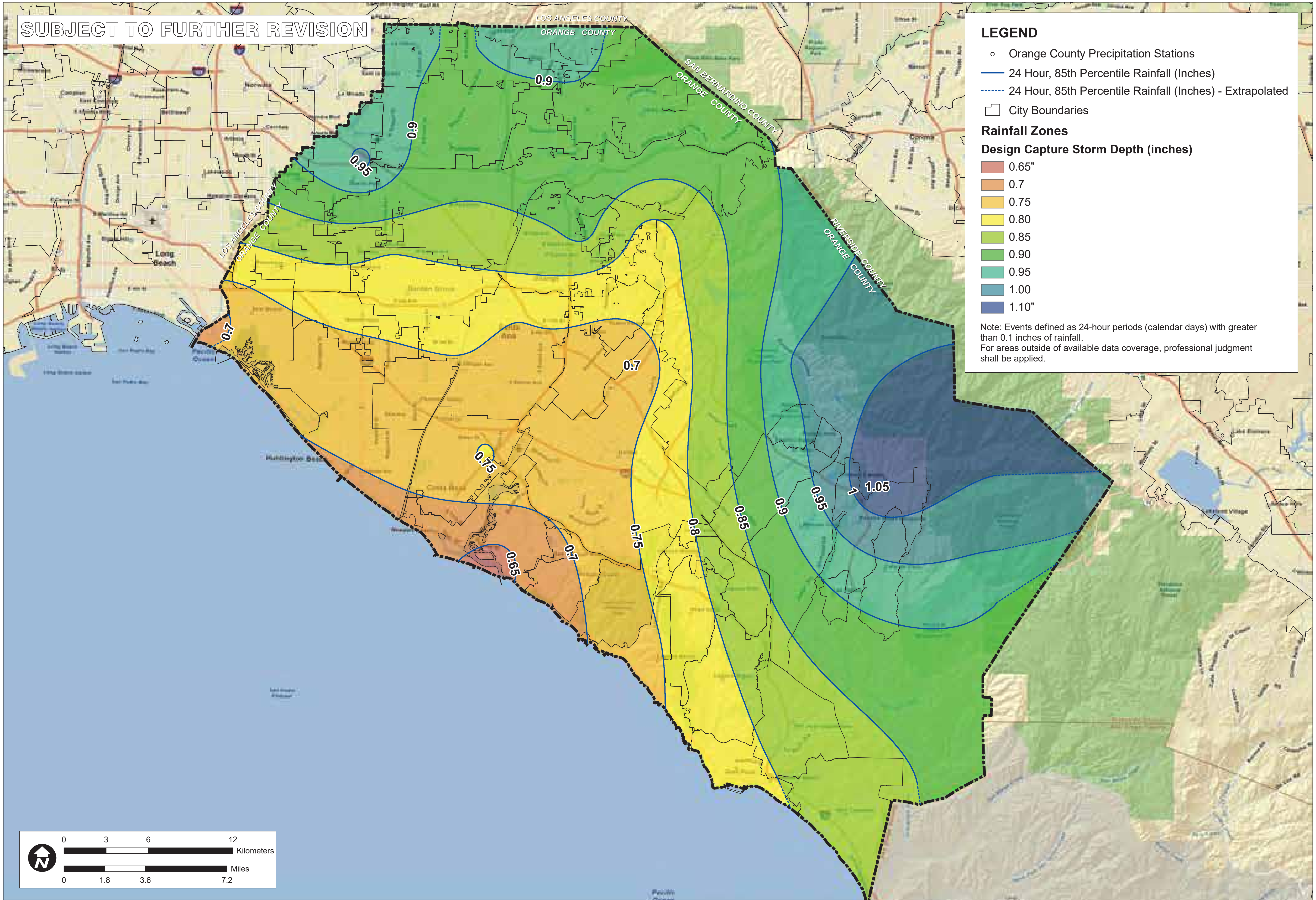
Project: Placentia Senior Housing

Date: 07/10/2020

			DMA 1	
Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter the time of concentration, T_c (min) (See Appendix IV.2)	T_c=	5.0	min
2	Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.260	in/hr
3	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
4	Enter capture efficiency corresponding to d_{HSC}, Y_2 (Worksheet A)	Y_2=	0%	%
5	Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency (Y_2), I_2	I_2=	0	in/hr
6	Determine the design intensity that must be provided by BMP, $I_{design} = I_1 - I_2$	I_{design}=	0.260	in/hr
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP(s), *A* (acres)	A=	4.001	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	74.8%	%
3	Calculate runoff coefficient, $C = (0.75 \times imp) + 0.15$	C=	0.711	
4	Calculate design flowrate, $Q_{design} = (C \times i_{design} \times A)$	Q_{design}=	0.740	cfs
Supporting Calculations				
Describe System:				
	Pre-Treatment Hydrodynamic Separator (PRE-1):			
		Unit Size / Model =	*0*	
		Unit Size / Model Treatment Capacity =	*0.000*	cfs
Provide time of concentration assumptions:				
			5.0	min

Figure III.4. Capture Efficiency Nomograph for Off-line Flow-based Systems in Orange County





P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-1_RainfallZones_20110215.mxd

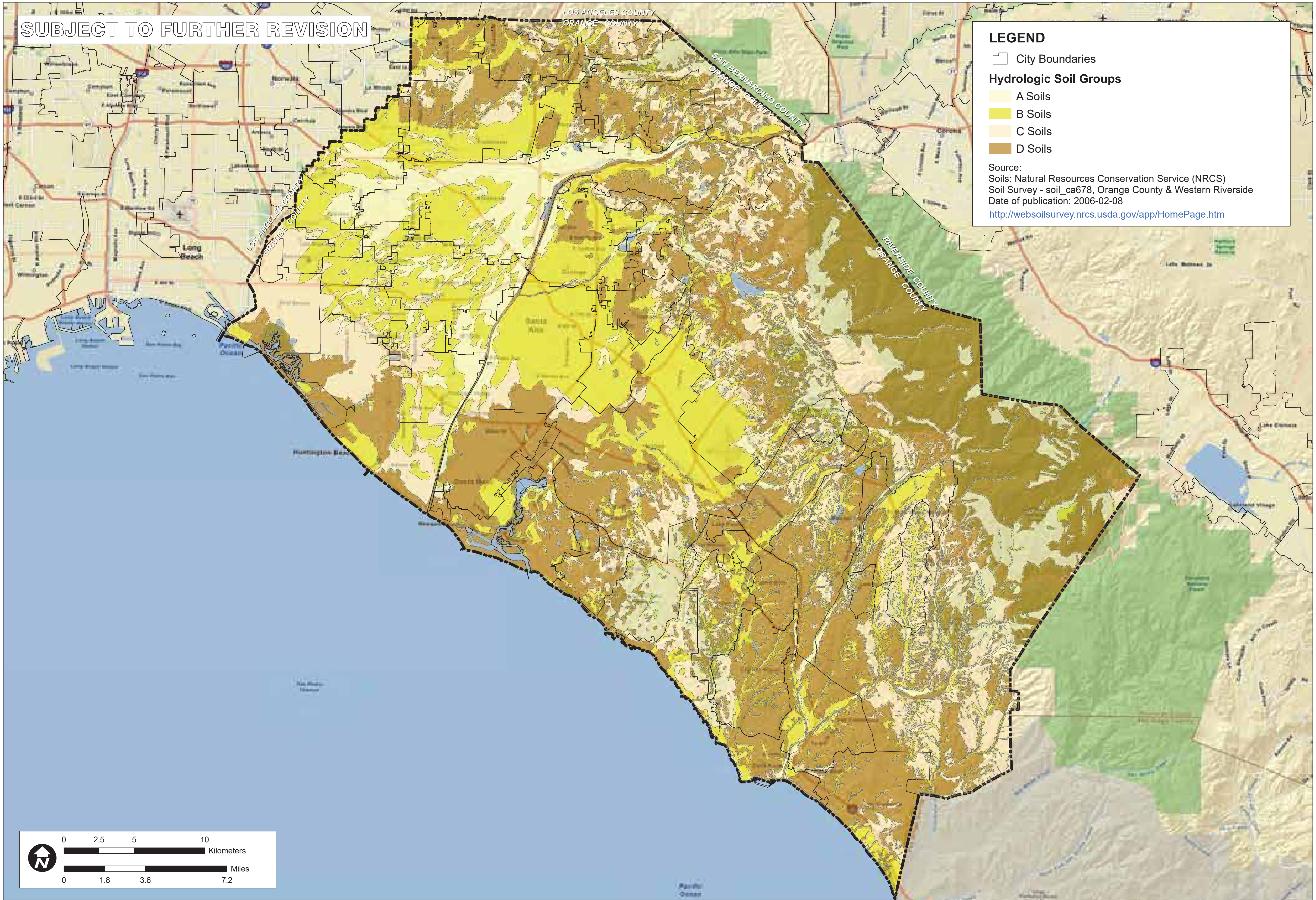
TITLE
RAINFALL ZONES

JOB
ORANGE COUNTY TECHNICAL GUIDANCE DOCUMENT
ORANGE CO. CA

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/22/10
JOB NO.	9526-E

PACE Advanced Water Engineering

FIGURE
XVI-1



TITLE

NRCS HYDROLOGIC SOILS GROUPS

JOB

ORANGE COUNTY INFILTRATION STUDY

ORANGE CO. CA

SCALE 1" = 1.8 miles

DESIGNED TH

DRAWING TH

CHECKED BMP

DATE 02/09/11

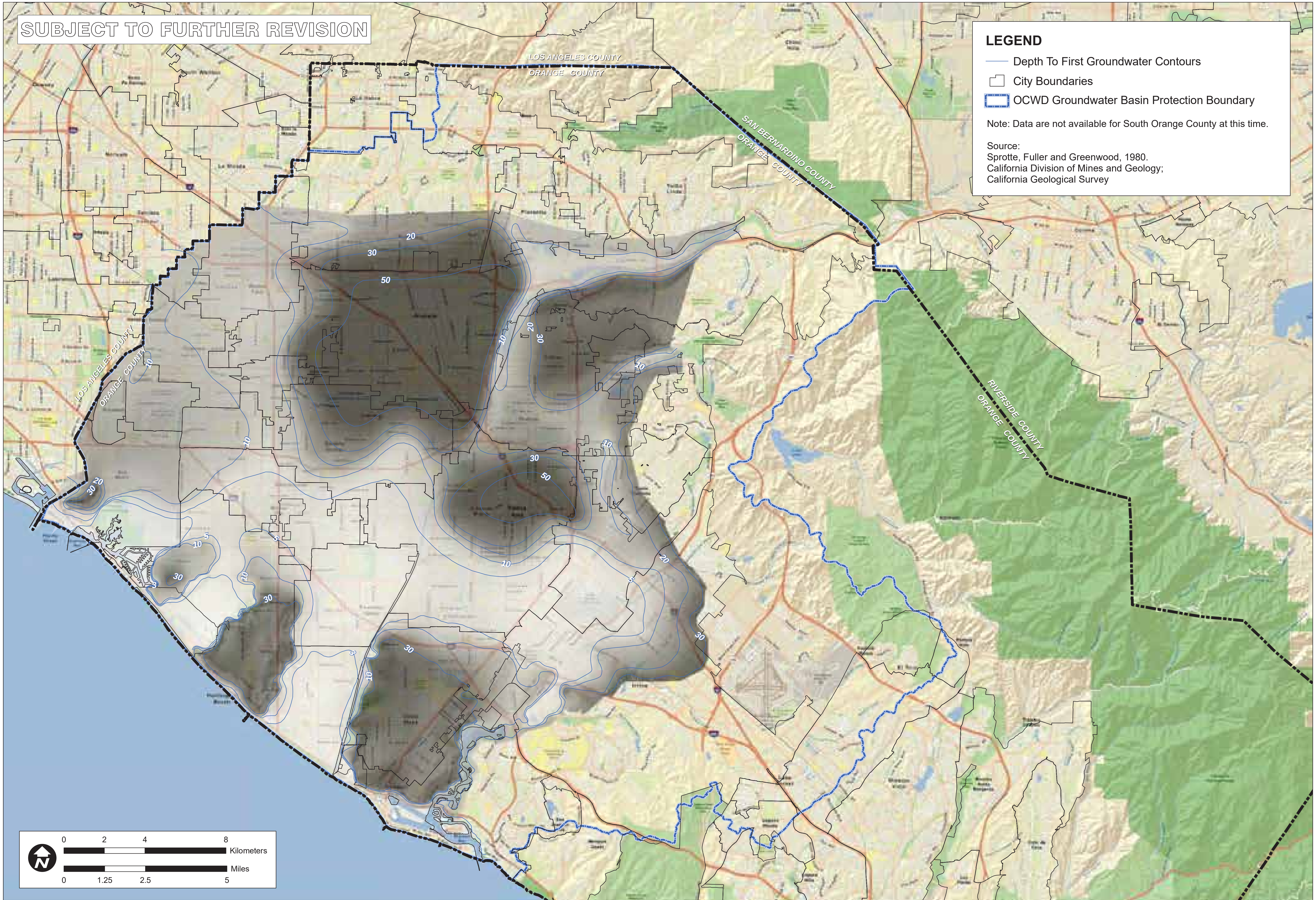
JOB NO. 9526-E

PACE Advanced Water Engineering

FIGURE

XVI-2a

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2a_HydroSoils_20110215.mxd



TITLE
NORTH ORANGE COUNTY MAPPED DEPTH TO FIRST GROUNDWATER

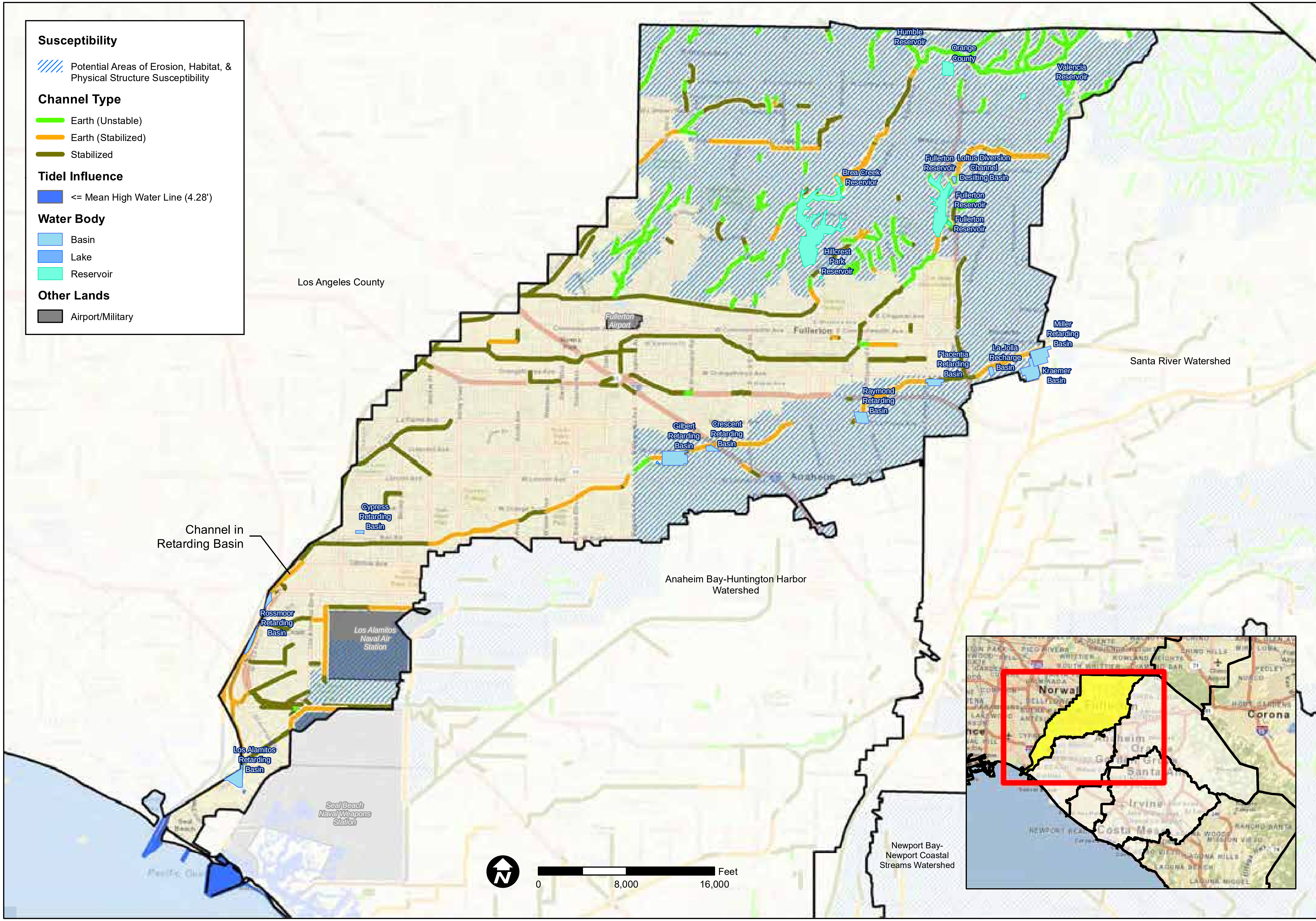
JOB
ORANGE COUNTY INFILTRATION STUDY
ORANGE CO. CA

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE Advanced Water Engineering

FIGURE
XVI-2d

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2d_DepthToGroundwaterOverview_20110215.mxd



TITLE
SUSCEPTIBILITY ANALYIS
SAN GABRIEL-COYOTE CREEK

JOB
ORANGE COUNTY
WATERSHED
MASTER PLANNING

ORANGE CO. CA

SCALE 1" = 8000'
DESIGNED TH
DRAWING TH
CHECKED BMP
DATE 04/30/10
JOB NO. 9526-E

PACE
Advanced Water Engineering

1

P:\9526E\6-GIS\Mxds\SusceptibilityMaps_20100505\9526E_SanGabrielCoyoteCreekSusceptibility_20100430.mxd

APPENDIX B

NOTICE OF TRANSFER OF RESPONSIBILITY

NOTICE OF TRANSFER OF RESPONSIBILITY

WATER QUALITY MANAGEMENT PLAN

Placentia Senior Housing
APN: 340-273-25

Submission of this Notice Of Transfer of Responsibility constitutes notice to the City of Placentia that responsibility for the Water Quality Management Plan ("WQMP") for the subject property identified below, and implementation of that plan, is being transferred from the Previous Owner (and his/her agent) of the site (or a portion thereof) to the New Owner, as further described below.

I. Previous Owner/ Previous Responsible Party Information

Company/ Individual Name:		Contact Person:	
Street Address:		Title:	
City:	State:	ZIP:	Phone:

II. Information about Site Transferred

Name of Project (if applicable):	
Title of WQMP Applicable to site:	
Street Address of Site (if applicable):	
Planning Area (PA) and/ or Tract Number(s) for Site:	Lot Numbers (if Site is a portion of a tract):
Date WQMP Prepared (and revised if applicable):	

III. New Owner/ New Responsible Party Information

Company/ Individual Name:		Contact Person:	
Street Address:		Title:	
City:	State:	ZIP:	Phone:

IV. Ownership Transfer Information

General Description of Site Transferred to New Owner:	General Description of Portion of Project/ Parcel Subject to WQMP Retained by Owner (if any):

Lot/ Tract Numbers of Site Transferred to New Owner:
Remaining Lot/ Tract Numbers Subject to WQMP Still Held by Owner (if any):
Date of Ownership Transfer:

Note: When the Previous Owner is transferring a Site that is a portion of a larger project/ parcel addressed by the WQMP, as opposed to the entire project/parcel addressed by the WQMP, the General Description of the Site transferred and the remainder of the project/ parcel no transferred shall be set forth as maps attached to this notice. These maps shall show those portions of a project/ parcel addressed by the WQMP that are transferred to the New Owner (the Transferred Site), those portions retained by the Previous Owner, and those portions previously transferred by Previous Owner. Those portions retained by Previous Owner shall be labeled as "Previously Transferred".

V. Purpose of Notice of Transfer

The purposes of this Notice of Transfer of Responsibility are: 1) to track transfer of responsibility for implementation and amendment of the WQMP when property to which the WQMP is transferred from the Previous Owner to the New Owner, and 2) to facilitate notification to a transferee of property subject to a WQMP that such New Order is now the Responsible Party of record for the WQMP for those portions of the site that it owns.

VI. Certifications

A. Previous Owner

I certify under penalty of law that I am no longer the owner of the Transferred Site as described in Section II above. I have provided the New Owner with a copy of the WQMP applicable to the Transferred Site that the New Owner is acquiring from the Previous Owner.

Printed Name of Previous Owner Representative:	Title:
Signature of Previous Owner Representative:	Date:

B. New Owner

I certify under penalty of law that I am the owner of the Transferred Site, as described in Section II above, that I have been provided a copy of the WQMP, and that I have informed myself and understand the New Owner's responsibilities related to the WQMP, its implementation, and Best Management Practices associated with it. I understand that by signing this notice, the New Owner is accepting all ongoing responsibilities for implementation and amendment of the WQMP for the Transferred Site, which the New Owner has acquired from the Previous Owner.

Printed Name of New Owner Representative:	Title:
Signature:	Date:

APPENDIX C

EDUCATIONAL MATERIALS

The Ocean Begins at Your Front Door

Even if you live miles from the Pacific Ocean, you may be unknowingly polluting it.

Did You Know?

- Most people believe that the largest source of water pollution in urban areas comes from specific sources such as factories and sewage treatment plants. In fact, the largest source of water pollution comes from city streets, neighborhoods, construction sites and parking lots. This type of pollution is sometimes called "non-point source" pollution.
- There are two types of non-point source pollution: stormwater and urban runoff pollution.
- Stormwater runoff results from rainfall. When rainstorms cause large volumes of water to rinse the urban landscape, picking up pollutants along the way.
- Urban runoff can happen any time of the year when excessive water use from irrigation, vehicle washing and other sources carries trash, lawn clippings and other urban pollutants into storm drains.

Where Does It Go?

- Anything we use outside homes, vehicles and businesses – like motor oil, paint, pesticides, fertilizers and cleaners – can be blown or washed into storm drains.
- A little water from a garden hose or rain can also send materials into storm drains.
- Storm drains are separate from our sanitary sewer systems; unlike water in sanitary sewers (from sinks or toilets), water in storm drains is not treated before entering our waterways.

Sources of Non-Point Source Pollution

- Automotive leaks and spills.
- Improper disposal of used oil and other engine fluids.
- Metals found in vehicle exhaust, weathered paint, rust, metal plating and tires.
- Pesticides and fertilizers from lawns, gardens and farms.
- Improper disposal of cleaners, paint and paint removers.
- Soil erosion and dust debris from landscape and construction activities.
- Litter, lawn clippings, animal waste, and other organic matter.
- Oil stains on parking lots and paved surfaces.

The Effect on the Ocean

Non-point source pollution can have a serious impact on water quality in Orange County. Pollutants from the storm drain system can harm marine life as well as coastal and wetland habitats. They can also degrade recreation areas such as beaches, harbors and bays.

Stormwater quality management programs have been developed throughout Orange County to educate and encourage the public to protect water quality, monitor runoff in the storm drain system, investigate illegal dumping and maintain storm drains.

Support from Orange County residents and businesses is needed to improve water quality and reduce urban runoff pollution. Proper use and disposal of materials will help stop pollution before it reaches the storm drain and the ocean.

Dumping one quart of motor oil into a storm drain can contaminate 250,000 gallons of water.

For More Information

California Environmental Protection Agency
www.calepa.ca.gov

- **Air Resources Board**
  www.arb.ca.gov
- **Department of Pesticide Regulation**
  www.cdpr.ca.gov
- **Department of Toxic Substances Control**
  www.dtsc.ca.gov
- **Integrated Waste Management Board**
  www.ciwmb.ca.gov
- **Office of Environmental Health Hazard Assessment**
  www.oehha.ca.gov
- **State Water Resources Control Board**
  www.waterboards.ca.gov

Earth 911 - Community-Specific Environmental Information 1-800-cleanup or visit www.1800cleanup.org

Health Care Agency's Ocean and Bay Water Closure and Posting Hotline
(714) 433-6400 or visit www.ocbeachinfo.com

Integrated Waste Management Dept. of Orange County (714) 834-6752 or visit www.oclandfills.com for information on household hazardous waste collection centers, recycling centers and solid waste collection

O.C. Agriculture Commissioner
(714) 447-7100 or visit www.ocagcomm.com

Stormwater Best Management Practice Handbook
Visit www.cabmphandbooks.com

UC Master Gardener Hotline
(714) 708-1646 or visit www.uccemg.com

The Orange County Stormwater Program has created and moderates an electronic mailing list to facilitate communications, take questions and exchange ideas among its users about issues and topics related to stormwater and urban runoff and the implementation of program elements. To join the list, please send an email to ocstormwaterinfo-join@list.ocwatersheds.com

Orange County Stormwater Program

Aliso Viejo	(949)	425-2535
Anaheim Public Works Operations	(714)	765-6860
Brea Engineering	(714)	990-7666
Buena Park Public Works	(714)	562-3655
Costa Mesa Public Services	(714)	754-5323
Cypress Public Works	(714)	229-6740
Dana Point Public Works	(949)	248-3584
Fountain Valley Public Works	(714)	593-4441
Fullerton Engineering Dept.	(714)	738-6853
Garden Grove Public Works	(714)	741-5956
Huntington Beach Public Works	(714)	536-5431
Irvine Public Works	(949)	724-6315
La Habra Public Services	(562)	905-9792
La Palma Public Works	(714)	690-3310
Laguna Beach Water Quality	(949)	497-0378
Laguna Hills Public Services	(949)	707-2650
Laguna Niguel Public Works	(949)	362-4337
Laguna Woods Public Works	(949)	639-0500
Lake Forest Public Works	(949)	461-3480
Los Alamitos Community Dev.	(562)	431-3538
Mission Viejo Public Works	(949)	470-3056
Newport Beach, Code & Water Quality Enforcement	(949)	644-3215
Orange Public Works	(714)	532-6480
Placentia Public Works	(714)	993-8245
Rancho Santa Margarita	(949)	635-1800
San Clemente Environmental Programs	(949)	361-6143
San Juan Capistrano Engineering	(949)	234-4413
Santa Ana Public Works	(714)	647-3380
Seal Beach Engineering	(562)	431-2527 x317
Stanton Public Works	(714)	379-9222 x204
Tustin Public Works/Engineering	(714)	573-3150
Villa Park Engineering	(714)	998-1500
Westminster Public Works/Engineering	(714)	898-3311 x446
Yorba Linda Engineering	(714)	961-7138
Orange County Stormwater Program	(877)	897-7455

Orange County 24-Hour
Water Pollution Problem Reporting Hotline
1-877-89-SPILL (1-877-897-7455)

On-line Water Pollution Problem Reporting Form
www.ocwatersheds.com

PROJECT POLLUTION PREVENTION

Printed on Recycled Paper

The Ocean Begins at Your Front Door

Never allow pollutants to enter the street, gutter or storm drain!

Follow these simple steps to help reduce water pollution:

Household Activities

- Do not rinse spills with water. Use dry cleanup methods such as applying cat litter or another absorbent material, sweep and dispose of in the trash. Take items such as used or excess batteries, oven cleaners, automotive fluids, painting products and cathode ray tubes, like TVs and computer monitors, to a Household Hazardous Waste Collection Center (HHWCC).
- For a HHWCC near you call (714) 834-6752 or visit www.oclandfills.com.
- Do not hose down your driveway, sidewalk or patio to the street, gutter or storm drain. Sweep up debris and dispose of it in the trash.

Automotive

- Take your vehicle to a commercial car wash whenever possible. If you wash your vehicle at home, choose soaps, cleaners, or detergents labeled non-toxic, phosphate- free or biodegradable. Vegetable and citrus-based products are typically safest for the environment.
- Do not allow washwater from vehicle washing to drain into the street, gutter or storm drain. Excess washwater should be disposed of in the sanitary sewer (through a sink or toilet) or onto an absorbent surface like your lawn.
- Monitor your vehicles for leaks and place a pan under leaks. Keep your vehicles well maintained to stop and prevent leaks.
- Never pour oil or antifreeze in the street, gutter or storm drain. Recycle these substances at a service station, a waste oil collection center or used oil recycling center. For the nearest Used Oil Collection Center call 1-800-CLEANUP or visit www.1800cleanup.org.

Pool Maintenance

- Pool and spa water must be dechlorinated and free of excess acid, alkali or color to be allowed in the street, gutter or storm drain.
- When it is not raining, drain dechlorinated pool and spa water directly into the sanitary sewer.
- Some cities may have ordinances that do not allow pool water to be disposed of in the storm drain. Check with your city.

Landscape and Gardening

- Do not over-water. Water your lawn and garden by hand to control the amount of water you use or set irrigation systems to reflect seasonal water needs. If water flows off your yard onto your driveway or sidewalk, your system is over-watering. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of waste by composting, hauling it to a permitted landfill, or as green waste through your city's recycling program.
- Follow directions on pesticides and fertilizer, (measure, do not estimate amounts) and do not use if rain is predicted within 48 hours.
- Take unwanted pesticides to a HHWCC to be recycled. For locations and hours of HHWCC, call (714) 834-6752 or visit www.oclandfills.com.

Trash

- Place trash and litter that cannot be recycled in securely covered trash cans.
- Whenever possible, buy recycled products.
- Remember: Reduce, Reuse, Recycle.

Pet Care

- Always pick up after your pet. Flush waste down the toilet or dispose of it in the trash. Pet waste, if left outdoors, can wash into the street, gutter or storm drain.
- If possible, bathe your pets indoors. If you must bathe your pet outside, wash it on your lawn or another absorbent/permeable surface to keep the washwater from entering the street, gutter or storm drain.
- Follow directions for use of pet care products and dispose of any unused products at a HHWCC.

Common Pollutants

Home Maintenance

- Detergents, cleaners and solvents
- Oil and latex paint
- Swimming pool chemicals
- Outdoor trash and litter

Lawn and Garden

- Pet and animal waste
- Pesticides
- Clippings, leaves and soil
- Fertilizer

Automobile

- Oil and grease
- Radiator fluids and antifreeze
- Cleaning chemicals
- Brake pad dust

The Pollution Solution

Several residential activities can result in water pollution. Among these activities are car washing and hosing off driveways and sidewalks. Both activities can waste water and result in excess runoff. Water conservation methods described in this pamphlet can prevent considerable amounts of runoff and conserve water. By taking your car to a commercial car wash and by sweeping driveways and sidewalks, you can further prevent the transport of pollutants to Orange County waterways. Here are some of the common pollutants for which you can be part of the solution:

1 Pesticides and Fertilizer

- **Pollution:** The same pesticides that are designed to be toxic to pests can have an equally lethal impact on our marine life. The same fertilizer that promotes plant growth in lawns and gardens can also create nuisance algae blooms, which remove oxygen from the water and clog waterways when it decomposes.
- **Solution:** Never use pesticides or fertilizer within 48 hours of an anticipated rainstorm. Use only as much as is directed on the label and keep it off driveways and sidewalks.

2 Dirt and Sediment

- **Pollution:** Dirt or sediment can impede the flow of the stormwater and negatively impact stream habitat as it travels through waterways and deposits downstream. Pollutants can attach to sediment, which can then be transported through our waterways.
- **Solution:** Protect dirt stockpiles by covering them with tarps or secure plastic sheets to prevent wind or rain from allowing dirt or sediment to enter the storm drain system.

3 Metals

- **Pollution:** Metals and other toxins present in car wash water can harm important plankton, which forms the base of the aquatic food chain.
- **Solution:** Take your car to a commercial car wash where the wash water is captured and treated at a local wastewater treatment plant.

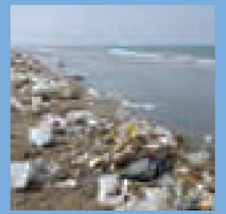
DID YOU KNOW?

Did you know that most of the pollution found in our waterways is not from a single source, but from a "non-point" source meaning the accumulation of pollution from residents and businesses throughout the community

4 Pet Waste

- **Pollution:** Pet waste carries bacteria through our watersheds and eventually will be washed out to the ocean. This can pose a health risk to swimmers and surfers.
- **Solution:** Pick up after your pets!

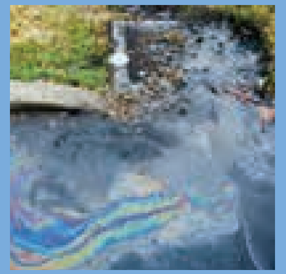
5 Trash and Debris



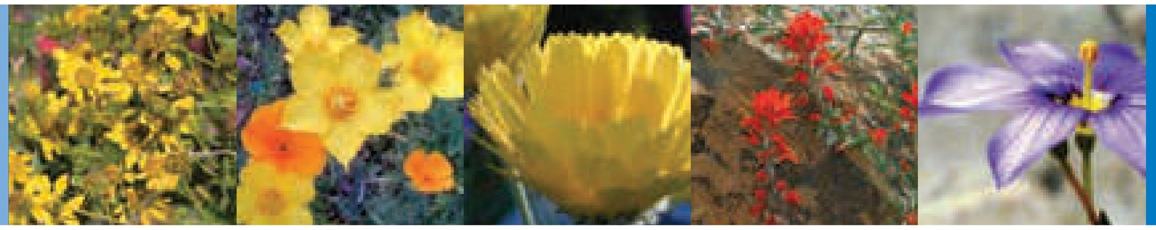
- **Pollution:** Trash and debris can enter waterways by wind, littering and careless maintenance of trash receptacles. Street sweeping collects some of this trash; however, much of what isn't captured ends up in our storm drain system where it flows untreated out to the ocean.
- **Solution:** Don't litter and make sure trash containers are properly covered. It is far more expensive to clean up the litter and trash that ends up in our waterways than it is to prevent it in the first place. Come out to one of Orange County's many locations for Coastal and Inner-Coastal Cleanup Day, which is held in September.

6 Motor Oil / Vehicle Fluids

- **Pollution:** Oil and petroleum products from our vehicles are toxic to people, wildlife and plants.



- **Solution:** Fix any leaks from your vehicle and keep the maintenance up on your car. Use absorbent material such as cat litter on oil spills, then sweep it up and dispose of it in the trash. Recycle used motor oil at a local Household Hazardous Waste Collection Center.



A TEAM EFFORT

The Orange County Stormwater Program has teamed with the Municipal Water District of Orange County (MWDOC) and the University of California Cooperative Extension Program (UCCE) to develop this pamphlet.

Low Impact Development (LID) and sustainable water use prevents water pollution and conserves water for drinking and reuse. Reducing your water use and the amount of water flowing from your home protects the environment and saves you money.

Thank you for making water protection a priority!

For more information, please visit
www.ocwatersheds.com/publiced/

www.mwdoc.com

www.uccemg.com

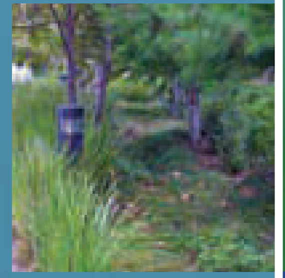
To report a spill, call the Orange County 24-Hour Water Pollution Prevention Reporting Hotline
at 1-877-89-SPILL \ (1-877-897-7455)

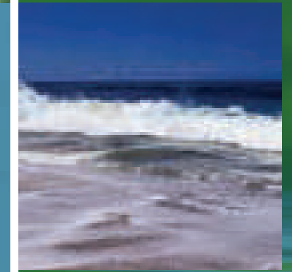
Special Thanks to
The City of Los Angeles Stormwater Program for the use of its artwork

The Metropolitan Water District of Southern California for the use of the California-Friendly Plant and Native Habitat photos

Homeowners Guide for Sustainable Water Use

Low Impact Development, Water Conservation & Pollution Prevention





The Ocean Begins at Your Front Door

RUNOFF, RAINWATER AND REUSE

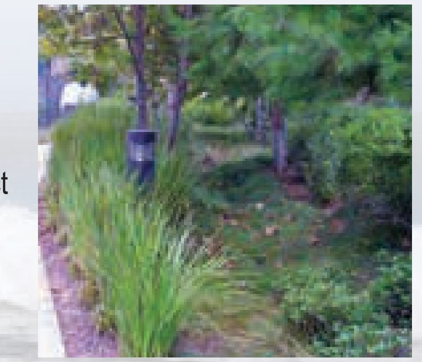
Where Does Water Runoff Go?

Stormwater, or water from rainfall events, and runoff from outdoor water use such as sprinklers and hoses flows from homes directly into catch basins and the storm drain system. After entering the storm drain, the water flows untreated into streams, rivers, bays and ultimately the Pacific Ocean. Runoff can come from lawns, gardens, driveways, sidewalks and roofs. As it flows over hard, impervious surfaces, it picks up pollutants. Some pollutants carried by the water runoff include trash, pet waste, pesticides, fertilizer, motor oil and more.

Water Conservation

Pollution not only impairs the water quality for habitat and recreation, it can also reduce the water available for reuse. Runoff allowed to soak into the ground is cleaned as it percolates through the soil, replenishing depleted groundwater supplies. Groundwater provides at least 50% of the total water for drinking and other indoor household activities in north and central Orange County. When land is covered with roads, parking lots, homes, etc., there is less land to take in the water and more hard surfaces over which the water can flow.

In Orange County, 60-70% of water used by residents and businesses goes to irrigation and other outdoor uses. Reusing rainwater to irrigate our lawn not only reduces the impact of water pollution from runoff, but it also is a great way to conserve our precious water resources and replenish our groundwater basin.



What is Low Impact Development (LID)?

Low Impact Development (LID) is a method of development that seeks to maintain the natural hydrologic character of an area. LID provides a more sustainable and pollution-preventative approach to water management.

New water quality regulations require implementation of LID in larger new developments and encourage implementation of LID and other sustainable practices in existing residential areas. Implementing modifications to your lawn or garden can reduce pollution in our environment, conserve water and reduce your water bill.

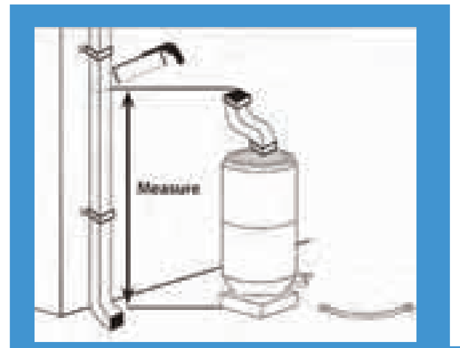
Permeable pavement allows water runoff to infiltrate through the soil and prevents most pollutants from reaching the storm drain system.

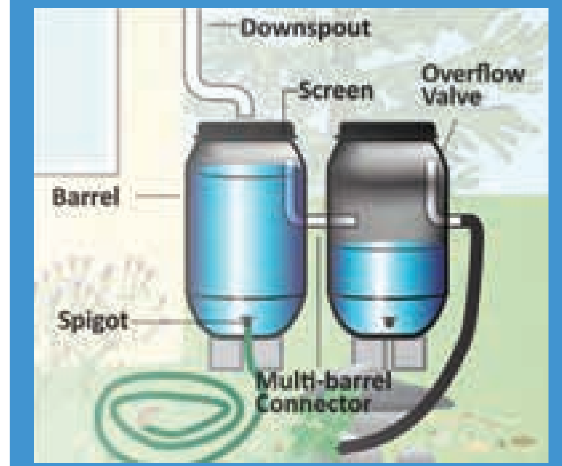
OPTIONS FOR RAINWATER HARVESTING AND REUSE

Rainwater harvesting is a great way to save money, prevent pollution and reduce potable water use. To harvest your rainwater, simply redirect the runoff from roofs and downspouts to rain barrels. Rain gardens are another option; these reduce runoff as well as encourage infiltration.

Downspout Disconnection/Redirection

Disconnecting downspouts from pipes running to the gutter prevents runoff from transporting pollutants to the storm drain. Once disconnected, downspouts can be redirected to rain gardens or other vegetated areas, or be connected to a rain barrel.





Rain Barrels

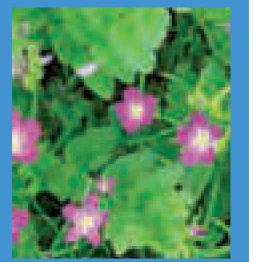
Rain barrels capture rainwater flow from roofs for reuse in landscape irrigation. Capacity of rain barrels needed for your home will depend on the amount of roof area and rainfall received. When purchasing your rain barrel, make sure it includes a screen, a spigot to siphon water for use, an overflow tube to allow for excess water to run out and a connector if you wish to connect multiple barrels to add capacity of water storage.

Mosquito growth prevention is very important when installing a rain barrel. The best way to prevent mosquito breeding is to eliminate entry points by ensuring all openings are sealed tightly. If these methods are unsuccessful, products are available to kill mosquito larvae, but that are harmless to animals and humans. Regular application of these products is essential. Please visit the Orange County Vector Control website for more information at www.ocvcd.org/mosquitoes3.php.

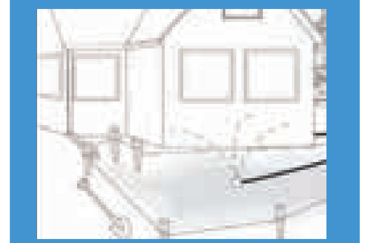
Rain Gardens

Rain gardens allow runoff to be directed from your roof downspout into a landscaped area. Vegetation and rocks in the garden will slow the flow of water to allow for infiltration into the soil. Plants and soil particles will absorb pollutants from the roof runoff. By utilizing a native plant palate, rain gardens can be maintained all year with minimal additional irrigation. These plants are adapted to the semi-arid climate of Southern California, require less water and can reduce your water bill.

Before modifying your yard to install a rain garden, please consult your local building and/or planning departments to ensure your garden plan follows pertinent building codes and ordinances. Besides codes and ordinances, some home owner associations also have guidelines for yard modifications. If your property is in hill areas or includes engineered slopes, please seek professional advice before proceeding with changes.



For information on how to disconnect a downspout or to install and maintain a rain barrel or rain garden at your home, please see the Los Angeles Rainwater Harvesting Program, A Homeowner's "How-To" Guide, November 2009 at www.larainwaterharvesting.org/



OTHER WATER CONSERVATION AND POLLUTION PREVENTION TECHNIQUES

Native Vegetation and Maintenance

"California Friendly" plants or native vegetation can significantly reduce water use. These plants often require far less fertilizers and pesticides, which are two significant pollutants found in Orange County waterways. Replacing water "thirsty" plants and grass types with water efficient natives is a great way to save water and reduce the need for potentially harmful pesticides and fertilizer.

Please see the California Friendly Garden Guide produced by the Metropolitan Water District of Southern California and associated Southern California Water Agencies for a catalog of California friendly plants and other garden resources at www.bewaterwise.com/Gardensoft.

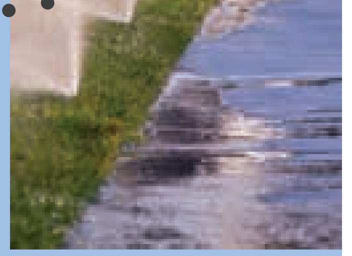
Weed Free Yards

Weeds are water thieves. They often reproduce quickly and rob your yard of both water and nutrients. Weed your yard by hand if possible. If you use herbicides to control the weeds, use only the amount recommended on the label and never use it if rain is forecast within the next 48 hours.

Soil Amendments

Soil amendments such as green waste (e.g. grass clippings, compost, etc.) can be a significant source of nutrients and can help keep the soil near the roots of plants moist. However, they can cause algal booms if they get into our waterways, which reduces the amount of oxygen in the water and impacts most aquatic organisms. It is important to apply soil amendments more than 48 hours prior to predicted rainfall.

IRRIGATE EFFICIENTLY



Water runoff from sprinklers left on too long will carry pollutants into our waterways.

Smart Irrigation Controllers

Smart Irrigation Controllers have internal clocks as well as sensors that will turn off the sprinklers in response to environmental changes. If it is raining, too windy or too cold, the smart irrigation control sprinklers will automatically shut off.

Check with your local water agency for available rebates on irrigation controllers and smart timers.

- Aim your sprinklers at your lawn, not the sidewalk – By simply adjusting the direction of your sprinklers you can save water, prevent water pollution from runoff, keep your lawn healthy and save money.
- **Set a timer for your sprinklers** – lawns absorb the water they need to stay healthy within a few minutes of turning on the sprinklers. Time your sprinklers; when water begins running off your lawn, you can turn them off. Your timer can be set to water your lawn for this duration every time.
- **Water at Sunrise** – Watering early in the morning will reduce water loss due to evaporation. Additionally, winds tend to die down in the early morning so the water will get to the lawn as intended.
- **Water by hand** – Instead of using sprinklers, consider watering your yard by hand. Hand-watering ensures that all plants get the proper amount of water and you will prevent any water runoff, which wastes water and carries pollutants into our waterways.
- **Fix leaks** - Nationwide, households waste one trillion gallons of water a year to leaks – that is enough water to serve the entire state of Texas for a year. If your garden hose is leaking, replace the nylon or rubber hose washer and ensure a tight connection. Fix broken sprinklers immediately.

Do your part to prevent water pollution in our creeks, rivers, bays and ocean.

Clean beaches and healthy creeks, rivers, bays, and ocean are important to Orange County. However, many common household activities can lead to water pollution if you're not careful.

REMEMBER THE WATER IN YOUR STORM DRAIN IS NOT TREATED BEFORE IT ENTERS OUR WATERWAYS

Litter, oil, chemicals and other substances that are left on your yard or driveway can be blown or washed into storm drains that flow to the ocean. Over-watering your lawn and washing your car can also flush materials into the storm drains. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated.

You would never pour soap, fertilizers or oil into the ocean, so don't let them enter streets, gutters or storm drains. Follow the easy tips in this brochure to help prevent water pollution.

For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com**

To report a spill, call the **Orange County 24-Hour Water Pollution Problem Reporting Hotline 1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while performing everyday household activities. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

GENUINE RECYCLED PAPER
50% PRE-CONSUMER AND 15% POST-CONSUMER

RECYCLE USED OIL

Help Prevent Ocean Pollution:

Household Tips

The Ocean Begins at Your Front Door

PROJECT POLLUTION PREVENTION

Pollution Prevention

Household Activities

- **Do not rinse spills with water!** Sweep outdoor spills and dispose of in the trash. For wet spills like oil, apply cat litter or another absorbent material, then sweep and bring to a household hazardous waste collection center (HHWCC).
- Securely cover trash cans.
- Take household hazardous waste to a household hazardous waste collection center.
- Store household hazardous waste in closed, labeled containers inside or under a cover.
- Do not hose down your driveway, sidewalk or patio. Sweep up debris and dispose of in trash.
- Always pick up after your pet. Flush waste down the toilet or dispose of in the trash.
- Bathe pets indoors or have them professionally groomed.

Household Hazardous Wastes include:

- **Batteries**
- **Paint thinners, paint strippers and removers**
- **Adhesives**
- **Drain openers**
- **Oven cleaners**
- **Wood and metal cleaners and polishes**
- **Herbicides and pesticides**
- **Fungicides/wood preservatives**
- **Automotive fluids and products**
- **Grease and rust solvents**
- **Thermometers and other products containing mercury**
- **Fluorescent lamps**
- **Cathode ray tubes, e.g. TVs, computer monitors**
- **Pool and spa chemicals**

Gardening Activities

- Follow directions on pesticides and fertilizers, (measure, do not estimate amounts) and do not use if rain is predicted within 48 hours.
- Water your lawn and garden by hand to control the amount of water you use. Set irrigation systems to reflect seasonal water needs. If water flows off your yard and onto your driveway or sidewalk, your system is over-watering.
- Mulch clippings or leave them on the lawn. If necessary, dispose in a green waste container.
- Cultivate your garden often to control weeds.

Washing and Maintaining Your Car

- Take your car to a commercial car wash whenever possible.
- Choose soaps, cleaners, or detergents labeled "non-toxic," "phosphate free" or "biodegradable." Vegetable and citrus-based products are typically safest for the environment, **but even these should not be allowed into the storm drain.**
- Shake floor mats into a trash can or vacuum to clean.
- Do not use acid-based wheel cleaners and "hose off" engine degreasers at home. They can be used at a commercial facility, which can properly process the washwater.
- **Do not dump washwater onto your driveway, sidewalk, street, gutter or storm drain.** Excess washwater should be disposed of in the sanitary sewers (through a sink, or toilet) or onto an absorbent surface like your lawn.
- Use a nozzle to turn off water when not actively washing down automobile.
- Monitor vehicles for leaks and place pans under leaks. Keep your car well maintained to stop and prevent leaks.
- Use cat litter or other absorbents and sweep to remove any materials deposited by vehicles. Contain sweepings and dispose of at a HHWCC.
- Perform automobile repair and maintenance under a covered area and use drip pans or plastic sheeting to keep spills and waste material from reaching storm drains.
- **Never pour oil or antifreeze in the street, gutter or storm drains.** Recycle these substances at a service station, HHWCC, or used oil recycling center. For the nearest Used Oil Collection Center call 1-800-CLEANUP or visit www.ciwmb.ca.gov/UsedOil.

For locations and hours of Household Hazardous Waste Collection Centers in Anaheim, Huntington Beach, Irvine and San Juan Capistrano, call (714)834-6752 or visit www.oclandfills.com.

Do your part to prevent water pollution in our creeks, rivers, bays and ocean.

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, not properly disposing of household hazardous waste can lead to water pollution. Batteries, electronics, paint, oil, gardening chemicals, cleaners and other hazardous materials cannot be thrown in the trash. They also must never be poured or thrown into yards, sidewalks, driveways, gutters or streets. Rain or other water could wash the materials into the storm drain and eventually into our waterways and the ocean. In addition, hazardous waste must not be poured in the sanitary sewers (sinks and toilets).

NEVER DISPOSE OF HOUSEHOLD HAZARDOUS WASTE IN THE TRASH, STREET, GUTTER, STORM DRAIN OR SEWER.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

To Report Illegal Dumping of Household Hazardous Waste call 1-800-69-TOXIC

To report a spill,
call the
Orange County 24-Hour Water Pollution Problem Reporting Hotline
1-877-89-SPILL (1-877-897-7455).

For emergencies, dial 911.

RECYCLE USED OIL

Printed on Recycled Paper

Help Prevent Ocean Pollution:

Proper Disposal of Household Hazardous Waste

The Ocean Begins at Your Front Door

PROJECT POLLUTION PREVENTION

ORANGE COUNTY

Pollution Prevention

Leftover household products that contain corrosive, toxic, ignitable, or reactive ingredients are considered to be "household hazardous waste" or "HHW." HHW can be found throughout your home, including the bathroom, kitchen, laundry room and garage.

WHEN POSSIBLE, USE NON-HAZARDOUS OR LESS-HAZARDOUS PRODUCTS.

Disposal of HHW down the drain, on the ground, into storm drains, or in the trash is illegal and unsafe.

Proper disposal of HHW is actually easy. Simply drop them off at a Household Hazardous Waste Collection Center (HHWCC) for free disposal and recycling. Many materials including anti-freeze, latex-based paint, motor oil and batteries can be recycled. Some centers have a "Stop & Swap" program that lets you take partially used home, garden, and automobile products free of charge. There are four HHWCCs in Orange County:

Anaheim:..................1071 N. Blue Gum St
Huntington Beach:.........17121 Nichols St
Irvine:........................... 6411 Oak Canyon
San Juan Capistrano:... 32250 La Pata Ave

Centers are open Tuesday-Saturday, 9 a.m.-3 p.m. Centers are closed on rainy days and major holidays. For more information, call **(714) 834-6752** or visit **www.oclandfills.com.**

Common household hazardous wastes

- Batteries
- Paint and paint products
- Adhesives
- Drain openers
- Household cleaning products
- Wood and metal cleaners and polishes
- Pesticides
- Fungicides/wood preservatives
- Automotive products (antifreeze, motor oil, fluids)
- Grease and rust solvents
- Fluorescent lamps
- Mercury (thermometers & thermostats)
- All forms of electronic waste including computers and microwaves
- Pool & spa chemicals
- Cleaners
- Medications
- Propane (camping & BBQ)
- Mercury-containing lamps
- Television & monitors (CRTs, flatscreens)

Tips for household hazardous waste

- Never dispose of HHW in the trash, street, gutter, storm drain or sewer.
- Keep these materials in closed, labeled containers and store materials indoors or under a cover.
- When possible, use non-hazardous products.
- Reuse products whenever possible or share with family and friends.
- Purchase only as much of a product as you'll need. Empty containers may be disposed of in the trash.
- HHW can be harmful to humans, pets and the environment. Report emergencies to 911.

Did you know that just one quart of oil can pollute 250,000 gallons of water?

A clean ocean and healthy creeks, rivers, bays and beaches are important to Orange County. However, not properly disposing of used oil can lead to water pollution. If you pour or drain oil onto driveways, sidewalks or streets, it can be washed into the storm drain. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering the ocean. Help prevent water pollution by taking your used oil to a used oil collection center.

Included in this brochure is a list of locations that will accept up to five gallons of used motor oil at no cost. Many also accept used oil filters. Please contact the facility before delivering your used oil. This listing of companies is for your reference and does not constitute a recommendation or endorsement of the company.

Please note that used oil filters may not be disposed of with regular household trash. They must be taken to a household hazardous waste collection or recycling center in Anaheim, Huntington Beach, Irvine or San Juan Capistrano. For information about these centers, visit www.oclandfills.com.

Please do not mix your oil with other substances!

For more information, please call the Orange County Stormwater Program at 1-877-89-SPILL (1-877-897-7455) or visit www.watersheds.com.

For information about the proper disposal of household hazardous waste, call the Household Waste Hotline at (714) 834-6752 or visit www.oclandfills.com.

RECYCLE USED OIL

For additional information about the nearest oil recycling center, call the Used Oil Program at 1-800-CLEANUP or visit www.cleanup.org.

DTP113 Rev 8/03
printed on recycled paper

Help Prevent Ocean Pollution:

Recycle at Your Local Used Oil Collection Center

The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

NORTH COUNTY

Used Oil Collection Centers

Anaheim

All Seasons Tire and Auto Center, Inc.
817 S Brookhurst St., Anaheim, CA 92804
(714)772-6090( )
CIWMB#: 30-C-03177

AutoZone #3317
423 N Anaheim Blvd., Anaheim, CA 92805
(714)776-0787( )
CIWMB#: 30-C-05263

AutoZone #5226
2145 W Lincoln Ave., Anaheim, CA 92801
(714)533-6599( )
CIWMB#: 30-C-04604

Bedard Automotive
3601 E Miraloma Ave., Anaheim, CA 92806
(714)528-1380( )
CIWMB#: 30-C-02205

Classic Chevrolet
1001 Weir Canyon Rd., Anaheim, CA 92807
(714)283-5400( )
CIWMB#: 30-C-05223

Econo Lube N' Tune #4
3201 W Lincoln Ave., Anaheim, CA 92801
(714)821-0128( )
CIWMB#: 30-C-01485

EZ Lube Inc - Savi Ranch #43
985 N Weir Canyon Rd., Anaheim, CA 92807
(714)556-1312( )
CIWMB#: 30-C-06011

Firestone Store #71C7
1200 S Magnolia Ave., Anaheim, CA 92804
(949)598-5520( )
CIWMB#: 30-C-05743

Great Western Lube Express
125 N Brookhurst St., Anaheim, CA 92801
(714)254-1300( )
CIWMB#: 30-C-05542

HR Pro Auto Service Center
3180 W Lincoln Ave., Anaheim, CA 92801
(714)761-4343( )
CIWMB#: 30-C-05927

Ira Newman Automotive Services
1507 N State College Blvd., Anaheim, CA 92806
(714)635-2392( )
CIWMB#: 30-C-01482

Jiffy Lube #1028
2400 W Ball Rd., Anaheim, CA 92804
(714)761-5211( )
CIWMB#: 30-C-00870

Jiffy Lube #1903
2505 E Lincoln Ave., Anaheim, CA 92806
(714)772-4000( )
CIWMB#: 30-C-05511

Jiffy Lube #2340
2181 W Lincoln Ave., Anaheim, CA 92801
(714)533-1000( )
CIWMB#: 30-C-04647

Kragen Auto Parts #1303
1088 N State College Blvd., Anaheim, CA 92806
(714)956-7351( )
CIWMB#: 30-C-03438

Kragen Auto Parts #1399
2245 W Ball Rd., Anaheim, CA 92804
(714)490-1274( )
CIWMB#: 30-C-04094

Kragen Auto Parts #1565
2072 Lincoln Ave., Anaheim, CA 92806
(714)502-6992( )
CIWMB#: 30-C-04078

Kragen Auto Parts #1582
3420 W Lincoln Ave., Anaheim, CA 92801
(714)828-7977( )
CIWMB#: 30-C-04103

Pep Boys #613
10912 Katella Ave., Anaheim, CA 92804
(714)638-0863( )
CIWMB#: 30-C-01756

Pep Boys #663
3030 W Lincoln Anaheim, CA 92801
(714)826-4810( )
CIWMB#: 30-C-03417

Pep Boys #809
8205 E Santa Ana Cyn Rd., Anaheim, CA 92808
(714)974-0105( )
CIWMB#: 30-C-03443

Pick Your Part
1235 S Beach Blvd., Anaheim, CA 92804
(714)527-1645( )
CIWMB#: 30-C-03744

PK Auto Performance
3106 W. Lincoln Ave., Anaheim, CA 92801
(714)826-2141( )
CIWMB#: 30-C-05628

Quick Change Lube and Oil
2731 W Lincoln Ave., Anaheim, CA 92801
(714)821-4464( )
CIWMB#: 30-C-04363

Saturn of Anaheim
1380 S Auto Center Dr., Anaheim, CA 92806
(714)648-2444( )
CIWMB#: 30-C-06332

Sun Tech Auto Service
105 S State College Blvd., Anaheim, CA 92806
(714)956-1389( )
CIWMB#: 30-C-06455

Vonic Truck Services
515 S Rose St., Anaheim, CA 92805
(714)533-3333( )
CIWMB#: 30-C-01142

Anaheim Hills

Anaheim Hills Car Wash & Lube
5810 E La Palma Ave., Anaheim Hills, CA 92807
(714)777-6605( )
CIWMB#: 30-C-01387

Brea

Firestone Store #27A9
891 E Imperial Hwy., Brea, CA 92821
(714)529-8404( )
CIWMB#: 30-C-01221

Oil Can Henry's
230 N Brea Blvd., Brea, CA 92821
(714)990-1900( )
CIWMB#: 30-C-04273

Buena Park

Firestone Store #71F7
6011 Orangethorpe Buena Park, CA 90620
(714)670-7912( )
CIWMB#: 30-C-01218

Firestone Store #71T8
8600 Beach Blvd., Buena Park, CA 90620
(714)827-5300( )
CIWMB#: 30-C-02121

Kragen Auto Parts #1204
5303 Beach Blvd., Buena Park, CA 90621
(714)994-1320( )
CIWMB#: 30-C-02623

Cypress

AutoZone #5521
5471 Lincoln Ave., Cypress, CA 90630
(714)995-4644( )
CIWMB#: 30-C-00836

Big O Tires
6052 Cerritos Ave., Cypress, CA 90630
(714)826-6334( )
CIWMB#: 30-C-04245

Econo Lube N' Tune #213
5497 Cerritos Ave., Cypress, CA 90630
(714)761-0456( )
CIWMB#: 30-C-06240

Jiffy Lube #851
4942 Lincoln Ave., Cypress, CA 90630
(626)965-9689( )
CIWMB#: 30-C-06182

M & N Coastline Auto & Tire Service
4005 Ball Rd., Cypress, CA 90630
(714)826-1001( )
CIWMB#: 30-C-04387

Masterlube #103
5904 Lincoln Cypress, CA 90630
(714)826-2323( )
CIWMB#: 30-C-01071

Masterlube #104
5971 Ball Rd., Cypress, CA 90630
(714)220-1555( )
CIWMB#: 30-C-04682

Metric Motors of Cypress
6042 Cerritos Ave., Cypress, CA 90630
(714)821-4702( )
CIWMB#: 30-C-05157

Fullerton

AutoZone #2898
146 N. Raymond Ave., Fullerton, CA 92831
(714)870-9772( )
CIWMB#: 30-C-04488

AutoZone #5522
1801 Orangethorpe W. Fullerton, CA 92833
(714)870-8286( )
CIWMB#: 30-C-06062

AutoZone #5523
102 N Euclid Fullerton, CA 92832
(714)870-8286( )
CIWMB#: 30-C-04755

EZ Lube #17
4002 N Harbor Blvd., Fullerton, CA 92835
(714)871-9980( )
CIWMB#: 30-C-03741

Firestone Store #27EH
1933 N Placentia Ave., Fullerton, CA 92831
(714)993-7100( )
CIWMB#: 30-C-02122

Fox Service Center
1018 W Orangethorpe Fullerton, CA 92833
(714)879-1430( )
CIWMB#: 30-C-02318

Fullerton College Automotive Technology
321 E Chapman Ave., Fullerton, CA 92832
(714)992-7275( )
CIWMB#: 30-C-03165

Kragen Auto Parts #0731
2978 Yorba Linda Fullerton, CA 92831
(714)996-4780( )
CIWMB#: 30-C-02628

Kragen Auto Parts #4133
904 W Orangethorpe Ave., Fullerton, CA 92832
(714)526-3570( )
CIWMB#: 30-C-06256

Pep Boys #642
1530 S Harbor Blvd., Fullerton, CA 92832
(714)870-0700( )
CIWMB#: 30-C-01755

Sunnyside 76 Car Care Center
2701 N Brea Blvd., Fullerton, CA 92835
(714)256-0773( )
CIWMB#: 30-C-01381

Garden Grove

76 Pro Lube Plus
9001 Trask Ave., Garden Grove, CA 92844
(714)393-0590( )
CIWMB#: 30-C-05276

AutoZone #5527
13190 Harbor Blvd., Garden Grove, CA 92843
(714)636-5665( )
CIWMB#: 30-C-04760

David Murray Shell
12571 Vly View St., Garden Grove, CA 92845
(714)898-0170( )
CIWMB#: 30-C-00547

Express Lube & Wash
8100 Lampson Ave., Garden Grove, CA 92841
(909)316-8261( )
CIWMB#: 30-C-06544

Firestone Store #7180
10081 Chapman Ave., Garden Grove, CA 92840
(714)530-4630( )
CIWMB#: 30-C-01224

Firestone Store #71W3
13961 Brookhurst St., Garden Grove, CA 92843
(714)590-2741( )
CIWMB#: 30-C-03690

Jiffy Lube #1991
13970 Harbor Blvd., Garden Grove, CA 92843
(714)554-0610( )
CIWMB#: 30-C-05400

Kragen Auto Parts #1251
13933 N Harbor Blvd., Garden Grove, CA 92843
(714)554-3780( )
CIWMB#: 30-C-02663

Kragen Auto Parts #1555
9851 Chapman Ave., Garden Grove, CA 92841
(714)741-8030( )
CIWMB#: 30-C-04079

Nissan of Grarden Grove
9670 Trask Ave., Garden Grove, CA 92884
(714)537-0900( )
CIWMB#: 30-C-06553

Toyota of Garden Grove
9444 Trask Ave., Garden Grove, CA 92844
(714)895-5595( )
CIWMB#: 30-C-06555

La Habra

AutoZone #5532
1200 W Imperial Hwy., La Habra, CA 90631
(562)694-5337( )
CIWMB#: 30-C-04784

Burch Ford
201 N Harbor Blvd., La Habra, CA 90631
(562)691-3225( )
CIWMB#: 30-C-05179

Firestone Store #2736
1071 S Beach Blvd., La Habra, CA 90631
(562)691-1731( )
CIWMB#: 30-C-01169

Kragen Auto Parts #1569
1621 W Whittier Blvd., La Habra, CA 90631
(562)905-2538( )
CIWMB#: 30-C-04076

Pep Boys #997
125 W Imperial Hwy., La Habra, CA 90631
(714)447-0601( )
CIWMB#: 30-C-04026

SpeeDee Oil Change & Tune-Up
1580 W Imperial Hwy., La Habra, CA 90631
(562)697-3513( )

Los Alamitos

Jiffy Lube #1740
3311 Katella Ave., Los Alamitos, CA 90720
(562)596-1827( )
CIWMB#: 30-C-03529

Midway City

Bolsa Transmission
8331 Bolsa Ave., Midway City, CA 92655
(714)799-6158( )
CIWMB#: 30-C-05768

Placentia

Advanced Auto & Diesel
144 S Bradford Placentia, CA 92870
(714)996-8222( )
CIWMB#: 30-C-06242

Castner's Auto Service
214 S. Bradford Ave., Placentia, CA 92870
(714)528-1311( )
CIWMB#: 30-C-06452

Econo Lube N' Tune
100 W Chapman Ave., Placentia, CA 92870
(714)524-0424( )
CIWMB#: 30-C-06454

Fairway Ford
1350 E Yorba Linda Blvd., Placentia, CA 92870
(714)524-1200( )
CIWMB#: 30-C-01863

Seal Beach

M & N Coastline Auto & Tire Service
12239 Seal Beach Blvd., Seal Beach, CA 90740
(714)826-1001( )
CIWMB#: 30-C-04433

Seal Beach Chevron
12541 Seal Beach Blvd., Seal Beach, CA 90740
(949)495-0774(14)
CIWMB#: 30-C-06425

Stanton

AutoZone #2806
11320 Beach Blvd., Stanton, CA 90680
(714)895-7665( )
CIWMB#: 30-C-04563

Joe's Auto Clinic
11763 Beach Blvd., Stanton, CA 90680
(714)891-7715( )
CIWMB#: 30-C-03253

Kragen Auto Parts #1742
11951 Beach Blvd., Stanton, CA 90680
(714)799-7574( )
CIWMB#: 30-C-05231

Scher Tire #20
7000 Katella Ave., Stanton, CA 90680
(714)892-9924( )
CIWMB#: 30-C-05907

USA 10 Minute Oil Change
8100 Lampson Ave., Stanton, CA 92841
(714)373-4432( )
CIWMB#: 30-C-05909

Westminster

AutoZone #5543
6611 Westminster Blvd., Westminster, CA 92683
(714)898-2898( )
CIWMB#: 30-C-04964

AutoZone #5544
8481 Westminster Blvd., Westminster, CA 92683
(714)891-3511( )
CIWMB#: 30-C-04966

City of Westminster Corporate Yard
14381 Olive St., Westminster, CA 92683
(714)895-2876(292)
CIWMB#: 30-C-02008

Honda World
13600 Beach Blvd., Westminster, CA 92683
(714)890-8900( )
CIWMB#: 30-C-03639

Jiffy Lube #1579
6011 Westminster Blvd., Westminster, CA 92683
(714)899-2727( )
CIWMB#: 30-C-02745

John's Brake & Auto Repair
13050 Hoover St., Westminster, CA 92683
(714)379-2088( )
CIWMB#: 30-C-05617

Kragen Auto Parts #0762
6562 Westminster Blvd., Westminster, CA 92683
(714)898-0810( )
CIWMB#: 30-C-02590

Midway City Sanitary District
14451 Cedarwood St., Westminster, CA 92683
(714)893-3553( )
CIWMB#: 30-C-01626

Pep Boys #653
15221 Beach Blvd., Westminster, CA 92683
(714)893-8544( )
CIWMB#: 30-C-03415

Yorba Linda

AutoZone #5545
18528 Yorba Linda Blvd., Yorba Linda, CA 92886
(714)970-8933( )
CIWMB#: 30-C-04971

Econo Lube N' Tune
22270 La Palma Ave., Yorba Linda, CA 92887
(714)692-8394( )
CIWMB#: 30-C-06513

EZ Lube Inc. #41
17511 Yorba Linda Blvd., Yorba Linda, CA 92886
(714)556-1312( )
CIWMB#: 30-C-05739

Firestone Store #27T3
18500 Yorba Linda Blvd., Yorba Linda, CA 92886
(714)779-1966( )
CIWMB#: 30-C-01222

Jiffy Lube #1532
16751 Yorba Linda Blvd., Yorba Linda, CA 92886
(714)528-2800( )
CIWMB#: 30-C-03777

Mike Schultz Import Service
4832 Eureka Ave., Yorba Linda, CA 92886
(714)528-4411( )
CIWMB#: 30-C-04313

This information was provided by the County of Orange Integrated Waste Management Department and the California Integrated Waste Management Board (CIWMB).

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities such as pest control can lead to water pollution if you're not careful. Pesticide treatments must be planned and applied properly to ensure that pesticides do not enter the street, gutter or storm drain. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never dump pesticides into the ocean, so don't let it enter the storm drains. Pesticides can cause significant damage to our environment if used improperly. If you are thinking of using a pesticide to control a pest, there are some important things to consider.

For more information,
please call
University of California Cooperative Extension Master Gardeners at
(714) 708-1646
or visit these Web sites:
www.uccemg.org
www.ipm.ucdavis.edu

For instructions on collecting a specimen sample visit the Orange County Agriculture Commissioner's website at:
http://www.ocagcomm.com/ser_lab.asp

To report a spill, call the
Orange County 24-Hour Water Pollution Problem Reporting Hotline at 1-877-89-SPILL (1-877-897-7455).

For emergencies, dial 911.

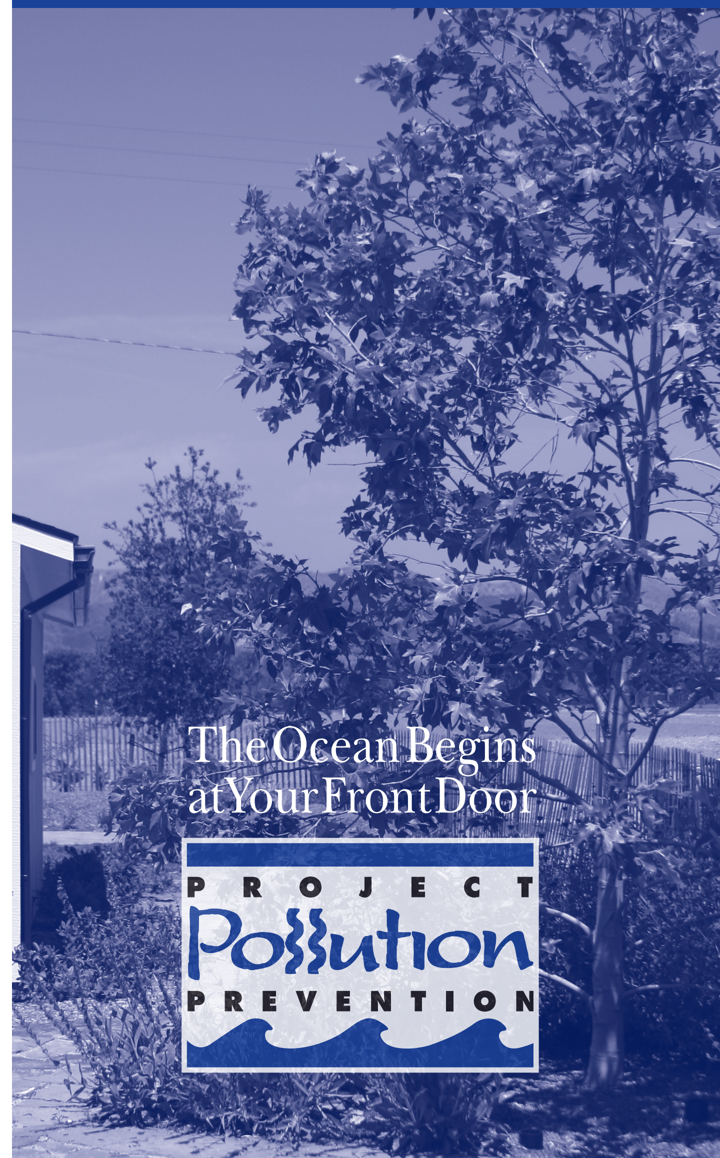
Information From:
Cheryl Wilen, Area IPM Advisor; Darren Haver, Watershed Management Advisor; Mary Louise Flint, IPM Education and Publication Director; Pamela M. Geisel, Environmental Horticulture Advisor; Carolyn L. Unruh, University of California Cooperative Extension staff writer. Photos courtesy of the UC Statewide IPM Program and Darren Haver.

Funding for this brochure has been provided in full or in part through an agreement with the State Water Resources Control Board (SWRCB) pursuant to the Costa-Machado Water Act of 2000 (Prop. 13).

Printed on Recycled Paper

Help Prevent Ocean Pollution:

Responsible Pest Control



Tips for Pest Control

Key Steps to Follow:

Step 1: **Correctly identify the pest (insect, weed, rodent, or disease) and verify that it is actually causing the problem.**

Three life stages of the common lady beetle, a beneficial insect.

This is important because beneficial insects are often mistaken for pests and sprayed with pesticides needlessly.

Consult with a Certified Nursery Professional at a local nursery or garden center or send a sample of the pest to the Orange County Agricultural Commissioner's Office.

Determine if the pest is still present – even though you see damage, the pest may have left.

Step 2: **Determine how many pests are present and causing damage.**

Small pest populations may be controlled more safely using non-pesticide techniques. These include removing food sources, washing off leaves with a strong stream of water, blocking entry into the home using caulking and replacing problem plants with ones less susceptible to pests.

Integrated Pest Management (IPM) usually combines several least toxic pest control methods for long-term prevention and management of pest problems without harming you, your family, or the environment.

UC CE University of California Cooperative Extension

Step 3: **If a pesticide must be used, choose the least toxic chemical.**

Obtain information on the least toxic pesticides that are effective at controlling the target pest from the UC Statewide Integrated Pest Management (IPM) Program's Web site at www.ipm.ucdavis.edu.

Seek out the assistance of a Certified Nursery Professional at a local nursery or garden center when selecting a pesticide. Purchase the smallest amount of pesticide available.

Apply the pesticide to the pest during its most vulnerable life stage. This information can be found on the pesticide label.

Step 4: **Wear appropriate protective clothing.**

Follow pesticide labels regarding specific types of protective equipment you should wear. Protective clothing should always be washed separately from other clothing.

Step 5: **Continuously monitor external conditions when applying pesticides such as weather, irrigation, and the presence of children and animals.**

Never apply pesticides when rain is predicted within the next 48 hours. Also, do not water after applying pesticides unless the directions say it is necessary.

Apply pesticides when the air is still; breezy conditions may cause the spray or dust to drift away from your targeted area.

In case of an emergency call 911 and/or the regional poison control number at (714) 634-5988 or (800) 544-4404 (CA only).

For general questions you may also visit www.calpoison.org.

Step 6: **In the event of accidental spills, sweep up or use an absorbent agent to remove any excess pesticides. Avoid the use of water.**

Be prepared. Have a broom, dust pan, or dry absorbent material, such as cat litter, newspapers or paper towels, ready to assist in cleaning up spills.

Contain and clean up the spill right away. Place contaminated materials in a doubled plastic bag. All materials used to clean up the spill should be properly disposed of according to your local Household Hazardous Waste Disposal site.

Step 7: **Properly store and dispose of unused pesticides.**

Purchase Ready-To-Use (RTU) products to avoid storing large concentrated quantities of pesticides.

Store unused chemicals in a locked cabinet.

Unused pesticide chemicals may be disposed of at a Household Hazardous Waste Collection Center.

Empty pesticide containers should be triple rinsed prior to disposing of them in the trash.

Household Hazardous Waste Collection Center
(714) 834-6752
www.oclandfills.com

PROJECT POLLUTION PREVENTION

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Fertilizers, pesticides and other chemicals that are left on yards or driveways can be blown or washed into storm drains that flow to the ocean. Overwatering lawns can also send materials into storm drains. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never pour gardening products into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

UCCE Master Gardener Hotline:
(714) 708-1646

To report a spill,
call the
Orange County 24-Hour
Water Pollution Problem
Reporting Hotline
1-877-89-SPILL (1-877-897-7455).

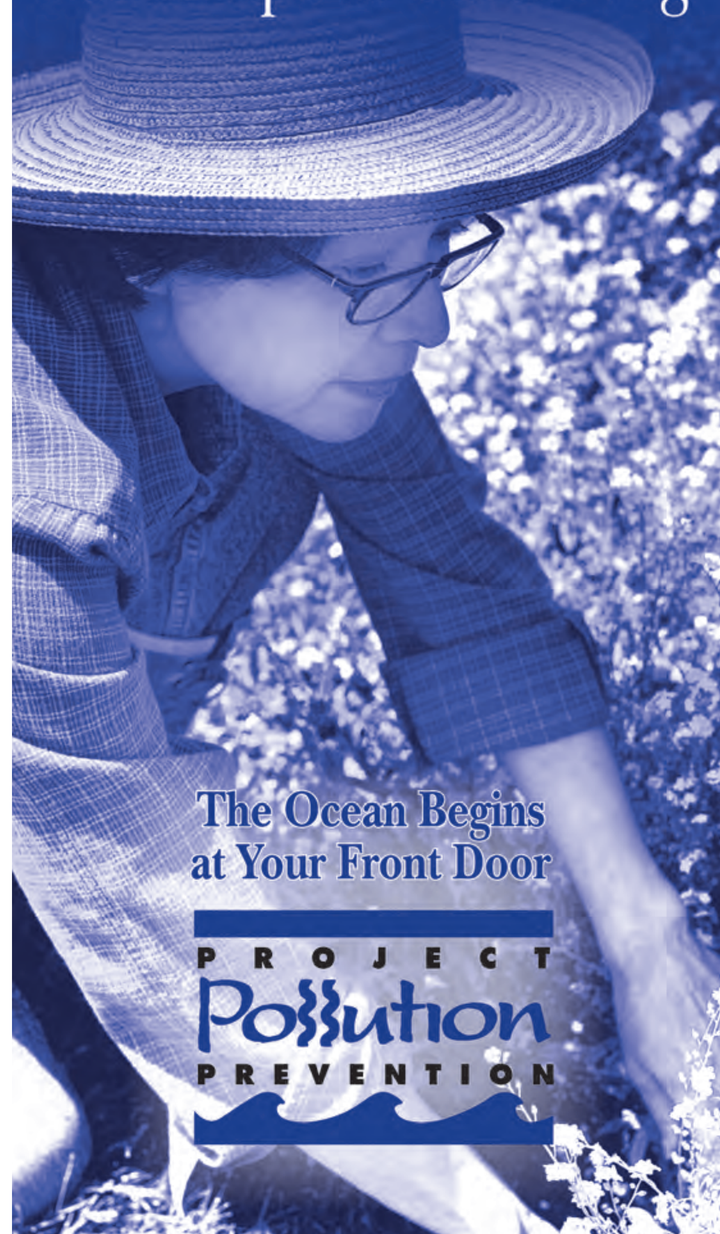
For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while landscaping or gardening. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

Printed on Recycled Paper

Help Prevent Ocean Pollution:

Tips for Landscape & Gardening



The Ocean Begins at Your Front Door

PROJECT
Pollution
PREVENTION

Tips for Landscape & Gardening

Never allow gardening products or polluted water to enter the street, gutter or storm drain.

General Landscaping Tips

- Protect stockpiles and materials from wind and rain by storing them under tarps or secured plastic sheeting.
- Prevent erosion of slopes by planting fast-growing, dense ground covering plants. These will shield and bind the soil.
- Plant native vegetation to reduce the amount of water, fertilizers, and pesticide applied to the landscape.

- Never apply pesticides or fertilizers when rain is predicted within the next 48 hours.

Garden & Lawn Maintenance

- Do not overwater. Use irrigation practices such as drip irrigation, soaker hoses or micro spray systems. Periodically inspect and fix leaks and misdirected sprinklers.

- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of green waste by composting, hauling it to a permitted landfill, or recycling it through your city's program.
- Use slow-release fertilizers to minimize leaching, and use organic fertilizers.
- Read labels and use only as directed. Do not over-apply pesticides or fertilizers. Apply to spots as needed, rather than blanketing an entire area.
- Store pesticides, fertilizers and other chemicals in a dry covered area to prevent exposure that may result in the deterioration of containers and packaging.

- Rinse empty pesticide containers and re-use rinse water as you would use the product. Do not dump rinse water down storm drains. Dispose of empty containers in the trash.
- When available, use non-toxic alternatives to traditional pesticides, and use pesticides specifically designed to control the pest you are targeting. For more information, visit **www.ipm.ucdavis.edu**.
- If fertilizer is spilled, sweep up the spill before irrigating. If the spill is liquid, apply an absorbent material such as cat litter, and then sweep it up and dispose of it in the trash.
- Take unwanted pesticides to a Household Hazardous Waste Collection Center to be recycled. Locations are provided below.

Household Hazardous Waste Collection Centers

Anaheim:	1071 N. Blue Gum St.
Huntington Beach:	17121 Nichols St.
Irvine:	6411 Oak Canyon
San Juan Capistrano:	32250 La Pata Ave.

For more information, call (714) 834-6752 or visit www.oclandfills.com

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Pet waste and pet care products can be washed into the storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never put pet waste or pet care products into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

To report a spill,
call the
Orange County 24-Hour Water Pollution Problem Reporting Hotline
1-877-89-SPILL (1-877-897-7455).

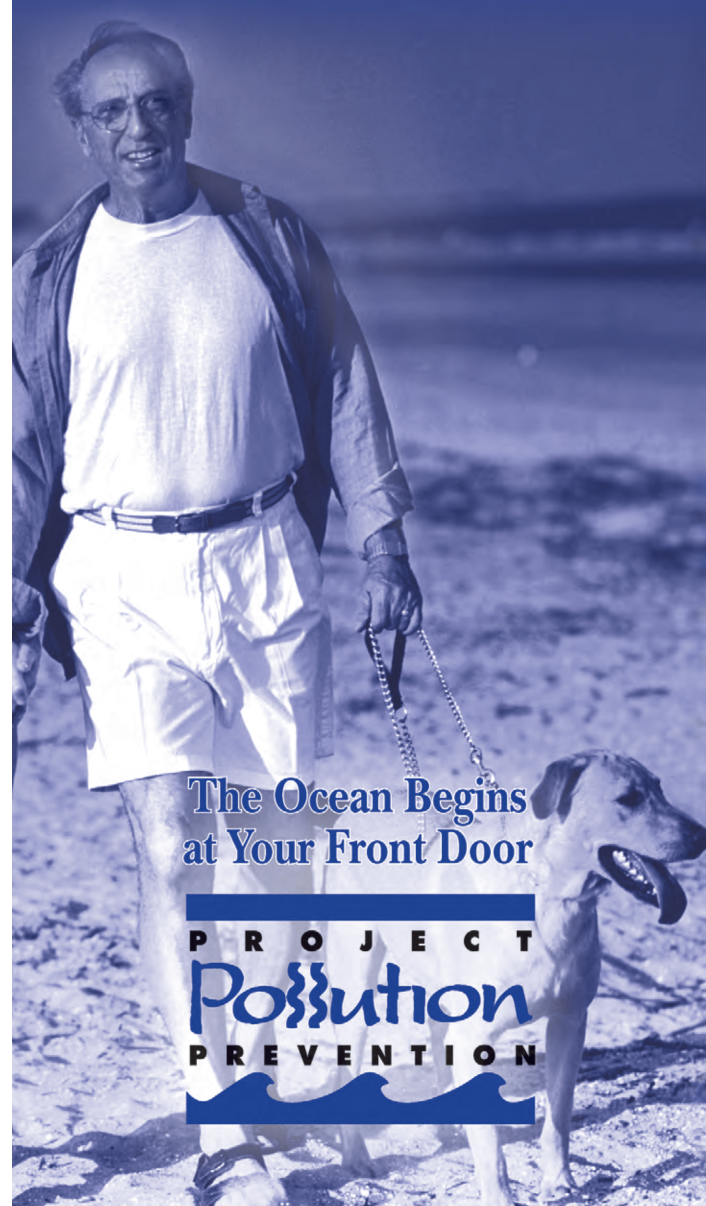
For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while caring for your pet. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

Printed on Recycled Paper

Help Prevent Ocean Pollution:

Tips for Pet Care



Tips for Pet Care

Never let any pet care products or washwater run off your yard and into the street, gutter or storm drain.

Washing Your Pets

Even biodegradable soaps and shampoos can be harmful to marine life and the environment.

- If possible, bathe your pets indoors using less-toxic shampoos or have your pet professionally groomed. Follow instructions on the products and clean up spills.

- If you bathe your pet outside, wash it on your lawn or another absorbent/ permeable surface to keep the washwater from running into the street, gutter or storm drain.

Flea Control

- Consider using oral or topical flea control products.

- If you use flea control products such as shampoos, sprays or collars, make sure to dispose of any unused products at a Household Hazardous Waste Collection Center. For location information, call **(714) 834-6752**.

Why You Should Pick Up After Your Pet

It's the law! Every city has an ordinance requiring you to pick up after your pet. Besides being a nuisance, pet waste can lead to water pollution, even if you live inland. During rainfall, pet waste left outdoors can wash into storm drains. This waste flows directly into our waterways and the ocean where it can harm human health, marine life and the environment.

As it decomposes, pet waste demands a high level of oxygen from water. This decomposition can contribute to killing marine life by reducing the amount of dissolved oxygen available to them.

Have fun with your pets, but please be a responsible pet owner by taking care of them and the environment.

- Take a bag with you on walks to pick up after your pet.

- Dispose of the waste in the trash or in a toilet.

PROJECT Pollution PREVENTION

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, if we are not careful, our daily activities can lead directly to water pollution problems. Water that drains through your watershed can pick up pollutants which are then transported to our waterways and beautiful ocean.

You can prevent water pollution by taking personal action and by working with members of your watershed community to prevent urban runoff from entering your waterway.

For more information,
please call the
Orange County Stormwater Program
at **1.877.89.SPILL**
or visit
www.ocwatersheds.com

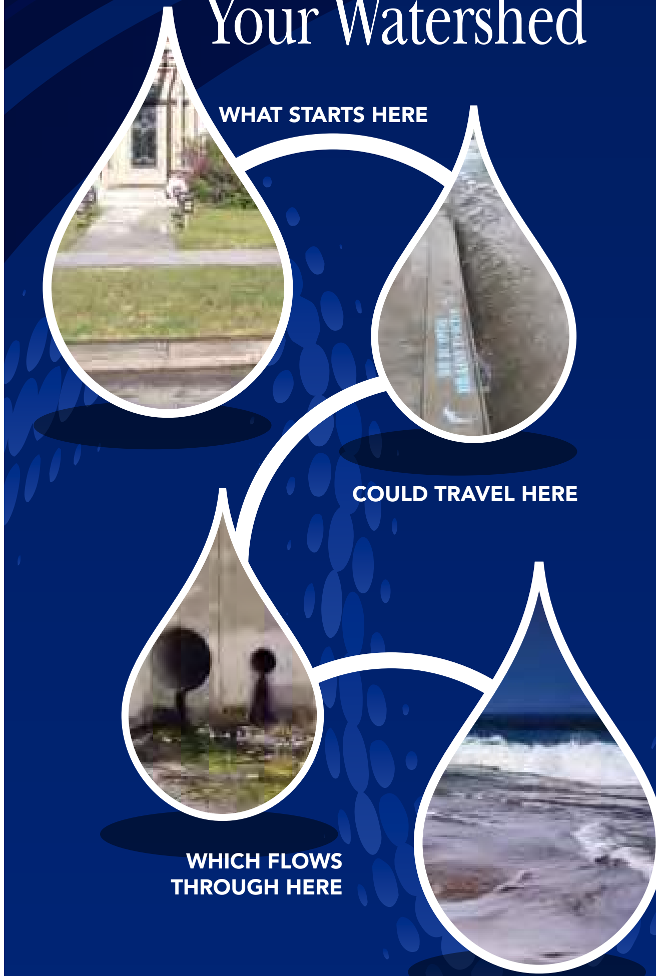
To report a spill,
call the
Orange County 24-Hour Water Pollution Problem Reporting Hotline
at **1.877.89.SPILL**.

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help protect your watershed. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

Printed on Recycled Paper

Help Prevent Ocean Pollution:
Tips For Protecting Your Watershed



The Ocean Begins at Your Front Door

PROJECT POLLUTION PREVENTION

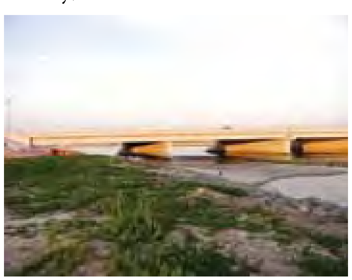
Tips for Protecting Your Watershed

My Watershed. Our Ocean.

Water + shed, *noun: A region of land within which water flows down into a specified water body, such as a river, lake, sea, or ocean; a drainage basin or catchment basin.*

Orange County is comprised of 11 major watersheds into which most of our water flows, connecting all of Orange County to the Pacific Ocean.

As water from rain (stormwater) or sprinklers and hoses (urban runoff) runs down your driveway and into your neighborhood streets, sidewalks and gutters, it flows into storm drains that lead to waterways within your watershed. The waterways from other cities merge as they make their way through our watersheds until all the runoff water in Orange County meets at the Pacific Ocean. The water that reaches our ocean is not pure. As it flows through the watershed, it picks up pollutants such as litter, cigarette butts, fertilizer, pesticides, pet waste, motor oil and lawn clippings. Unlike water that enters the sewer (from sinks and toilets), water that enters the storm drain is not treated before it flows, ultimately, to the ocean.



Water quality can be improved by "Adopting Your Watershed." Through this effort, we are challenging citizens and organizations to join the Orange County Stormwater Program and others who are working to protect and restore our creeks, rivers, bays and ocean.

There are many opportunities to get involved:

- Appreciate your watershed - explore the creeks, trails and ocean and make observations about its conditions. If you see anything abnormal (such as dead fish, oil spills, leaking barrels, and other pollution) contact the Orange County 24-hour water pollution problem reporting hotline at 1.877.89.SPILL to report the problem.
- Research your watershed. Learn about what watershed you live in by visiting www.ocwatersheds.com.
- Find a watershed organization in your community and volunteer to help. If there are no active groups, consider starting your own.
- Visit EPA's Adopt Your Watershed's Catalog of Watershed Groups at www.epa.gov/adopt to locate groups in your community.
- Organize or join in a creek, river, bay or ocean cleanup event such as Coastal & Inner Coastal Cleanup Day that takes place the 3rd Saturday of every September. For more information visit www.coast4u.org.

Follow these simple tips to protect the water quality of your watershed:

- **Sweep up debris and dispose of it in the trash. Do not hose down driveways or sidewalks into the street or gutter.**
- **Use dry cleanup methods such as cat litter to absorb spills and sweep up residue.**
- **Set your irrigation systems to reflect seasonal water needs or use weather-based controllers. Inspect for runoff regularly.**
- **Cover trashcans securely.**
- **Take hazardous waste to a household hazardous waste collection center. (For example, paint, batteries and petroleum products)**
- **Pick up after your pet.**
- **Follow application and disposal directions for pesticides and fertilizers.**
- **If you wash your car at home, wash it on your lawn or divert the runoff onto a landscaped area. Consider taking your car to a commercial car wash, where the water is reclaimed or recycled.**
- **Keep your car well maintained.**
- **Never pour oil or antifreeze in the street, gutter or storm drain.**

DF-1
DRAINAGE FACILITY OPERATION AND MAINTENANCE

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff and storm water that may contain certain pollutants. Consequently these pollutants may accumulate in the system and must be removed periodically. In addition, the systems must also be maintained to function properly hydraulically to avoid flooding. Maintaining the system may involve the following activities:

1. Inspection and Cleaning of Stormwater Conveyance Structures
2. Controlling Illicit Connections and Discharges
3. Controlling Illegal Dumping

This list of Model Maintenance Procedures can be utilized as an inspection checklist to determine where better compliance with Designated Minimum Best Management Practices (notated with checkmarks and capital letters) is needed, and to recommend Additional Best Management Practices (notated with bullet points and lower case letters) that may be applicable under certain circumstances, especially where there are certain Pollutant Constituents of Concern. BMPs applicable to certain constituents are notated as:

Bacteria (BACT) *Sediment (SED)* *Nutrients (NUT)* *Oil and Grease (O&G)* *Pesticides (PEST)*
OtherToxic Compounds (TOX) *Trash (TRASH)* *Hydrological Impacts (HYD)* *Any/All or General (ANY)*

Program/Facility Being Inspected: ____________________

Date: ____________ Inspector Name: ____________________

When completed, the checklist should be attached to the General Inspection Form Cover Sheet and copies should be provided to the Supervisor of the Facility/Program being inspected.

MAINTENANCE PROCEDURES:

1. Inspection and Cleaning of Drainage Facilities

Unsatisfactory / OK	General Guidelines
☐ ____________ ☐	T 1A. Annually inspect and clean drainage structures as needed.
☐ ____________ ☐	T 1B. Maintain appropriate records of cleaning and inspections.
☐ ____________ ☐	T 1C. Properly dispose of removed materials at a landfill or recycling facility.
☐ ____________ ☐	T 1D. Conduct intermittent supplemental visual inspections during the wet season to determine if there are problem inlets where sediment/trash or other pollutants accumulate, and provide for additional cleanouts as appropriate.
☐ ____________ ☐	T 1E. Prevent or clean up any discharges that may occur during the course of maintenance and cleaning procedures.
☐ ____________ ☐	T 1F. Verify that appropriate employees or subcontractors are trained in proper conductance of maintenance activities, including record keeping and disposal.
☐ ____________ ☐	T 1G. Annually inspect and clean v-ditches as needed, prior to the wet season. On shrub-covered slopes, vegetative debris may be placed on the downhill side of the ditch. Trash should be bagged and disposed at a landfill.

Unsatisfactory / OK	General Guidelines (cont.)
☐ ☐	• 1a. Remove trash or debris as needed from open channels. It should be noted that major vegetative debris removal may require other regulatory permits prior to completing the work. (TRASH)
☐ ☐	• 1b. Consider retrofitting energy dissipaters (e.g. riprap) below culvert outfalls to minimize potential for erosion. (SED)
☐ ☐	• 1c. Repair any v-ditches that have cracked or displaced in a manner that accelerates erosion. (SED)
☐ ☐	• 1d. If suspicious conditions appear to exist, test selected samples of the removed wastes for compliance with hazardous waste regulations prior to disposal. (TOX)
☐ ☐	• 1e. Consider more frequent regular cleaning of selected drainage structures to help address ongoing specific impairments. (SED, BACT, NUT, TRASH)
☐ ☐	• 1f. Consider structural retrofits to the MS4 to help address ongoing specific impairments (SED, BACT, NUT, TRASH, O&G)
☐ ☐	• 1g. Consider cleaning out pipes at gradient breaks or other in-pipe debris accumulation points as identified/needed. (ANY, BACT, NUT, TRASH)
	Storm Drain Flushing
☐ ☐	• 1h. Flushing of storm drains or storm drain inlets should only be done when critically necessary and no other solution is practical. (SED, BACT, TRASH).
☐ ☐	• 1i. If flushed, to the extent practical the material should be collected (vacuumed), treated with an appropriate filtering device to remove sand and debris and disposed of properly. (SED)
	Waste Management
☐ ☐	T 1H. Store wastes collected from cleaning activities of the drainage facilities in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
☐ ☐	• 1j. Dewater the wastes if necessary with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device to remove the sand and debris prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not permitted, water should be pumped or vacuumed to a tank and properly disposed of. Do not dewater near a storm drain or stream. (SED, TRASH)
☐ ☐	• 1k. Provide for laboratory analysis of at least one randomly collected sediment (less the debris) sample per year from the storm drain inlet leaning program to ensure that it does not meet the EPA criteria for hazardous waste. If the sample is determined to be hazardous, the sediment must be disposed of as hazardous waste and the source should be investigated. (TOX).

2. Controlling Illicit Connections and Discharges

Unsatisfactory	OK	
		General Guidelines
☐	☐	T 2A. Report prohibited discharges such as dumping, paint spills, abandoned oil containers, etc. observed during the course of normal daily activities so they can be investigated, contained, and cleaned up.
☐	☐	T 2B. Where field observations and/or monitoring data indicate significant problems, conduct field investigations to detect and eliminate existing illicit connections and improper disposal of pollutants into the storm drain (i.e. identify problem areas where discharges or illegal connections may occur and follow up stream to determine the source(s)). (Refer to Appendices A-10 and A-11.)
☐	☐	T 2C. Report all observed illicit connections and discharges to the 24-hour water pollution problem reporting hotline (714) 567-6363.
☐	☐	T 2D. Encourage public reporting of improper waste disposal by distributing public education materials and advertising the 24-hour water pollution problem reporting hotline.
		Storm Drain Stenciling ("No Dumping—Drains to Ocean")
☐	☐	T 2E. Implement and maintain a storm drain stenciling program.
☐	☐	• 2a. Consider adding the hotline number to the storm drain stencils (BACT, TOX, TRASH).

3. Controlling Illegal Dumping

Unsatisfactory	OK	
		Field Investigation
☐	☐	T 3A. Report prohibited discharges such as dumpings observed during the course of normal daily activities so they can be investigated, contained and cleaned up.
☐	☐	T 3B. Conduct field investigations to detect and eliminate improper disposal of pollutants into the storm drain (i.e. identify problem areas where discharges or illegal connections may occur and follow up stream to determine the source(s)).
☐	☐	T 3C. Report all observed illegal dumping to the 24-hour water pollution problem reporting hotline (714) 567-6363.
☐	☐	T 3D. Encourage public reporting of improper waste disposal by distributing public education materials and advertising the 24-hour water pollution problem reporting hotline.
☐	☐	T 3E. If perpetrator can be identified, take appropriate enforcement action.
☐	☐	• 3a. Consider posting "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs could also indicate fines and penalties for illegal dumping. (ANY)

Unsatisfactory	OK	Training/Education/Outreach
☐ ____________	☐	T 3F. Verify that appropriate employees and subcontractors are trained to recognize and report illegal dumping.
☐ ____________	☐	T 3G. Encourage public reporting of illegal dumping by advertising the 24-hour water pollution problem reporting hotline (714) 567-6363.
☐ ____________	☐	• 3b. Take extra steps to educate the public in neighborhoods where illegal dumping has occurred to inform them why illegal dumping is a problem, and that illegal dumping carries a significant financial penalty. (ANY)

LIMITATIONS:

Clean-up activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.

R-5
DISPOSAL OF PET WASTES

Pet wastes left in the environment may introduce solids, bacteria, and nutrients to the storm drain. The type and quantity of waste will dictate the proper disposal method. Small quantities of waste are best disposed with regular trash or flushed down a toilet. Large quantities of wastes from herbivore animals may be composted for subsequent use or disposal to landfill.

Pick up after your pet! It's as easy as 1-2-3. 1) Bring a bag. 2) Clean it up. 3) Dispose of it properly (toilet or trash). The pollution prevention activities outlined in this fact sheets are used to prevent the discharge of pollutants to the storm drain system.

The activities outlined in this fact sheet target the following pollutants:	
Sediment	x
Nutrients	x
Bacteria	x
Foaming Agents	
Metals	
Hydrocarbons	
Hazardous Materials	
Pesticides and Herbicides	
Other	

Think before you dispose of any pet wastes. Remember - The ocean starts at your front door.

Required Activities

- All pet wastes must be picked up and properly disposed of. Pet waste should be disposed of in the regular trash, flushed down a toilet, or composted as type and quantities dictate.

- Properly dispose of unused flea control products (shampoo, sprays, or collars).

- Manure produced by livestock in uncovered areas should be removed at least daily for composting, or storage in water-tight container prior to disposal. Never hose down to stream or storm drain. Composting or storage areas should be configured and maintained so as not to allow contact with runoff. Compost may be donated to greenhouses, nurseries, and botanical parks. Topsoil companies and composting centers may also accept composted manure.

- Line waste pits or trenches with an impermeable layer, such as thick plastic sheeting.

- When possible, allow wash water to infiltrate into the ground, or collect in an area that is routed to the sanitary sewer.

- Confine livestock in fenced in areas except during exercise and grazing times. Restrict animal access to creeks and streams, preferably by fencing.

For additional information contact:
County of Orange, OC Watershed
Main: (714) 955-0600/ 24hr Water Pollution Discharge Hotline 1-877-89-SPILL
or visit our website at: www.ocwatersheds.com

- Install gutters that will divert roof runoff away from livestock areas.

Recommended Activities

- In order to properly dispose of pet waste, carry bags, pooper-scooper, or equivalent to safely pick up pet wastes while walking with pets.

- Bathe pets indoors and use less toxic shampoos. When possible, have pets professionally groomed.

- Properly inoculate your pet in order to maintain their health and reduce the possibility of pathogens in pet wastes.

- Maintain healthy and vigorous pastures with at least three inches of leafy material.

- Consider indoor feeding of livestock during heavy rainfall, to minimize manure exposed to potential runoff.

- Locate barns, corrals, and other high use areas on portions of property that either drain away from or are located distant form nearby creeks or storm drains.

R-6
DISPOSAL OF GREEN WASTES

The activities outlined in this fact sheet target the following pollutants:	
Sediment	x
Nutrients	x
Bacteria	x
Foaming Agents	
Metals	
Hydrocarbons	
Hazardous Materials	x
Pesticides and Herbicides	x
Other	

Green wastes entering the storm drain may clog the system creating flooding problems. Green wastes washed into receiving waters create an oxygen demand as they are decomposed, reducing the available oxygen for aquatic life. Pesticide and nutrient residues may be carried to the receiving water with the green wastes. The pollution prevention activities outlined in this fact sheets are used to prevent the discharge of pollutants to the storm drain system.

Think before disposing of any green wastes – Remember - The ocean starts at your front door.

Required Activities

- Green wastes can not be disposed of in the street, gutter, public right-of-way, storm drain, or receiving water. Dispose of green wastes as a part of the household trash. If the quantities are too large, arrange a pick up with the local waste hauler.

- After conducting yard or garden activities sweep the area and properly dispose of the clippings and waste. Do not sweep or blow out into the street or gutter.

Recommended Activities

- Utilize a commercial landscape company to conduct the landscape activities and waste disposal.

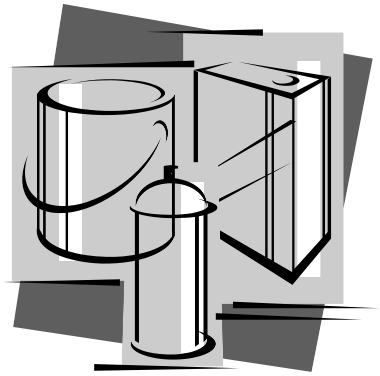
- Utilize native plants and drought tolerant species to reduce the water use and green waste produced.

- Use a lawn mower that has a mulcher so that the grass clippings remain on the lawn and do not have to be collected and disposed of.

- Compost materials in a designated area within the yard.

- Recycle lawn clippings and greenery waste through local programs if available.

For additional information contact:
County of Orange, OC Watershed
Main: (714) 955-0600/ 24hr Water Pollution Discharge Hotline 1-877-89-SPILL
or visit our website at: www.ocwatersheds.com



R-7
HOUSEHOLD HAZARDOUS WASTE

Household hazardous wastes (HHW) are defined as waste materials which are typically found in homes or similar sources, which exhibit characteristics such as: corrosivity, ignitability, reactivity, and/or toxicity, or are listed as hazardous materials by EPA.

The activities outlined in this fact sheet target the following pollutants:	
Sediment	
Nutrients	
Bacteria	
Foaming Agents	x
Metals	x
Hydrocarbons	x
Hazardous Materials	x
Pesticides and Herbicides	x
Other	x

List of most common HHW products:

- Drain openers
- Oven cleaners
- Wood and metal cleaners and polishes
- Automotive oil and fuel additives
- Grease and rust solvents
- Carburetor and fuel injection cleaners
- Starter fluids
- Batteries
- Paint Thinners
- Paint strippers and removers
- Adhesives
- Herbicides
- Pesticides
- Fungicides/wood preservatives

Many types of waste can be recycled, however options for each waste type are limited. Recycling is always preferable to disposal of unwanted materials. All gasoline, antifreeze, waste oil, and lead-acid batteries can be recycled. Latex and oil-based paint can be reused, as well as recycled. Materials that cannot be reused or recycled should be disposed of at a properly permitted landfill.

Think before disposing of any household hazardous waste. Remember - The ocean starts at your front door.

RECYCLE USED OIL

Required Activities

- Dispose of HHW at a local collection facility. Call (714) 834-6752 for the household hazardous waste center closest to your area.
- Household hazardous materials must be stored indoors or under cover, and in closed and labeled containers.
- If safe, contain, clean up, and properly dispose all household hazardous waste spills. If an unsafe condition exists, call 911 to activate the proper response team.

Recommended Activities

- Use non-hazardous or less-hazardous products.
- Participate in HHW reuse and recycling. Call (714) 834-6752 for the participating household hazardous waste centers.

The California Integrated Waste Management Board has a Recycling Hotline (800) 553-2962, that provides information and recycling locations for used oil.

For additional information contact:
County of Orange, OC Watershed
Main: (714) 955-0600/ 24hr Water Pollution Discharge Hotline 1-877-89-SPILL
or visit our website at: www.ocwatersheds.com

R-8
WATER CONSERVATION

The activities outlined in this fact sheet target the following pollutants:	
Sediment	x
Nutrients	x
Bacteria	x
Foaming Agents	x
Metals	x
Hydrocarbons	x
Hazardous Materials	x
Pesticides and Herbicides	x
Other	x

Excessive irrigation and/or the overuse of water is often the most significant factor in transporting pollutants to the storm drain system. Pollutants from a wide variety of sources including automobile repair and maintenance, automobile washing, automobile parking, home and garden care activities and pet care may dissolve in the water and be transported to the storm drain. In addition, particles and materials coated with fertilizers and pesticides may be suspended in the flow and be transported to the storm drain.

Hosing off outside areas to wash them down not only consumes large quantities of water, but also transports any pollutants, sediments, and waste to the storm drain system. The pollution prevention activities outlined in this fact sheets are used to prevent the discharge of pollutants to the storm drain system.

Think before using water. Remember - The ocean starts at your front door.

Required Activities

- Irrigation systems must be properly adjusted to reflect seasonal water needs.
- Do not hose off outside surfaces to clean, sweep with a broom instead.

Recommended Activities

- Fix any leaking faucets and eliminate unnecessary water sources.
- Use xeroscaping and drought tolerant landscaping to reduce the watering needs.
- Do not over watering lawns or gardens. Over watering wastes water and promotes diseases.
- Use a bucket to re-soak sponges/rags while washing automobiles and other items outdoors. Use hose only for rinsing.
- Wash automobiles at a commercial car wash employing water recycling.

For additional information contact:
County of Orange, OC Watershed
Main: (714) 955-0600/ 24hr Water Pollution Discharge Hotline 1-877-89-SPILL
or visit our website at: www.ocwatersheds.com

Site Design & Landscape Planning SD-10

Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- ☑ Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Each project site possesses unique topographic, hydrologic, and vegetative features, some of which are more suitable for development than others. Integrating and incorporating appropriate landscape planning methodologies into the project design is the most effective action that can be done to minimize surface and groundwater contamination from stormwater.

Approach

Landscape planning should couple consideration of land suitability for urban uses with consideration of community goals and projected growth. Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Design requirements for site design and landscapes planning should conform to applicable standards and specifications of agencies with jurisdiction and be consistent with applicable General Plan and Local Area Plan policies.

Designing New Installations

Begin the development of a plan for the landscape unit with attention to the following general principles:

- Formulate the plan on the basis of clearly articulated community goals. Carefully identify conflicts and choices between retaining and protecting desired resources and community growth.

- Map and assess land suitability for urban uses. Include the following landscape features in the assessment: wooded land, open unwooded land, steep slopes, erosion-prone soils, foundation suitability, soil suitability for waste disposal, aquifers, aquifer recharge areas, wetlands, floodplains, surface waters, agricultural lands, and various categories of urban land use. When appropriate, the assessment can highlight outstanding local or regional resources that the community determines should be protected (e.g., a scenic area, recreational area, threatened species habitat, farmland, fish run). Mapping and assessment should recognize not only these resources but also additional areas needed for their sustenance.

Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Conserve Natural Areas during Landscape Planning

If applicable, the following items are required and must be implemented in the site layout during the subdivision design and approval process, consistent with applicable General Plan and Local Area Plan policies:

- Cluster development on least-sensitive portions of a site while leaving the remaining land in a natural undisturbed condition.

- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.

- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.

- Promote natural vegetation by using parking lot islands and other landscaped areas.

- Preserve riparian areas and wetlands.

Maximize Natural Water Storage and Infiltration Opportunities Within the Landscape Unit

- Promote the conservation of forest cover. Building on land that is already deforested affects basin hydrology to a lesser extent than converting forested land. Loss of forest cover reduces interception storage, detention in the organic forest floor layer, and water losses by evapotranspiration, resulting in large peak runoff increases and either their negative effects or the expense of countering them with structural solutions.

- Maintain natural storage reservoirs and drainage corridors, including depressions, areas of permeable soils, swales, and intermittent streams. Develop and implement policies and regulations to discourage the clearing, filling, and channelization of these features. Utilize them in drainage networks in preference to pipes, culverts, and engineered ditches.

- Evaluating infiltration opportunities by referring to the stormwater management manual for the jurisdiction and pay particular attention to the selection criteria for avoiding groundwater contamination, poor soils, and hydrogeological conditions that cause these facilities to fail. If necessary, locate developments with large amounts of impervious surfaces or a potential to produce relatively contaminated runoff away from groundwater recharge areas.

Protection of Slopes and Channels during Landscape Design

- Convey runoff safely from the tops of slopes.

- Avoid disturbing steep or unstable slopes.

- Avoid disturbing natural channels.

- Stabilize disturbed slopes as quickly as possible.

- Vegetate slopes with native or drought tolerant vegetation.

- Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.

- Stabilize temporary and permanent channel crossings as quickly as possible, and ensure that increases in run-off velocity and frequency caused by the project do not erode the channel.

- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.

- Line on-site conveyance channels where appropriate, to reduce erosion caused by increased flow velocity due to increases in tributary impervious area. The first choice for linings should be grass or some other vegetative surface, since these materials not only reduce runoff velocities, but also provide water quality benefits from filtration and infiltration. If velocities in the channel are high enough to erode grass or other vegetative linings, riprap, concrete, soil cement, or geo-grid stabilization are other alternatives.

- Consider other design principles that are comparable and equally effective.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Redevelopment may present significant opportunity to add features which had not previously been implemented. Examples include incorporation of depressions, areas of permeable soils, and swales in newly redeveloped areas. While some site constraints may exist due to the status of already existing infrastructure, opportunities should not be missed to maximize infiltration, slow runoff, reduce impervious areas, disconnect directly connected impervious areas.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Stormwater Management Manual for Western Washington, Washington State Department of Ecology, August 2001.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Rain Garden

Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☑ Contain Pollutants
- Collect and Convey

Description

Various roof runoff controls are available to address stormwater that drains off rooftops. The objective is to reduce the total volume and rate of runoff from individual lots, and retain the pollutants on site that may be picked up from roofing materials and atmospheric deposition. Roof runoff controls consist of directing the roof runoff away from paved areas and mitigating flow to the storm drain system through one of several general approaches: cisterns or rain barrels; dry wells or infiltration trenches; pop-up emitters, and foundation planting. The first three approaches require the roof runoff to be contained in a gutter and downspout system. Foundation planting provides a vegetated strip under the drip line of the roof.

Approach

Design of individual lots for single-family homes as well as lots for higher density residential and commercial structures should consider site design provisions for containing and infiltrating roof runoff or directing roof runoff to vegetative swales or buffer areas. Retained water can be reused for watering gardens, lawns, and trees. Benefits to the environment include reduced demand for potable water used for irrigation, improved stormwater quality, increased groundwater recharge, decreased runoff volume and peak flows, and decreased flooding potential.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Designing New Installations

Cisterns or Rain Barrels

One method of addressing roof runoff is to direct roof downspouts to cisterns or rain barrels. A cistern is an above ground storage vessel with either a manually operated valve or a permanently open outlet. Roof runoff is temporarily stored and then released for irrigation or infiltration between storms. The number of rain barrels needed is a function of the rooftop area. Some low impact developers recommend that every house have at least 2 rain barrels, with a minimum storage capacity of 1000 liters. Roof barrels serve several purposes including mitigating the first flush from the roof which has a high volume, amount of contaminants, and thermal load. Several types of rain barrels are commercially available. Consideration must be given to selecting rain barrels that are vector proof and childproof. In addition, some barrels are designed with a bypass valve that filters out grit and other contaminants and routes overflow to a soak-away pit or rain garden.

If the cistern has an operable valve, the valve can be closed to store stormwater for irrigation or infiltration between storms. This system requires continual monitoring by the resident or grounds crews, but provides greater flexibility in water storage and metering. If a cistern is provided with an operable valve and water is stored inside for long periods, the cistern must be covered to prevent mosquitoes from breeding.

A cistern system with a permanently open outlet can also provide for metering stormwater runoff. If the cistern outlet is significantly smaller than the size of the downspout inlet (say ¼ to ½ inch diameter), runoff will build up inside the cistern during storms, and will empty out slowly after peak intensities subside. This is a feasible way to mitigate the peak flow increases caused by rooftop impervious land coverage, especially for the frequent, small storms.

Dry wells and Infiltration Trenches

Roof downspouts can be directed to dry wells or infiltration trenches. A dry well is constructed by excavating a hole in the ground and filling it with an open graded aggregate, and allowing the water to fill the dry well and infiltrate after the storm event. An underground connection from the downspout conveys water into the dry well, allowing it to be stored in the voids. To minimize sedimentation from lateral soil movement, the sides and top of the stone storage matrix can be wrapped in a permeable filter fabric, though the bottom may remain open. A perforated observation pipe can be inserted vertically into the dry well to allow for inspection and maintenance.

In practice, dry wells receiving runoff from single roof downspouts have been successful over long periods because they contain very little sediment. They must be sized according to the amount of rooftop runoff received, but are typically 4 to 5 feet square, and 2 to 3 feet deep, with a minimum of 1-foot soil cover over the top (maximum depth of 10 feet).

To protect the foundation, dry wells must be set away from the building at least 10 feet. They must be installed in solids that accommodate infiltration. In poorly drained soils, dry wells have very limited feasibility.

Infiltration trenches function in a similar manner and would be particularly effective for larger roof areas. An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff. These are described under Treatment Controls.

Pop-up Drainage Emitter

Roof downspouts can be directed to an underground pipe that daylights some distance from the building foundation, releasing the roof runoff through a pop-up emitter. Similar to a pop-up irrigation head, the emitter only opens when there is flow from the roof. The emitter remains flush to the ground during dry periods, for ease of lawn or landscape maintenance.

Foundation Planting

Landscape planting can be provided around the base to allow increased opportunities for stormwater infiltration and protect the soil from erosion caused by concentrated sheet flow coming off the roof. Foundation plantings can reduce the physical impact of water on the soil and provide a subsurface matrix of roots that encourage infiltration. These plantings must be sturdy enough to tolerate the heavy runoff sheet flows, and periodic soil saturation.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Supplemental Information

Examples

- City of Ottawa's Water Links Surface –Water Quality Protection Program
- City of Toronto Downspout Disconnection Program
- City of Boston, MA, Rain Barrel Demonstration Program

Other Resources

Hager, Marty Catherine, Stormwater, "Low-Impact Development", January/February 2003. www.stormh2o.com

Low Impact Urban Design Tools, Low Impact Development Design Center, Beltsville, MD. www.lid-stormwater.net

Start at the Source, Bay Area Stormwater Management Agencies Association, 1999 Edition

Efficient Irrigation SD-12

Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Irrigation water provided to landscaped areas may result in excess irrigation water being conveyed into stormwater drainage systems.

Approach

Project plan designs for development and redevelopment should include application methods of irrigation water that minimize runoff of excess irrigation water into the stormwater conveyance system.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Designing New Installations

The following methods to reduce excessive irrigation runoff should be considered, and incorporated and implemented where determined applicable and feasible by the Permittee:

- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Design irrigation systems to each landscape area's specific water requirements.
- Include design featuring flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
- Implement landscape plans consistent with County or City water conservation resolutions, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.

- Design timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm water drainage system.

- Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species). Consider design features such as:

  - Using mulches (such as wood chips or bar) in planter areas without ground cover to minimize sediment in runoff

  - Installing appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant materials where possible and/or as recommended by the landscape architect

  - Leaving a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible

  - Choosing plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth

- Employ other comparable, equally effective methods to reduce irrigation water runoff.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Storm Drain Signage SD-13

Design Objectives

Maximize Infiltration

Provide Retention

Slow Runoff

Minimize Impervious Land Coverage

☑ Prohibit Dumping of Improper Materials

Contain Pollutants

Collect and Convey

Description

Waste materials dumped into storm drain inlets can have severe impacts on receiving and ground waters. Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping. Storm drain signs and stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets.

Approach

The stencil or affixed sign contains a brief statement that prohibits dumping of improper materials into the urban runoff conveyance system. Storm drain messages have become a popular method of alerting the public about the effects of and the prohibitions against waste disposal.

Suitable Applications

Stencils and signs alert the public to the destination of pollutants discharged to the storm drain. Signs are appropriate in residential, commercial, and industrial areas, as well as any other area where contributions or dumping to storm drains is likely.

Design Considerations

Storm drain message markers or placards are recommended at all storm drain inlets within the boundary of a development project. The marker should be placed in clear sight facing toward anyone approaching the inlet from either side. All storm drain inlet locations should be identified on the development site map.

Designing New Installations

The following methods should be considered for inclusion in the project design and show on project plans:

- Provide stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language. Examples include "NO DUMPING

CASQA

– DRAINS TO OCEAN" and/or other graphical icons to discourage illegal dumping.

- Post signs with prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area.

Note - Some local agencies have approved specific signage and/or storm drain message placards for use. Consult local agency stormwater staff to determine specific requirements for placard types and methods of application.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. If the project meets the definition of "redevelopment", then the requirements stated under " designing new installations" above should be included in all project design plans.

Additional Information

Maintenance Considerations

- Legibility of markers and signs should be maintained. If required by the agency with jurisdiction over the project, the owner/operator or homeowner's association should enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards or signs.

Placement

- Signage on top of curbs tends to weather and fade.

- Signage on face of curbs tends to be worn by contact with vehicle tires and sweeper brooms.

Supplemental Information

Examples

- Most MS4 programs have storm drain signage programs. Some MS4 programs will provide stencils, or arrange for volunteers to stencil storm drains as part of their outreach program.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Design Objectives

Maximize Infiltration

Provide Retention

Slow Runoff

Minimize Impervious Land Coverage

Prohibit Dumping of Improper Materials

☑ Contain Pollutants

Collect and Convey

Description

Trash storage areas are areas where a trash receptacle (s) are located for use as a repository for solid wastes. Stormwater runoff from areas where trash is stored or disposed of can be polluted. In addition, loose trash and debris can be easily transported by water or wind into nearby storm drain inlets, channels, and/or creeks. Waste handling operations that may be sources of stormwater pollution include dumpsters, litter control, and waste piles.

Approach

This fact sheet contains details on the specific measures required to prevent or reduce pollutants in stormwater runoff associated with trash storage and handling. Preventative measures including enclosures, containment structures, and impervious pavements to mitigate spills, should be used to reduce the likelihood of contamination.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Design requirements for waste handling areas are governed by Building and Fire Codes, and by current local agency ordinances and zoning requirements. The design criteria described in this fact sheet are meant to enhance and be consistent with these code and ordinance requirements. Hazardous waste should be handled in accordance with legal requirements established in Title 22, California Code of Regulation.

Wastes from commercial and industrial sites are typically hauled by either public or commercial carriers that may have design or access requirements for waste storage areas. The design criteria in this fact sheet are recommendations and are not intended to be in conflict with requirements established by the waste hauler. The waste hauler should be contacted prior to the design of your site trash collection areas. Conflicts or issues should be discussed with the local agency.

Designing New Installations

Trash storage areas should be designed to consider the following structural or treatment control BMPs:

- Design trash container areas so that drainage from adjoining roofs and pavement is diverted around the area(s) to avoid run-on. This might include berming or grading the waste handling area to prevent run-on of stormwater.
- Make sure trash container areas are screened or walled to prevent off-site transport of trash.

- Use lined bins or dumpsters to reduce leaking of liquid waste.
- Provide roofs, awnings, or attached lids on all trash containers to minimize direct precipitation and prevent rainfall from entering containers.
- Pave trash storage areas with an impervious surface to mitigate spills.
- Do not locate storm drains in immediate vicinity of the trash storage area.
- Post signs on all dumpsters informing users that hazardous materials are not to be disposed of therein.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Additional Information

Maintenance Considerations

The integrity of structural elements that are subject to damage (i.e., screens, covers, and signs) must be maintained by the owner/operator. Maintenance agreements between the local agency and the owner/operator may be required. Some agencies will require maintenance deed restrictions to be recorded of the property title. If required by the local agency, maintenance agreements or deed restrictions must be executed by the owner/operator before improvement plans are approved.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

APPENDIX D

BMP MAINTENANCE SUPPLEMENT / O&M PLAN

Recording requested by and mail to:

Name: City of Placentia
Department of Public Works
ATTN: Director of Public Works

Address: 401 East Chapman Avenue
Placentia, CA 92870

Space Above This Line For Recorder's Use

MASTER COVENANT AND AGREEMENT
REGARDING ON-SITE BMP MAINTENANCE

The undersigned hereby certifies I am (we are) the owner(s) of the hereinafter legally described real property located in the City of Placentia, County of Orange, State of California (please give legal description: assessor's ID, tract no., lot no., etc.):

APN: 340-273-25

Site Address 1314 North Angelina Drive
Placentia, CA 92870

Owner(s) do hereby covenant and agree to and with the City of Placentia to maintain all on-site structural Best Management Practices (BMPs) in accordance with the Site Map and the Operations & Maintenance (O&M) Plan set forth in Attachment 1 hereto and incorporated herein by this reference. The specific structural BMPs are listed as follows:

(1) Contech CDS, (1) Contech CMP Detention, and (5) Torrent Drywells

Owner(s) shall maintain the listed drainage devices above on the property indicated and as shown on plans permitted by the City of Placentia in a good and functional condition to safeguard the property owners and adjoining properties from damage and pollution.

Owner(s) hereby consent to inspection of the Property by an inspector authorized by the City Manager, or his or her designee, for the purpose for verifying compliance with the provisions of this Agreement.

Owner(s) shall provide printed educational materials with any sale of the property which provide information on what stormwater management facilities are present, the type(s) and location(s) of maintenance signs that are required, and how the necessary maintenance can be performed.

Owner(s) shall provide actual notice of this Agreement and its terms to any respective successor(s) in interest to the Property prior to transfer of said interest to such successor(s) in interest. This covenant and agreement shall run with the land and shall be binding upon any future owners, encumbrances, their successors, heirs or assigns and shall continue in effect until the City of Placentia approves its termination.

(Print Name of Property Owner and Company)	(Print Name of Property Owner and Company)
(Signature of Property Owner)	(Signature of Property Owner)

Dated this___________day of____________20_____.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGEMENT

****************************** Space Below This Line For Notary's Use ******************************

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of _______________ }
}
County of _______________ }

On________________________before me,_______________________________________personally appeared
(Insert Name of Notary Public and Title)
____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf on which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature__________________________ (Seal)

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of attached document

Title or type of document: ____

____

____

Document Date:____ Number of Pages:______________

Signer(s) Other than Named Above: ____

ALTA/NSPS LAND TITLE SURVEY

ASSESSOR PARCEL NUMBER:

340-273-25

TITLE INFORMATION:

THE TITLE INFORMATION SHOWN HEREON IS PER PRELIMINARY REPORT ORDER NO. 987-30036630-SG9, DATED SEPTEMBER 27, 2019, AS PREPARED BY FIDELITY NATIONAL TITLE COMPANY, RIVERSIDE, CA (TITLE OFFICER: STEVEN GOMEZ, TELEPHONE: 951-710-5900). NO RESPONSIBILITY OF CONTENT, COMPLETENESS OR ACCURACY OF SAID REPORT IS ASSUMED BY THIS MAP OR THE SURVEYOR.

RECORD OWNER:

THE BISHOP OF THE PROTESTANT EPISCOPAL CHURCH IN LOS ANGELES, A CORPORATION SOLE

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF PLACENTIA, IN THE COUNTY OF ORANGE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL 1:
THE WEST 3 ACRES OF LOT 2, OF CLACIUS TRACT, IN THE CITY OF PLACENTIA, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP THEREOF RECORDED IN BOOK 29, PAGE 92, OF MISCELLANEOUS RECORDS OF LOS ANGELES COUNTY, CALIFORNIA.

PARCEL 2:
THAT PORTION OF LOT 2, OF CLACIUS TRACT, IN THE CITY OF PLACENTIA, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP THEREOF RECORDED IN BOOK 29, PAGE 92, OF MISCELLANEOUS RECORDS OF LOS ANGELES COUNTY, CALIFORNIA, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID LOT 2, AND RUNNING THENCE SOUTH 68° 06' 11" EAST ALONG THE SOUTHERLY LINE OF SAID LOT, 350.33 FEET; THENCE NORTH 14° 00' 00" EAST PARALLEL WITH THE WESTERLY LINE OF SAID LOT, 502.12 FEET TO THE NORTHERLY LINE OF SAID LOT, THENCE NORTH 68° 06' 11" WEST ALONG SAID NORTHERLY LINE, 350.33 FEET TO THE NORTHWEST CORNER OF SAID LOT; THENCE SOUTH 14° 00' 00" WEST 502.12 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THE WEST 3.00 ACRES.

TITLE EXCEPTIONS:

ITEMS SHOWN AS ⟨1⟩ HAVE BEEN PLOTTED ON THE SURVEY.

A.-B. TAXES

1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

2. EASEMENT(S) IN FAVOR OF THE PUBLIC OVER ANY EXISTING ROADS LYING WITHIN SAID LAND.

⟨3⟩ EASEMENT(S) GRANTED TO ANAHEIM UNION WATER COMPANY, A CALIFORNIA CORPORATION, FOR PIPE LINES AND INCIDENTAL PURPOSES, RECORDED NOVEMBER 3, 1922 IN BOOK 438, PAGE 218, OF DEEDS.

(DOCUMENT AFFECTS – NO WIDTH DESCRIBED IN DOCUMENT. CENTERLINE OF EASEMENT IS ALONG THE WESTERLY LINE OF THE PROPERTY)

4. DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS SHOWN ON MAP: RECORD OF SURVEY FILED IN RECORD OF SURVEY BOOK 38, PAGE 15.

⟨5⟩ EASEMENT(S) GRANTED TO THE COUNTY OF ORANGE FOR STREET AND HIGHWAY PURPOSES, RECORDED NOVEMBER 21, 1960 IN BOOK 5518, PAGE 431, OF OFFICIAL RECORDS.

(DOCUMENT AFFECTS – PLOTTED HERON)

6. DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS SHOWN ON MAP: RECORD OF SURVEY FILED IN RECORD OF SURVEY BOOK 49, PAGE 35..

⟨7⟩ EASEMENT(S) IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, FOR UTILITIES, INGRESS AND EGRESS, RECORDED JANUARY 14, 1963 IN BOOK 6393, PAGE 912, OF OFFICIAL RECORDS.

(DOCUMENT AFFECTS – PLOTTED HEREON)

⟨8⟩ EASEMENT(S) GRANTED TO THE CITY OF PLACENTIA FOR STREET AND PUBLIC UTILITY PURPOSES, RECORDED AUGUST 25, 1964 IN BOOK 7193, PAGE 311, OF OFFICIAL RECORDS.

(DOCUMENT AFFECTS – PLOTTED HEREON)

9. ANY INTEREST OF THE PERSON SHOWN BELOW, WHOSE POSSIBLE INTEREST IS DISCLOSED BY THEIR JOINDER IN EXECUTING THE DOCUMENT RECORDED DECEMBER 16, 1997 AS INSTRUMENT NO: 19970644437, OF OFFICIAL RECORDS.

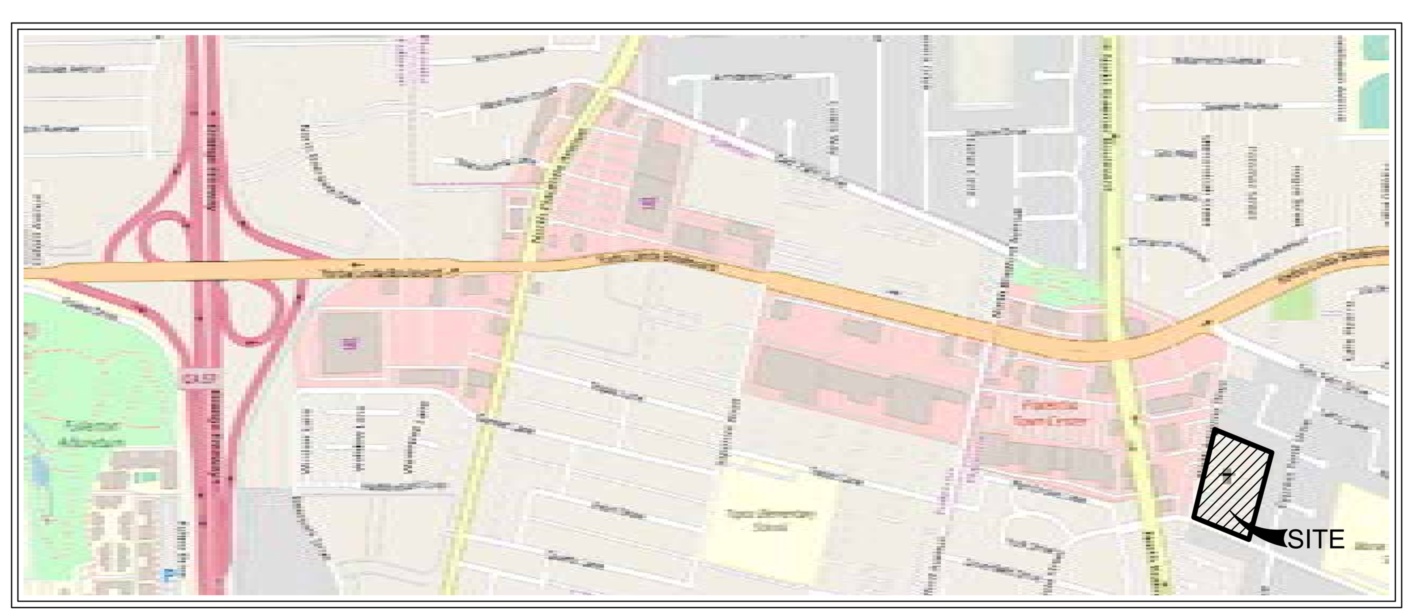
⟨10⟩ EASEMENT(S) IN FAVOR OF SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, FOR UTILITIES, INGRESS AND EGRESS, RECORDED SEPTEMBER 27, 2017 AS INSTRUMENT NO. 2017000409582, OF OFFICIAL RECORDS.

(DOCUMENT AFFECTS – PLOTTED HEREON)

11. – 14. TITLE COMPANY NOTES.

MONUMENT NOTES:

10001	FOUND PUNCHED SPIKE AND WASHER, DN. 0.1', NO REFERENCE, ACCEPTED AS CENTERLINE INTERSECTION.
10003	FOUND BOLT PER R1, DN. 0.1'. FITS TIES SHOWN ON P.M.B. 136/10.
10005	FOUND SPIKE AND WASHER "RCE 16916", NO REFERENCE, DN. 0.1', N67°27'44"W, 0.12' FROM ESTABLISHED INTERSECTION.
10006	FOUND SPIKE AND WASHER "LS 5411" PER C.R. 2013-0600, FLUSH WITH PAVEMENT.
10008	SET PUNCH MARK ON MANHOLE BY TIES PER C.R. 2013-1453.
10009	SET PUNCH MARK ON MANHOLE BY TIES PER CITY ENGINEER TIES FILED FOR TRACT NO. 4657.
10010	FOUND SPIKE AND WASHER "LS 5411" PER C.R. 2012-4162, FLUSH WITH PAVEMENT.
10012	FOUND SPIKE AND WASHER "LS 5411" PER C.R. 2013-1453, FLUSH WITH PAVEMENT.
10014	FOUND SPIKE AND WASHER "LS 5411" PER C.R. 2013-0600, FLUSH WITH PAVEMENT.
10108	FOUND 2" I.P., WITH CONCRETE PLUG, NO TAG, N14°38'28"E, 0.23' FROM THE SOUTHWEST CORNER OF LOT 48 OF R1.



VICINITY MAP
NOT TO SCALE

40' 0' 20' 40' 80'
SCALE: 1" = 40'

LINE LEGEND:

- SUBJECT PROPERTY LINES
- CENTERLINES
- EASEMENT LINES
- PRELIMINARY REPORT PARCEL LINE
- ADJACENT PROPERTY LINES

RECORD REFERENCES:

R1 RECORD DATA PER TRACT NO. 4567, M.M. 168/46-47

D1 RECORD DATA PER VESTING DEED

SURVEYOR'S NOTES:

1) THE DIFFERENCES BETWEEN MEASURED DATA ON THE SURVEY AND THE LEGAL DESCRIPTION ARE DUE TO BASIS OF BEARINGS ORIENTATION, TOGETHER WITH THE VESTING DEED CONTROLLING CALLS TO SENIOR LINES. THE SENIOR LINES ARE PARAMOUNT TO BEARING AND DISTANCE CALLS IN DEED AND HAVE BEEN DETERMINED PURSUANT TO GOVERNING BOUNDARY LAW PRINCIPALS AND EVIDENCE FOR PROPER RETRACEMENT.

ALTA/NSPS TABLE A ITEMS:

ITEM 2 THE SITE ADDRESS OBSERVED WHILE CONDUCTING THE SURVEY IS: 1314 NORTH ANGELINA DRIVE, PLACENTIA, CALIFORNIA

ITEM 3 THE LAND SHOWN ON THIS SURVEY LIES WITHIN FLOOD ZONE "X" (UNSHADED) BEING DESCRIBED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, PER FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NUMBER 06059C0063J, REVISED DATE: DECEMBER 3, 2009.

ITEM 4 THE LAND AREA IS:

(GROSS) 174,296 SF / 4.001 ACRES ±

(NET) 167,537 S.F. / 3.846 ACRES ±

ITEM 5 THE CONTOURS AND ELEVATIONS SHOWN HEREON ARE BASED ON THE FOLLOWING BENCH MARK:

BM No.: 2G-26-76 ELEV.: 305.235' (ORANGE COUNTY SURVEYOR BENCH MARK)
DATUM: NAVD 88

DESCRIPTION: DESCRIBED BY OCS 2003 – FOUND 3 3\4" OCS ALUMINUM BENCHMARK DISK STAMPED "2G-26-76", SET IN THE SOUTHWESTERLY CORNER OF A 5 FT. BY 5 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED ALONG THE EASTERLY SIDE OF KRAEMER BOULEVARD, 400 FT. NORTHERLY ALONG KRAEMER FROM THE CENTERLINE OF YORBA LINDA BOULEVARD AND 43 FT. EASTERLY OF THE CENTERLINE OF KRAEMER. MONUMENT IS SET LEVEL WITH THE SIDEWALK.

CONTOUR INTERVAL=1'

ITEM 8 SEE THE SURVEY PLAT FOR SUBSTANTIAL FEATURES OBSERVED IN THE PROCESS OF CONDUCTING THE SURVEY.

ITEM 9 SEE THE SURVEY PLAT FOR PARKING STRIPING AND TYPE OF PARKING SPACE. THE PARKING COUNT IS AS FOLLOWS:

REGULAR SPACES	79
HANDICAP SPACES	5
TOTAL SPACES	84

ITEM 11 SEE THE SURVEY PLAT FOR THE LOCATION OF UTILITY EVIDENCE *OBSERVED* WHILE CONDUCTING THE SURVEY.

TWO WORKING DAYS BEFORE EXCAVATIONS, CALL UNDERGROUND SERVICE ALERT (USA) OF SOUTHERN CALIFORNIA AT 1-800-227-2600.

ITEM 13 SEE THE SURVEY PLAT FOR THE NAMES OF ADJOINING OWNERS.

ITEM 14 SEE THE SURVEY PLAT FOR THE DISTANCE TO THE NEAREST INTERSECTING STREET.

ITEM 16 THERE IS NO OBSERVABLE EVIDENCE OF EARTH MOVING WORK WITHIN RECENT MONTHS.

BASIS OF BEARINGS AND COORDINATES:

THE BEARINGS AND COORDINATES SHOWN HEREON ARE BASED UPON THE CALIFORNIA COORDINATE SYSTEM OF 1983, CCS83, ZONE #, (2017.50) IN ACCORDANCE WITH THE CALIFORNIA PUBLIC RESOURCES CODE SECTIONS 8801-8819; SAID BEARINGS AND COORDINATES ARE BASED LOCALLY UPON FIELD-OBSERVED TIES TO THE FOLLOWING CALIFORNIA SPATIAL REFERENCE NETWORK, OR EQUIVALENT STATIONS:

REFERENCED CSRC STATIONS				
STATION	NORTHING (Y)	EASTING (X)	HEIGHT	ACCURACY
CCCS	2261350.670	6071417.810	106.738	FIRST ORDER
SNHS	2285159.690	6052464.860	220.253	FIRST ORDER

PROPERTY ADJOINERS:

(A) APN: 340-273-26
OWNER: ASUNCION R DELPILAR & MARIO DELPILAR

(B) APN: 340-273-14
OWNER: TRENERY PETER S TR & TRENERY FAMILY TR

(C) APN: 340-273-15
OWNER: FERNANDO GUERRA & GUISELLE CLARK

(D) APN: 340-273-16
OWNER: BISHOP OF THE PROTESTANT & EPISCOPAL CHURCH IN LOS

(E) APN: 340-273-17
OWNER: NATHANIEL PROCTOR & JESSICA PROCTOR

(F) APN: 340-273-18
OWNER: LAWRENCE J GOODSON & CATHERINE M GOODSON

(G) APN: 340-273-19
OWNER: JACOB HARVEY & STACIE C HARVEY

(H) APN: 340-273-20
OWNER: CARROLL HERBERT G TR

(I) APN: 340-273-21
OWNER: MICHAEL W BRIDGFORD & ANGELA E BRIDGFORD

(J) APN: 340-273-22
OWNER: GRANTHAM ARMS LLC

(K) APN: 340-273-23
OWNER: STEPHEN M HUERTH & LAURA E HUERTH

(L) APN: 340-273-23
OWNER: HARDIK DEVRAJBHAI BUNHA

SURVEYOR'S CERTIFICATE:

TO: NATIONAL COMMUNITY RENAISSANCE AND FIDELITY NATIONAL TITLE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5, 8, 9, 11, 13, 14, AND 16 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON JANUARY 31, 2020.

GREGORY T. SCHLARBAUM, PLS 6704
EMAIL: gschlarbaum@fuscoe.com

PROFESSIONAL LAND SURVEYOR
GREGORY THOMAS SCHLARBAUM
PLS 6704
STATE OF CALIFORNIA

DATE

NO.	DATE	REVISION

FEI REFERENCE:

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ° fax 949.474.5315
www.fuscoe.com

ALTA/NSPS LAND TITLE SURVEY

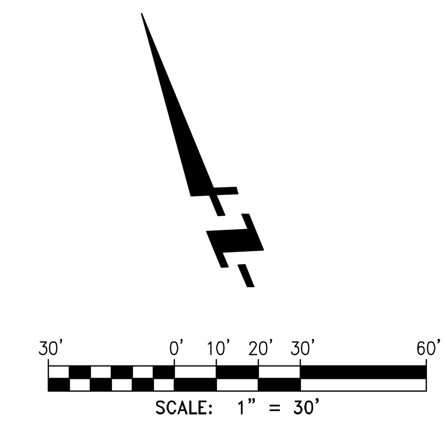
of: 1314 NORTH ANGELINA DRIVE,
PLACENTIA, CALIFORNIA

for: NATIONAL COMMUNITY RENAISSANCE
9421 HAVEN AVENUE
RANCHO CUCAMONGA, CA 91730

DATE: June 27, 2019
FN: 1653-001 ALTA
JN: 1653-001-01
DRAWN BY: GTS
CHECKED BY: KRT

M:\MAPPING\1653\010\ALTA\1653-001 ALTA.DWG (02-14-20)

ALTA/NSPS LAND TITLE SURVEY



LINE LEGEND:

	SUBJECT PROPERTY LINES
	CENTERLINES
	EASEMENT LINES
	PRELIMINARY REPORT PARCEL LINE
	ADJACENT PROPERTY LINES
(E-OH)	OVERHEAD UTILITIES
	TREES
	AREA LIGHT
	STREET LIGHT
ASPH	ASPHALT
BFP	BACK FLOW PREVENTER
CATV	CABLE TELEVISION
CB	CATCH BASIN
COMM	COMMUNICATIONS
CONC	CONCRETE
EPB	ELECTRIC PULL BOX
ET	ELECTRIC TRANSFORMER
PB	PULL BOX
TELE	TELEPHONE
TE	TRASH ENCLOSURE
TMH	TELEPHONE MANHOLE
WM	WATER METER

NO.	DATE	REVISION

FEI REFERENCE:

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ◦ fax 949.474.5315
www.fuscoe.com

ALTA/NSPS LAND TITLE SURVEY

of: 1314 NORTH ANGELINA DRIVE, PLACENTIA, CALIFORNIA

for: NATIONAL COMMUNITY RENAISSANCE
9421 HAVEN AVENUE
RANCHO CUCAMONGA, CA 91730

DATE: June 27, 2019
FN: 1653-001 ALTA
JN: 1653-001-01
DRAWN BY: GTS
CHECKED BY: KRT

SHEET 2 OF 2

M:\MAPPING\1653\010\ALTA\1653-001 ALTA.DWG (02-14-20)

OPERATIONS AND MAINTENANCE (O&M) PLAN

Water Quality Management Plan

For

PLACENTIA SENIOR HOUSING

1314 North Angelina Drive, Placentia, CA 92870

APN: 340-273-25

This page intentionally left blank

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX			
BMP Applicable? Yes/No	**BMP Name and BMP Implementation, Maintenance and Inspection Procedures**	**Implementation, Maintenance, and Inspection Frequency and Schedule**	**Person or Entity with Operation & Maintenance Responsibility**
NON-STRUCTURAL SOURCE CONTROL BMPs			
Yes	N1. Education for Property Owners, Tenants and Occupants Educational materials will be provided to tenants, including brochures and restrictions to reduce pollutants from reaching the storm drain system. Examples include tips for pet care, household tips, and proper household hazardous waste disposal.	Educational materials will be provided to tenants annually. Materials to be distributed are found in Appendix C of this WQMP. Tenants will be provided these materials by the Property Management prior to occupancy and annually thereafter. Frequency: Annually	National Community Renaissance
Yes	N2. Activity Restrictions The owner shall develop ongoing activity restrictions that include those that have the potential to create adverse impacts on water quality. Activities include, but are not limited to: handling and disposal of contaminants, fertilizer and pesticide application restrictions, litter control and pick-up, and vehicle or equipment repair and maintenance in non-designated areas, as well as any other activities that may potentially contribute to water pollution.	The Owner will prescribe activity restrictions to protect surface water quality, through lease terms or other equally effective measure, for the property. Restrictions include, but are not limited to, prohibiting vehicle maintenance or vehicle washing. Frequency: Ongoing	National Community Renaissance

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX			
BMP Applicable? Yes/No	**BMP Name and BMP Implementation, Maintenance and Inspection Procedures**	**Implementation, Maintenance, and Inspection Frequency and Schedule**	**Person or Entity with Operation & Maintenance Responsibility**
Yes	N3. Common Area Landscape Management The Owner shall be responsible for ongoing maintenance and management of landscaped areas on the project site, consistent with OC DAMP Section 5.5, Management Guidelines for Use of Fertilizers as well as City standards. Program includes how to reduce the potential pollutant sources of fertilizer and pesticide uses, utilization of water-efficient landscaping practices, ongoing trimming and other landscape maintenance activities and proper disposal of landscape wastes by the owner and/or contractors.	Maintenance shall be consistent with City requirements. Fertilizer and/or pesticide usage shall be consistent with County Management Guidelines for Use of Fertilizers (OC DAMP Section 5.5). Maintenance includes mowing, weeding, and debris removal on a weekly basis. Trimming, replanting, and replacement of mulch shall be performed on an as-needed basis to prevent exposure of erodible surfaces. Trimmings, clippings, and other landscape wastes shall be properly disposed of in accordance with local regulations. Materials temporarily stockpiled during maintenance activities shall be placed away from water courses and storm drains inlets. Frequency: Monthly	National Community Renaissance
Yes	N4. BMP Maintenance The Owner will be responsible for the implementation and maintenance of each applicable LID and structural BMP prescribed for the project. Inspection and maintenance will be carried out by property management staff and/or contractors.	Maintenance of structural BMPs implemented at the project site shall be performed at the frequency prescribed in this WQMP. Records of inspections and BMP maintenance shall be kept by the Owner and shall be available for review upon request. Frequency: Ongoing	National Community Renaissance
No	N5. Title 22 CCR Compliance (How development will comply)	Not Applicable	
No	N6. Local Industrial Permit Compliance	Not Applicable	

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX			
BMP Applicable? Yes/No	**BMP Name and BMP Implementation, Maintenance and Inspection Procedures**	**Implementation, Maintenance, and Inspection Frequency and Schedule**	**Person or Entity with Operation & Maintenance Responsibility**
No	N7. Spill Contingency Plan	Not Applicable	
No	N8. Underground Storage Tank Compliance	Not Applicable	
No	N9. Hazardous Materials Disclosure Compliance	Not Applicable	
No	N10. Uniform Fire Code Implementation	Not Applicable	
Yes	N11. Common Area Litter Control The property management will be responsible for performing trash pickup and sweeping of littered common areas as needed, and weekly at a minimum. Any trash/debris waste collected shall be properly disposed of in accordance with local regulations. Responsibilities will also include noting improper disposal of materials and reporting such violations for further investigation.	Litter patrol, violations investigations, reporting and other litter control activities shall be performed on a weekly basis and in conjunction with routine maintenance activities. Frequency: Weekly	National Community Renaissance
Yes	N12. Employee Training All employees of the property owner/management and any contractors will require training to ensure that employees are aware of maintenance activities that may result in pollutants reaching the storm drain. Training will include, but not be limited to, spill cleanup procedures, proper waste disposal, and housekeeping practices.	The Owner shall educate all new employees/managers on storm water pollution prevention, particularly good housekeeping practices, prior to the start of the rainy season (October 1). Refresher courses shall be conducted on an as needed basis. Materials that may be utilized on BMP maintenance are included in Appendix D. Frequency: Annually	National Community Renaissance
No	N13. Housekeeping of Loading Docks	Not Applicable	

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX			
BMP Applicable? Yes/No	**BMP Name and BMP Implementation, Maintenance and Inspection Procedures**	**Implementation, Maintenance, and Inspection Frequency and Schedule**	**Person or Entity with Operation & Maintenance Responsibility**
Yes	N14. Common Area Catch Basin Inspection	Catch basin inlets shall be inspected and, if necessary, cleaned prior to the storm season by October 1st each year. Frequency: Annually	National Community Renaissance
Yes	N15. Street Sweeping Private Streets and Parking Lots	Parking lots must be swept at least quarterly (every 3 months), including prior to the start of the rainy season (October 1st). Frequency: Quarterly	National Community Renaissance
No	N16. Retail Gasoline Outlets	Not Applicable	
STRUCTURAL SOURCE CONTROL BMPs			
Yes	S1. Provide storm drain system stenciling and signage	The phrase "NO DUMPING! DRAINS TO OCEAN", or an equally effective phrase approved by the City, will be stenciled on all major storm drain inlets within the project site to alert the public to the destination of pollutants discharged into storm water. Storm drain stencils shall be inspected for legibility, at minimum, once every five years. Those determined to be illegible will be re-stenciled as soon as possible. Frequency: Annually	National Community Renaissance
No	S2. Design and construct outdoor material storage areas to reduce pollution introduction	Not Applicable	

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX			
BMP Applicable? Yes/No	**BMP Name and BMP Implementation, Maintenance and Inspection Procedures**	**Implementation, Maintenance, and Inspection Frequency and Schedule**	**Person or Entity with Operation & Maintenance Responsibility**
Yes	S3. Design and construct trash and waste storage areas to reduce pollution introduction	Sweep trash area at least once per week and before October 1st each year. Maintain area clean of trash and debris at all times. Frequency: Weekly	National Community Renaissance
Yes	S4. Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	In conjunction with routine maintenance activities, verify that landscape design continues to function properly by adjusting properly to eliminate overspray to hardscape areas, and to verify that irrigation timing and cycle lengths are adjusted in accordance with water demands, given time of year, weather, and day or night time temperatures. Water from testing/flushing shall be collected and properly disposed to the sewer system and shall not discharge to the storm drain system. Frequency: 2x per year	National Community Renaissance
No	S5. Protect slopes and channels and provide energy dissipation	Not Applicable	
No	S6. Dock areas	Not Applicable	
No	S7. Maintenance bays	Not Applicable	
No	S8. Vehicle wash areas	Not Applicable	
No	S9. Outdoor processing areas	Not Applicable	
No	S10. Equipment wash areas	Not Applicable	

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX			
BMP Applicable? Yes/No	BMP Name and BMP Implementation, Maintenance and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
No	S11. Fueling areas	Not Applicable	
No	S12. Hillside landscaping	Not Applicable	
No	S13. Wash water control for food preparation areas	Not Applicable	
No	S14. Community car wash racks	Not Applicable	

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX		
BMP Name and BMP Implementation, Maintenance and Inspection Procedures	**Implementation, Maintenance, and Inspection Frequency and Schedule**	**Person or Entity with Operation & Maintenance Responsibility**
LOW IMPACT DEVELOPMENT BMPs		
Infiltration BMP #1: Maxwell Plus Drywell (or similar)	Performed in accordance with manufacturer's specifications. Typical maintenance includes conducting routine inspections for accumulation and cleaning/pollutant removal as necessary from the pre-treatment settling chamber. Quarterly inspections will help maintain optimal performance and to determine typical accumulation levels during both dry-weather and wet-weather flows. The pretreatment settling chamber shall be cleaned when sediment accumulation is at or above the "cleanout line" marked inside of the chamber, and at a minimum of once per year, prior to the start of the storm season. Care should be taken to prevent spills during pollutant removal and cleaning. Oil and other hydrocarbons shall be cleaned out of the settling chamber as needed, once per year at a minimum. See attached for additional maintenance information provided by the manufacturer. Frequency: 2X per year	National Community Renaissance

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX		
BMP Name and BMP Implementation, Maintenance and Inspection Procedures	**Implementation, Maintenance, and Inspection Frequency and Schedule**	**Person or Entity with Operation & Maintenance Responsibility**
BMP #2 Underground Detention System (Contech CMP or similar)	The underground detention system shall be inspected annually and after major storm events, and cleaned at a minimum of once per year, prior to the start of the rainy season (October 1st). Cleaning and maintenance will be performed per manufacturer specifications and will typically include removal of any trash and debris and excess sediment within the pipes. Sediment shall be removed when deposits approach within 6 inches of the invert heights of the connecting pipes between the chamber rows or inlet structures. Frequency: Annually	National Community Renaissance
Pre-Treatment BMP #3: Hydrodynamic Separator (CDS or similar)	The hydrodynamic separator should be inspected for oil, sediment, trash and debris. The proposed system will need to be maintained in accordance with the manufacturer's specifications. Buildup of debris may block the inlet or outlet pipe which could result in ineffective operation of the system. Typical maintenance will include removal of sediment and solids using a vacuum truck when system is 75% full. Frequency: 2x per year	National Community Renaissance

Required Permits

Permits are not required for the implementation, operation, and maintenance of the BMPs.

Forms to Record BMP Implementation, Maintenance, and Inspection

The form that will be used to record implementation, maintenance, and inspection of BMPs is attached.

Recordkeeping

All records must be maintained for at least five (5) years and must be made available for review upon request.

Waste Management

Any waste generated from maintenance activities will be disposed of properly. Wash water and other waste from maintenance activities is not to be discharged or disposed of into the storm drain system. Clippings from landscape maintenance (i.e. prunings) will be collected and disposed of properly off-site, and will not be washed into the streets, local area drains/conveyances, or catch basin inlets.

Funding

As stated in Section II.5 and Section V of the WQMP, National Community Renaissance will lease part of the property from the Church of the Blessed Sacrament for the residential housing development.

The owner and lessee are aware of the maintenance responsibilities of the proposed BMPs. A funding mechanism is in place to maintain the BMPs at the frequency stated in the WQMP. A maintenance agreement will be drafted between the owner (Church of the Blessed Sacrament) and the lessee (National Community Renaissance). Once established, the lessee will enforce Covenants, Conditions and Restrictions (CC&Rs) related to the property. They be responsible to inform residents of established CC&Rs in compliance with the O&M of the project's WQMP as well as inspect and maintain the structural BMPs outlined in the WQMP.

PROJECT OWNER'S CERTIFICATION			
Permit/Application No.:	Pending	Grading Permit No.:	Pending
Tract/Parcel Map and Lot(s)No.:		Building Permit No.:	Pending
Address of Project Site and APN:	1314 North Angelina Drive, Placentia, CA 92870 APN: 340-273-25		

This Water Quality Management Plan (WQMP) has been prepared for BLESSED SACRAMENT CHURCH by FUSCOE ENGINEERING, INC. The WQMP is intended to comply with the requirements of the County of Orange NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan , including the ongoing operation and maintenance of all best management practices (BMPs), and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

OWNER:			
Name:	Michael Ruane		
Title:	Executive Vice President		
Company:	National Community Renaissance		
Address:	9421 Haven Avenue Rancho Cucamonga, CA 91730		
Email:	mruane@nationalcore.org		
Telephone #:	(909) 204-3451		
I understand my responsibility to implement the provisions of this WQMP including the ongoing operation and maintenance of the best management practices (BMPs) described herein.			
Owner Signature:		Date:	7/9/2020

PRELIMINARY WATER QUALITY MANAGEMENT PLAN
PLACENTIA SENIOR HOUSING
PLACENTIA, CA

RECORD OF BMP IMPLEMENTATION, MAINTENANCE, AND INSPECTION

Today's Date: ______________________________

Name of Person Performing Activity (Printed): ______________________________

Signature: ______________________________

BMP Name (As Shown in O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed

RECORD OF BMP IMPLEMENTATION, MAINTENANCE, AND INSPECTION

Today's Date: ______________________________

Name of Person Performing Activity (Printed): ______________________________

Signature: ______________________________

BMP Name (As Shown in O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed

OPERATION AND MAINTENANCE OF *MaxWell*® DRYWELL

The Operation and Maintenance Format will include the following key components:

1.) Inspection Guidelines:

New installations

Newly installed systems should receive a thorough visual examination following the first several significant rainfall events. This assessment will assure that there is no standing water, and that runoff or nuisance water flows are being eliminated within the allowable 48 hour draw-down timeframe.

Ongoing Operations

At a minimum, the drainage structures should be inspected annually, and within 48 hours following a significant storm event to ensure that there is no standing water in the chambers.

2.) Maintenance Format:

After the first 12-months of entering service, it is recommended that an initial cleaning be undertaken. This will help to establish the amount of accumulated particulate matter and debris to be expected on a yearly basis. Thereafter, the systems should receive inspection at least annually, and cleaning should be undertaken when the evaluation reveals that 15% or more of the original chamber volume is occupied by silt and sediment.

During the maintenance operation, all screens and filters should be serviced and the floating absorbent blankets replaced, along with the geo-textile fabric at the bottom of the chambers. Should repair be needed, descriptions of deficiencies and estimated costs for suggested corrections should be provided. The above information shall be submitted in writing to the Owner at the conclusion of the maintenance service. Replacement is recommended for drywells that no longer dispose of ponded water within 48 hours after cleaning.

3.) Maintenance Records:

A written log shall be kept on-site of all inspections and maintenance performed on the drainage systems.

CONTECH®
ENGINEERED SOLUTIONS

CDS® Inspection and Maintenance Guide

CDS TECHNOLOGIES

Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point would allows both sump cleanout and access outside the screen.

The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine weather the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning

Cleaning of a CDS systems should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be power washed to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes.

CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y^3	m^3
CDS1515	3	0.9	3.0	0.9	0.5	0.4
CDS2015	4	1.2	3.0	0.9	0.9	0.7
CDS2015	5	1.3	3.0	0.9	1.3	1.0
CDS2020	5	1.3	3.5	1.1	1.3	1.0
CDS2025	5	1.3	4.0	1.2	1.3	1.0
CDS3020	6	1.8	4.0	1.2	2.1	1.6
CDS3025	6	1.8	4.0	1.2	2.1	1.6
CDS3030	6	1.8	4.6	1.4	2.1	1.6
CDS3035	6	1.8	5.0	1.5	2.1	1.6
CDS4030	8	2.4	4.6	1.4	5.6	4.3
CDS4040	8	2.4	5.7	1.7	5.6	4.3
CDS4045	8	2.4	6.2	1.9	5.6	4.3
CDS5640	10	3.0	6.3	1.9	8.7	6.7
CDS5653	10	3.0	7.7	2.3	8.7	6.7
CDS5668	10	3.0	9.3	2.8	8.7	6.7
CDS5678	10	3.0	10.3	3.1	8.7	6.7

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities

Support

- Drawings and specifications are available at www.contechstormwater.com.
- Site-specific design support is available from our engineers.

Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater, earth stabilization and wastewater treament products. For information, visit www.ContechES.com or call 800.338.1122

The product(s) described may be protected by one or more of the following US patents: 5,322,629; 5,624,576; 5,707,527; 5,759,415; 5,788,848; 5,985,157; 6,027,639; 6,350,374; 6,406,218; 6,641,720; 6,511,595; 6,649,048; 6,991,114; 6,998,038; 7,186,058; 7,296,692; 7,297,266; 7,517,450 related foreign patents or other patents pending.

CDS Inspection & Maintenance Log

CDS Model: ______________________ Location: ______________________

Date	Water depth to sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.**

2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

APPENDIX E

CONDITIONS OF APPROVAL (PENDING ISSUANCE)

APPENDIX F

GEOTECHNICAL REPORT

ALBUS-KEEFE & ASSOCIATES, INC
GEOTECHNICAL CONSULTANTS

January 10, 2020
J.N.: 2859.00

Ms. Sarah Walker
National Community Renaissance
4322 Piedmont Drive
San Diego, CA 92107

Subject: **Preliminary Geotechnical Investigation, Proposed Residential Development, 1314 Angelina Drive, Placentia, California.**

Dear Ms. Walker,

Pursuant to your request, ***Albus-Keefe & Associates, Inc***. is pleased to present to you our preliminary geotechnical investigation report for the subject development. This report presents the results of our field investigation, laboratory testing, engineering analyses, as well as our preliminary geotechnical recommendations for design and construction of the subject development.

We appreciate this opportunity to be of service to you. If you have any questions regarding the contents of this report, please do not hesitate to call this office.

Sincerely,

ALBUS-KEEFE & ASSOCIATES, INC.

Paul Kim
Associate Engineer

TABLE OF CONTENTS

TABLE OF CONTENTS

FIGURES AND PLATES

APPENDICES

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

The purposes of our preliminary geotechnical investigation were to evaluate geotechnical conditions within the project area and to provide conclusions and recommendations relevant to the design and construction of the proposed improvements at the subject site. The scope of this investigation included the following:

- Review of the referenced conceptual site plan
- Review of published geologic and seismic data for the site and surrounding area
- Review of historical aerial photographs
- Exploratory drilling and soil sampling
- Laboratory testing of selected soil samples
- Engineering analyses of data obtained from our review, exploration, and laboratory testing
- Evaluation of site seismicity, liquefaction, and settlement potential
- Preparation of this report

1.2 SITE LOCATION AND DESCRIPTION

The site is located at 1314 North Angelina Drive within the city of Placentia, California. The property is bordered by North Angelina Drive to the West, single-family residences to the North and East, and Morse Avenue to the South. The location of the site and its relationship to the surrounding areas is shown on Figure 1, Site Location Map.

The site consists of a rectangular-shaped property containing approximately 4 acres of land. The site is relatively flat with elevations ranging from EL. 294 to EL. 297 above mean sea level (based on Google Earth) descending to the south-west. The site is currently occupied by Blessed Sacrament Episcopal Church. There are currently two existing structures and it appears that the structure located westerly is used for church gatherings. The easterly structure is used as a school facility. Associated parking areas are located along the southern boundary with vegetation occupying the remainder to the site. Perimeter walls run along the North and East boundaries and appear to be associated with the single-family residences.

Vegetation includes general landscaping in and around the structures, planters within the parking areas, grass and moderate to large sized trees within the open spaces.

© 2019 Google

N

SITE LOCATION MAP

Proposed Residential Development
1314 Angelina Drive
Placentia, California

NOT TO SCALE

FIGURE 1

1.3 PROPOSED DEVELOPMENT

Based on the conceptual site plan by RRM Design Group, dated September 5, 2019, the proposed project includes the development of two residential buildings accommodating 65 units. Building 1, at the north end of the site, is a linear two-story structure. Building 2 is a two-story, L-shaped building located interior to the site with a three-story element at the northern end of the building transitioning to two-stories toward the single-family neighborhood along the eastern property line. Associated parking, underground utilities and a storm water disposal system are also planned.

No grading or structural plans were available in preparing of this report. However, we anticipate that minor rough grading of the site will be required to achieve future surface configuration. We expect the proposed above-grade portion will be of wood-frame construction yielding relatively light foundation loads.

2.0 INVESTIGATION

2.1 RESEARCH

We have reviewed the referenced geologic publications and maps (see references). Data from these sources were utilized to develop some of the findings and conclusions presented herein.

We have also reviewed available historical aerial photographs. The aerial photos indicate that as early 1946, the subject site was part of a larger site and used for agricultural purposes. By 1967, the site was cleared of vegetation and the south half of the existing Church structure was constructed. Additionally, the north- and east-adjacent single-family residences have been constructed. By 1980, the north half of the existing Church structure was constructed. Also, at this time, the parking lot has likely been developed with asphalt. By 2002, the additional asphalt-paved parking appears east of the Church structure. By 2005, the school structure is present. The site has remained relatively unchanged since 2005.

2.2 SUBSURFACE EXPLORATION

Subsurface exploration for this investigation was conducted on December 17, 2019, and consisted of the drilling of four (4) soil borings to depths ranging from approximately 31.5 to 51.5 feet below the existing ground surface (bgs). The borings were drilled using a truck-mounted, continuous flight, hollow-stem-auger drill rig. A representative of Albus-Keefe & Associates, Inc. logged the exploratory borings. Visual and tactile identifications were made of the materials encountered, and their descriptions are presented in the Exploration Logs in Appendix A. The approximate locations of the exploratory excavations completed by this firm are shown on the enclosed Geotechnical Map, Plate 1.

Bulk, relatively undisturbed and Standard Penetration Test (SPT) samples were obtained at selected depths within the exploratory borings for subsequent laboratory testing. Relatively undisturbed samples were obtained using a 3-inch O.D., 2.5-inch I.D., California split-spoon soil sampler lined with brass rings. SPT samples were obtained from the boring using a standard, unlined SPT soil sampler. During each sampling interval, the sampler was driven 18 inches with successive drops of a 140-pound automatic hammer falling 30 inches. The number of blows required to advance the sampler was recorded for each six inches of advancement. The total blow count for the lower 12 inches of advancement per soil sample is recorded on the exploration log. Samples were placed in sealed containers or plastic bags and transported to our laboratory for analyses. The borings were backfilled with auger cuttings upon completion of sampling.

One additional boring was drilled adjacent to boring B-1 for percolation testing. An additional percolation well was also installed in B-3. Details and results of percolation tests are reported under a separate cover.

2.3 LABORATORY TESTING

Selected samples of representative earth materials from our borings were tested in our laboratory. Tests consisted of USCS classification, in-situ moisture content and dry density, expansion index, maximum dry density and optimum moisture content, consolidation/collapse, direct shear strength, grain size analysis, percent passing No. 200 sieve, soluble sulfate content, and corrosivity testing (pH, chloride, and resistivity). Descriptions of laboratory testing and the test results are presented in Appendix B and on the Exploration Logs in Appendix A.

3.0 GEOLOGIC CONDITIONS

3.1 SOIL CONDITIONS

Descriptions of the earth materials encountered during our investigation are summarized below and are presented in detail on the Exploration Logs presented in Appendix A.

Soil materials encountered at the subject site generally consisted of Quaternary-aged alluvium (Qal). However, artificial fill materials were encountered within the parking lot at B-1 with an approximate thickness of 4 feet. The artificial fill consists of a sandy clay, grayish brown, moist, very stiff with fine to medium grained sand.

The alluvial materials were encountered to the maximum depth explored of 51.5 feet and are comprised of interbedded layers of damp to moist, reddish brown and light reddish-brown sandy clay, silty sand, clayey sand, silty clay, and sand. The granular alluvial soils are typically medium dense while the fine-grained alluvial soils are typically very stiff to hard.

A more detailed description of the interpreted soil profile at each of the boring locations, based upon the soil cuttings and soil samples, are presented in Appendix A. The stratigraphic descriptions in the logs represent the predominant materials encountered during investigation. Relatively thin, often discontinuous layers of different material may occur within the major divisions.

3.2 GROUNDWATER

Groundwater was not encountered during this firm's subsurface exploration to the maximum depth of 51.5 feet. Based on a review of the referenced CDMG Special Report, the historical groundwater for the site is not available. Additional review of the Department of Water Resources groundwater level data for the nearby well 338950N1178554W001 (approximately 2,600 feet to the northeast) indicates that groundwater for the area is below 150 feet in depth between 1970 to present. Review of well data from the State Water Resources Board GeoTracker database indicates groundwater levels in excess of 110 feet below the ground surface. These wells are estimated to be in generally similar geologic conditions based on review available geologic maps.

3.3 FAULTING

Geologic literature and field exploration do not indicate the presence of active faulting within the site. The site does not lie within an "Earthquake Fault Zone" as defined by the State of California in the Earthquake Fault Zoning Act. Table 3.1 presents a summary of all the known seismically active faults within 10 miles of the site.

TABLE 3.1
Summary of Active Faults

Name	Distance (miles)	Slip Rate (mm/yr.)	Preferred Dip (degrees)	Slip Sense	Rupture Top (km)	Fault Length (km)
Puente Hills (Coyote Hills)	0.91	0.7	26	thrust	2.8	17
Elsinore;W+GI	2.97	n/a	81	strike slip	0	83
Elsinore;W+GI+T+J+CM	2.97	n/a	84	strike slip	0	241
Elsinore;W	2.97	2.5	75	strike slip	0	46
Elsinore;W+GI+T	2.97	n/a	84	strike slip	0	124
Elsinore;W+GI+T+J	2.97	n/a	84	strike slip	0	199
Puente Hills (Santa Fe Springs)	9.57	0.7	29	thrust	2.8	11
Puente Hills (Coyote Hills)	0.91	0.7	26	thrust	2.8	17
Elsinore;W+GI	2.97	n/a	81	strike slip	0	83
Elsinore;W+GI+T+J+CM	2.97	n/a	84	strike slip	0	241
Elsinore;W	2.97	2.5	75	strike slip	0	46
Elsinore;W+GI+T	2.97	n/a	84	strike slip	0	124

4.0 ANALYSES

4.1 SEISMICITY AND SEISMIC DESIGN PARAMETERS

2019 CBC requires seismic parameters in accordance with ASCE 7-16. Unless noted otherwise, all section numbers cited in the following refer to the sections in ASCE 7-16.

Per Section 20.3 the project site was designated as Site Class D. We used USGS seismic design maps web tool developed by SEAOC and OSHPD to obtain the basic mapped acceleration parameters, including short periods (S_S) and 1-second period (S_1) MCE_R Spectral Response Accelerations. Section 11.4.8 requires site-specific ground hazard analysis for structures on Site Class E with S_S greater than or equal to 1.0 or Site Class D or E with S_1 greater than or equal to 0.2. Based on the mapped values of S_S and S_1 the project site falls within this category, requiring site specific hazard analysis in accordance with Section 21.2.

According to Section 21.2.3 (Supplement 1), the site-specific Risk Targeted Maximum Considered Earthquake (MCE_R) spectral response acceleration at any period is the lesser of the probabilistic and the deterministic response accelerations, subject to the exception specified in the same section. The probabilistic response spectrum was developed using USGS Risk Targeted Ground Motion (RTGM) calculator, which implements Method 2 as described on Section 21.2.1.2. The spectral acceleration and annual frequency of exceedance required by the RTGM calculator were extracted from hazard curves produced by USGS Unified Hazard Tool for the project site.

In accordance with Section 21.2.2 (Supplement 1), the deterministic spectral response acceleration at each period was calculated as the 84th percentile, 5% damped, response acceleration, using the NGA-West2 GMPE Worksheet. For this, the information from at least three causative faults with the greatest contribution per deaggregation analysis were used, and the larger acceleration spectrum among these was selected as the deterministic response spectrum. The deterministic spectrum was adjusted per requirements in Section 21.2.2 (Supplement 1) where applicable. Both probabilistic and deterministic spectra were subjected to the maximum direction scale factors specified in Section 21.2 to produce the maximum acceleration spectra.

Design response spectrum was developed by subjecting the site-specific MCE_R response spectrum to the provisions outlined in Section 21.3. This process included comparison with 80% code-based design spectrum determined in accordance with Section 11.4.6. The short period and long period site coefficient (F_a and F_v, respectively) were determined per Section 21.3 in conjunctions with Table 11.4-1. Site specific design acceleration parameters (S_{MS}, S_{M1}, S_{DS}, and S_{D1}) were calculated according to Section 21.4.

Per Section 11.2 (definitions on Page 79 of ASCE7-16) for evaluation of liquefaction, lateral spreading, seismic settlements, and other soil-related issues, Maximum Considered Earthquake Geometric Mean (MCE_G) peak ground acceleration PGA_M shall be used. The site-specific PGA_M is calculated per Section 21.5.3, as the lesser of the probabilistic PGA_M (Section 21.5.1) and deterministic PGA_M (Section 21.5.2), but no less than 80% site modified peak ground acceleration, PGA_M, obtained from SEAOC/OSHPD web-based seismic hazard tool.

4.2 STATIC SETTLEMENT

Analyses were performed to evaluate the potential for static settlement of the underlying alluvial soils. Our analyses were based on the results of consolidation tests performed on selected samples from our borings as well as the recorded blow counts during the exploration. Results of our testing indicate the native site materials have low to moderate compressibility. In its current state, the native materials would result in excessive settlement due to the weight of new foundations.

The artificial fill soils were not considered in our settlement analysis as it is considered unsuitable for support of the proposed site development.

Provided remedial removals are performed, total and differential static settlement can likely be limited to a maximum of 1 inch and ½-inch over 30 feet, respectively. These estimated magnitudes of static settlements are considered within tolerable limits for the proposed structures.

5.0 CONCLUSIONS

5.1 FEASIBILITY OF PROPOSED DEVELOPMENT

From a geotechnical point of view, the proposed site development is considered feasible provided the recommendations presented in this report are incorporated into the design and construction of the project. Furthermore, it is the opinion that the proposed development, if constructed in accordance with the recommendations provided in our referenced report, will be safe against hazards from settlement, slippage, or landslides. The proposed site development will have no adverse effects on the stability of adjacent property if graded in accordance with this firm's recommendations and the approved rough grading plans.

Key issues that could have significant fiscal impacts on the geotechnical aspects of the proposed site development are discussed in the following sections of this report.

5.2 GEOLOGIC HAZARDS

5.2.1 Ground Rupture

No active faults are known to project through the site nor does the site lie within the bounds of an "Earthquake Fault Zone" as defined by the State of California in the Los Angeles Earthquake Fault Zoning Act. As such, the potential for ground rupture due to fault displacement beneath the site is considered very low. The nearest zoned fault is the Whittier Fault located 3.5 miles to the northeast.

5.2.2 Ground Shaking

The site is located in a seismically active area that has historically been affected by moderate to occasionally high levels of ground motion. The site lies in relatively close proximity to several seismically active faults; therefore, during the life of the proposed development, the property will probably experience moderate to occasionally high ground shaking from these fault zones, as well as some background shaking from other seismically active areas of the southern California region. Design of proposed structures in accordance with the current CBC is anticipated to adequately mitigate concerns with ground shaking.

5.2.3 Landsliding

Geologic hazards associated with landsliding are not anticipated at the site due to not being located within an area identified by the California Geologic Survey (CGS) as having potential for seismic slope instability. Additionally, the site is relatively level.

5.2.4 Liquefaction

Engineering research of soil liquefaction potential (Youd, et al., 2001) indicates that generally three basic factors must exist concurrently in order for liquefaction to occur. These factors include:

- A source of ground shaking, such as an earthquake, capable of generating soil mass distortions.
- A relatively loose silty and/or sandy soil.
- A relative shallow groundwater table (within approximately 50 feet below ground surface) or completely saturated soil conditions that will allow positive pore pressure generation.

The liquefaction susceptibility of the onsite soils was evaluated by analyzing the potential of concurrent occurrence of the above-mentioned three basic factors. The liquefaction evaluation for the site was completed under the guidance of Special Publication 117A: Guidelines for Evaluating and Mitigating Seismic Hazards in California (CDMG, 2008).

Based on the historically low groundwater level, the potential for liquefaction at the site is considered to be low. Additionally, the site is not mapped within a State-designated zone of potentially liquefiable soils.

5.3 STATIC SETTLEMENT

The existing artificial fills are considered unsuitable for support of the proposed development. Additionally, the near-surficial alluvial soils are compressible which would result in excessive settlements for the proposed development in its current condition. Therefore, removal and recompaction of the existing surficial soils to provide a uniform compacted blanket will be necessary. Provided grading and construction are performed in accordance with the recommendations provided herein, estimated total and differential settlement of proposed site improvements are anticipated to be less than 1 inch and ½ inch over 30 feet, respectively. These magnitudes of settlement are considered within tolerable limits of proposed site development.

5.4 EARTHWORK AND MATERIAL CHARACTERISTICS

All artificial fill is considered unsuitable to support proposed site development. This condition can be mitigated by the removal and re-compaction of the unsuitable soils. The non-engineered fill is estimated to be approximately 3 feet in depth and located in the southwest corner of the site. Although, locally deeper conditions may exist and likely throughout the site, particularly in the vicinity of the existing structures.

Removal and recompaction of the existing surficial materials is anticipated to result in minor shrinkage. Design of site grading will require consideration of this loss when evaluating earthwork balance issues.

Onsite earth materials are anticipated to be relatively easy to excavate with conventional heavy earthmoving equipment. The site earth materials are generally considered suitable for reuse as fill provided they are cleared on deleterious debris and oversized rocks (greater than 12 inches in greatest dimension). Site materials are generally below the optimum moisture content with a few localized layers above the optimum moisture content. As such, fill soils derived from onsite soils will require the addition of minor amounts of water and mixing in preparation for reuse as compacted fill.

Temporary construction slopes will be required to complete removal of unsuitable soils and for construction of underground utilities. Such excavations will require laybacks where they are surcharged or where they exceed 4 feet in height. Specific recommendations to provide for stable temporary cuts are provided later in this report. The use of appropriate shoring or lay backs will be essential to protect workers and prevent delays due to caving during trenching or temporary backcut activities. These materials will also be very prone to erosion during periods of rain until they are covered by pavement or mature landscaping. Appropriate protection during the rainy season will be required to avoid costly repairs due to erosion.

If encountered, portions of concrete debris and asphalt can likely be reduced in size (4” minus) and incorporated within fill soils during earthwork operations.

Onsite disposal systems, clarifiers, and other underground improvements may also be present beneath the site. If encountered during future demolition or rough grading, these improvements will require proper abandonment or removal.

Off-site improvements exist near the property lines. The presence of the existing offsite improvements may limit removals of unsuitable materials adjacent the property lines. Special grading techniques, such as slot cuttings, will be required adjacent to property lines where offsite structures are nearby. Construction of perimeter site walls may require deepened footings where removals are restricted by property boundaries.

5.5 SHRINKAGE AND SUBSIDENCE

Volumetric changes in earth quantities will occur when excavated onsite soil materials are replaced as properly compacted fill. We estimate that the existing surficial soils will shrink approximately up to 10 percent. Subsidence due to reprocessing of removal bottoms is anticipated to be negligible. The estimates of shrinkage and subsidence are intended as an aid for project engineers in determining earthwork quantities. However, these estimates should be used with some caution since they are not absolute values. Contingencies should be made for balancing earthwork quantities based on actual shrinkage and subsidence that occurs during the grading process.

5.6 SOIL EXPANSION

Based on our laboratory test results and USCS visual manual classification, the near-surface soils and the anticipated soils at basement subgrade within the site are generally anticipated to possess a **Low to medium** expansion potential. Additional testing for soil expansion will be required subsequent to rough grading and prior to construction of foundations and other concrete flatwork to confirm these conditions.

6.0 RECOMMENDATIONS

6.1 EARTHWORK

6.1.1 General Earthwork and Grading Specifications

All earthwork and grading should be performed in accordance with all applicable requirements of the grading codes of the City of Placentia, California and CAL OSHA, in addition to recommendations presented herein.

6.1.2 Pre-Grade Meeting and Geotechnical Observation

Prior to commencement of earthwork operations and foundation installation, we recommend a meeting be held between the City Inspector, general contractor, civil engineer, and geotechnical consultant to discuss proposed earthwork and logistics.

We also recommend that a geotechnical consultant be retained to provide soil engineering and engineering geologic services during site development. This is to observe compliance with the design specifications and recommendations, and to allow design changes in the event that subsurface conditions differ from those anticipated. If conditions are encountered during construction that appears to be different than those indicated in this report, the project geotechnical consultant should be notified immediately. Design and construction revisions may be required.

6.1.3 Site Clearing

Site improvements, such as asphaltic pavement, structural foundations and underground utilities, should be removed from the areas to be developed prior to any grading activities. Existing underground utility lines within the project area that will be protected in place and that fall within a 1 to 1 (H:V) plane projected down from the edges of footings may be subject to surcharge loads. Under such conditions, this office should be made aware of these conditions for evaluation of potential surcharging. Supplemental recommendations may be required to protect such improvements in place.

In general, seepage pits that are open should be cleared of any fluids and then filled with 2-sack cement slurry up to within 5 feet of proposed grades. Any brick lining that remains in the upper 5 feet should be removed and the remainder of the pit filled with engineered fill in accordance with Section 6.1.5. Seepage pits that are presently backfilled with soil should be removed to a depth of 10 feet below pad grade and be capped with 2-sack cement slurry. The slurry cap should be at least 5 feet thick and should extend at least 12 inches outside the perimeter of the seepage pit. The remaining 5 feet should be filled with engineered fill in accordance with Section 6.1.5.

The project geotechnical consultant should be notified at the appropriate times to provide observation services during clearing operations to verify compliance with the above recommendations. Voids created by clearing and excavation should be left open for observation by the geotechnical consultant. Should any unusual soil conditions or subsurface structures be encountered during site clearing or grading that are not described or anticipated herein, these conditions should be brought to the immediate attention of the project geotechnical consultant for corrective recommendations as needed.

Temporary construction equipment (office trailers, power poles, etc.) should be positioned to allow adequate room for clearing and recommended ground preparation to be performed for proposed structures, pavements, and hardscapes.

6.1.4 Site Preparation (Removals and Overexcavations)

In general, the artificial fill and the near-surface compressible materials are considered unsuitable for support of the proposed development at the site. These materials should be removed from proposed building, street and other “structural” areas, and replaced as engineered compacted fill. The removal depth is anticipated to be up to 4 feet and existing soils should be over-excavated to at least a depth of 2 feet below the bottom of footings for structures supported by conventional spread footings at grade. The actual depth of removal should be determined by the geotechnical consultant during grading.

The removals should extend laterally a distance of at least 5 feet beyond the limits of the proposed structures or a 1:1 projection down and away from the bottom of the footings, whichever is greater. Removals for retaining walls less than 3 feet in height and screen walls may be limited to the edge of the foundations or pavement. Upon review of more detailed site development plans, the depth of removals for short retaining walls and screen walls may be lessened from the general removals described above.

Where removals are limited by existing structures, protected trees or property lines, special considerations may be required in the construction of affected improvements. Under such conditions, specific recommendations should be provided by this firm based on review of site-specific development plans.

Following removals/excavation, the exposed grade should first be scarified to a depth of 6 inches, brought to at least 120 percent of the optimum moisture content, and then compacted to at least 90 percent of the laboratory standard (ASTM D 1557).

6.1.5 Fill Placement

Materials excavated from the site may be reused as fill provided they are free of deleterious materials and particles greater than 4 inches in maximum dimension (oversized materials). Asphaltic and concrete debris generated during site demolition or encountered within the existing fill can be incorporated within new fill soils during earthwork operations provided they are reduced to no more than 4 inches in maximum dimension. Such materials should be mixed thoroughly with fill soils to prevent nesting. All fill should be placed in lifts no greater than 8 inches in loose thickness, moisture conditioned to over the optimum moisture content, then compacted in place to at least 90 percent of the laboratory standard. Each lift should be treated in a similar manner. Subsequent lifts should not be placed until the project geotechnical consultant has approved the preceding lift.

6.1.6 Import Materials

If import materials are required to achieve the proposed finish grades, the proposed import soils should have an Expansion Index (EI, ASTM D 4829) less than 50 and possess negligible soluble sulfate concentrations. Import sources should be indicated to the geotechnical consultant prior to hauling the materials to the site so that appropriate testing and evaluation of the fill materials can be performed in advance.

6.1.7 Temporary Excavations

Temporary construction slopes or trench excavations in site materials may be cut vertically up to a height of 4 feet provided that no surcharging of the excavations is present. Temporary slopes over 4 feet in height but no more than 10 feet in height should be laid back to 1:1 (H:V) or flatter and evaluated by the geotechnical consultant.

Excavations should not be left open for prolonged periods of time. The project geotechnical consultant should observe all temporary cuts to confirm anticipated conditions and to provide alternate recommendations if conditions dictate. All excavations should conform to the requirements of CAL OSHA.

Where temporary excavations cannot accommodate a 1:1 layback or where surcharging occurs, shoring, slot cutting, underpinning, or other methods should be used. Specific recommendations for other options if considered should be provided by the geotechnical consultant based on review of the final design plans.

6.2 SEISMICITY

Following ASCE7-16, Section 21.5.3, we have estimated site-specific Maximum Considered Earthquake Geometric Mean (MCE_G) peak ground acceleration PGA_M = 0.745g. Per Section 11.2, this value should be used for evaluation of liquefaction, lateral spreading, seismic settlements, and other soil-related issues. Based on the results of deaggregation analysis performed using USGS Unified Hazard Tool, the mean event associated with a probability of exceedance equal to 2% over 50 years has a moment magnitude of 6.68 and the mean distance to the seismic source is 5.6 miles.

6.3 SEISMIC DESIGN PARAMETERS

For design of the project in accordance with Chapter 16 of the 2019 CBC, the table below presents the seismic design factors.

TABLE 6.1
CBC 2019 SEISMIC DESIGN PARAMETERS

Parameter	Value
Site Class	D
Mapped MCE Spectral Response Acceleration, short periods, S_S	1.730
Mapped MCE Spectral Response Acceleration, at 1-sec. period, S_1	0.609
Site Coefficient, Fa	**1.0**
Site Coefficient, Fv	**2.5**
Adjusted MCE Spectral Response Acceleration, short periods, S_{MS}	**1.891**
Adjusted MCE Spectral Response Acceleration, at 1-sec. period, S_{M1}	**1.465**
Design Spectral Response Acceleration, short periods, S_{DS}	**1.261**
Design Spectral Response Acceleration, at 1-sec. period, S_{D1}	**0.977**
Long-Period Transition Period, T_L (sec.)	8
Seismic Design Category for Risk Categories I-IV	**D**
MCE = Maximum Considered Earthquake	

Boldface values: Site-specific values per ASCE7-16; other values are mapped values.

6.4 FOUNDATION DESIGN

6.4.1 General

The following recommendations are provided for preliminary design purposes. These recommendations have been based on the site materials exposed during our investigation, our understanding of the proposed development, and the assumption that the recommendations presented herein are incorporated into the design and construction of the project. Final recommendations should be provided by the project geotechnical consultant following review of final foundation plans as well as observation and testing of site materials during grading. Depending upon the design plans and actual site conditions, the recommendations provided herein may require modification.

6.4.2 Soil Expansion

The recommendations presented herein are based on soils with a **Low to Medium** expansion potential (EI≤60). Following site grading, additional testing of site soils should be performed by the project geotechnical consultant to confirm the basis of these recommendations. If site soils with higher expansion potentials are encountered or imported to the site, the recommendations contained herein may require modification.

6.4.3 Settlement

Under normal static conditions, the foundation system should be designed to tolerate a total settlement of 1 inch and a differential settlement of 1/2-inch over 30 feet. These estimated magnitudes of settlement should be considered by the structural engineer in design of the proposed structures at the site.

6.4.4 Allowable Bearing Value

Foundations for the basement may utilize a bearing value of 2,100 pounds per square foot (psf) for continuous and pad footings a minimum width of 12 inches and founded at a minimum depth of 12 inches below the lowest adjacent grade. This value may be increased by 230 psf and 650 psf for each additional foot in width and depth, respectively, up to a maximum value of 3,400 psf. Recommended allowable bearing values include both dead and live loads, and may be increased by one-third for wind and seismic forces.

6.4.5 Lateral Resistance

Provided site grading is performed and that foundations are founded in engineered fill, a passive earth pressure of 240 pounds per square foot per foot of depth (psf/ft) up to a maximum value of 2,000 pounds per square foot (psf) may be used to determine lateral bearing for footings. This value may be increased by one-third when designing for wind and seismic forces. A coefficient of friction of 0.31 times the dead load forces may also be used between concrete and the supporting soils to determine lateral sliding resistance. No increase in the coefficient of friction should be used when designing for wind and seismic forces. Footings against property lines should have the above-noted values reduced by 50 percent.

The above values are based on footings placed directly against compacted fill or competent native soils. In the case where footing sides are formed, all backfill against the footings should be compacted to at least 90 percent of the laboratory standard.

6.4.6 Conventional Spread Foundations and Slabs on Grade

All exterior and interior continuous footings should have a minimum width of 12 inches and minimum embedment of 12 inches below lowest adjacent grade. All continuous footings for habitable structures should be reinforced with a minimum of one No. 4 bar on top and one No. 4 bar on the bottom.

All spread footings used to support columns should have a minimum width of 18 inches and minimum embedment of 12 inches below lowest adjacent grade. All spread footings in habitable structures should be tied in both directions with a grade beam having a minimum depth and width of 12 inches. The grade beams should be reinforced with a minimum of one No. 4 bar on top and one No. 4 bar on the bottom. Reinforcing of the grade beams should hook into the footings.

Interior concrete slabs constructed on grade should be a nominal 4 inches thick and should be reinforced with 6-inch by 6-inch, W4 X W4 reinforcing wire mesh or No. 3 bars spaced 12 inches on center, each way. Care should be taken to ensure the placement of reinforcement at mid-slab height. Slabs on grade in habitable structures should be hooked to the underlying grade beams on a minimum spacing of 24 inches or poured monolithically with the grade beams.

Interior grade beams as required by the WRI method should be provided in both directions at a maximum spacing of 20 feet. Design of the slab in accordance with the WRI method may use an effective PI of 23. This value already accounts for the factors for ground slope and over-consolidation.

All slabs on grade that may have moisture sensitive coverings should be underlain with a minimum of 10-mil moisture vapor retarder conforming to ASTM E 1745, Class A. A minimum of four (4) inches of clean sand having a sand equivalent (SE) of at least 30 should be placed under the membrane. An additional one inch of the sand (SE>30) may be placed over the vapor barrier to aid in the uniform curing of the slab if preferred. This vapor barrier system is anticipated to be suitable for most flooring finishes that can accommodate some vapor emissions. However, this system may emit more than 4 pounds of water per 1000 sq. ft. and therefore, may not be suitable for all flooring finishes. Additional steps should be taken if such vapor emission levels are too high for anticipated flooring finishes.

Prior to placing concrete, the subgrade below all floor slab areas should be moisture-conditioned to achieve a moisture content that is at least 120 percent of the optimum moisture content. This moisture content should be maintained a minimum depth of 12 inches below the bottoms of the slabs.

6.4.7 Foundation Observations

Foundation excavation should be observed by the project geotechnical consultant to verify that they have been excavated into competent bearing soils and to the minimum embedment recommended above. These observations should be performed prior to placement of forms or reinforcement. The excavations should be trimmed neat, level and square. Loose, sloughed or moisture-softened materials and debris should be removed prior to placing concrete.

6.5 RETAINING AND SCREENING WALLS

6.5.1 General

The following preliminary design and construction recommendations are provided for general retaining and screen walls supported by engineered compacted fill or competent native soils. Final wall designs specific to the site development should be provided for review once completed. The structural engineer and architect should provide appropriate recommendations for sealing at all joints and applying moisture-proofing material on the back of the walls.

6.5.2 Allowable Bearing Value and Lateral Resistance

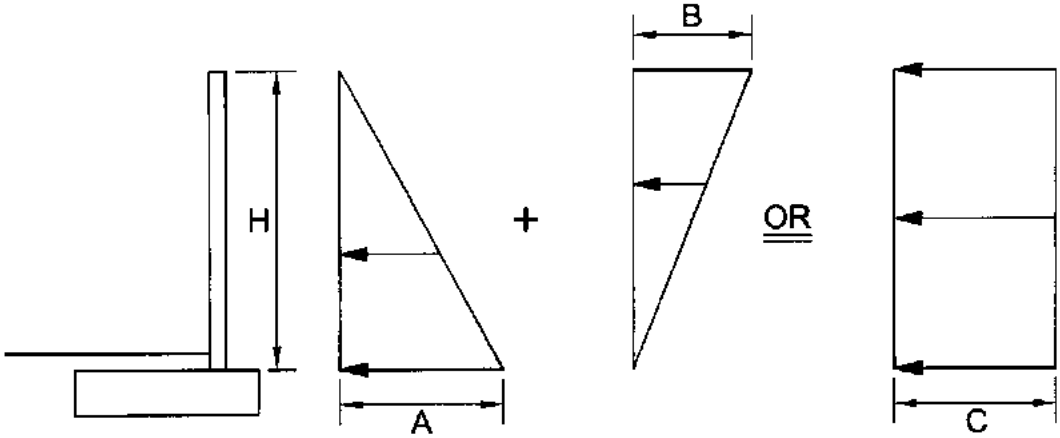
Design of retaining and screen walls may utilize the bearing and lateral resistance values provided in Section 0 and 6.4.5. Lateral resistance for walls along property lines, where lateral removals are restricted should be reduced by 50%.

6.5.3 Active Earth Pressures

Static and seismic earth pressures for level and 2:1 (H:V) backfill conditions are provided in Table 6.2. Seismic earth pressures provided herein are based on the method provided by Seed & Whitman (1970) for active condition and Wood (1973) for at-rest condition, both using a peak ground acceleration (PGA) of 0.38g for probability of exceedance of 10% in 50 years. Active condition relates to the un-restrained retaining wall condition where the wall is free to rotate about its base. The at-rest condition should apply to cases where the wall is restrained from rotation, such as the subterranean walls where the movement is restricted by the structural floor members. As indicated in Section 1803.5.12 of the 2019 CBC, retaining walls supporting 6 feet of backfill or less are not required to be designed for seismic earth pressures. In addition, the values are based on drained backfill conditions and do not consider hydrostatic pressure. Furthermore, retaining walls should be designed to support adjacent surcharge loads imposed by other nearby footings or traffic loads in addition to the earth pressure.

TABLE 6.2

SEISMIC EARTH PRESSURES
Pressure Diagram



Static Component | Seismic Component | Total Force

Pressure Values
Walls Up To 10 Feet High

Value	Backfill Condition	
	Level Active (Unrestrained)	Level At-Rest (Restrained)
A	43H	80H
B	12H	12H
C	28H	46H

Note:
H is in feet and resulting pressure is in psf. Design may utilize either the sum of the static component and the seismic component force diagrams or the total force diagram above. SEAOSC has suggested using a load factor of 1.7 for the static component and 1.0 for the seismic component. The actual load factors should be determined by the structural engineer.

6.5.4 Drainage and Moisture-Proofing

Retaining walls should be constructed with a perforated pipe and gravel subdrain to prevent entrapment of water in the backfill. The perforated pipe should consist of 4-inch-diameter, ABS SDR-35 or PVC Schedule 40 with the perforations laid down. The pipe should be embedded in ¾- to 1½-inch open-graded gravel wrapped in filter fabric. The gravel should be at least one foot wide and extend at least one foot up the wall above the footing and drainage outlet. Drainage gravel and piping should not be placed below outlets and weepholes. Filter fabric should consist of Mirafi 140N, or equal. Outlet pipes should be directed to positive drainage devices.

The use of weepholes may be considered in locations where aesthetic issues from potential nuisance water are not a concern. Weepholes should be 2 inches in diameter and provided at least every 6 feet on center. Where weepholes are used, perforated pipe may be omitted from the gravel subdrain.

Retaining walls supporting backfill should also be coated with a moisture-proofing compound or covered with such material to inhibit infiltration of moisture through the walls. Moisture-proofing material should cover any portion of the back of wall that will be in contact with soil and should lap over and onto the top of footing. A drainage panel should be provided between the soil backfill and water proofing. The panel should extend from the top of the backdrain gravel up to within 12 inches of finish grade. The top of footing should be finished smooth with a trowel to inhibit the infiltration of water through the wall. The project structural engineer should provide specific recommendations for moisture-proofing, water stops, and joint details.

6.5.5 Footing Reinforcement and Wall Jointing

All continuous footings should be reinforced with a minimum of two No. 4 bars, one top and one bottom. Walls should be provided with cold joints spaced no more than 40 feet apart. Wall finishes and capping materials should not extend across the cold joint. The structural engineer may require different reinforcement or jointing and should dictate if greater than the recommendations provided herein. Where recommended removals are limited due to space restrictions, greater reinforcement and closer jointing may be recommended. Specific recommendations should be provided by the geotechnical consultant during grading based on as-built conditions exposed in the field.

6.5.6 Footing Observations

Footing excavations should be observed by the project geotechnical consultant to verify that they have been excavated into competent bearing soils and to the minimum embedment recommended herein. These observations should be performed prior to placement of forms or reinforcement. The excavations should be trimmed neat, level and square. Loose, sloughed or moisture-softened materials and debris should be removed prior to placing concrete.

6.5.7 Retaining Wall Backfill

Onsite soils may generally be used for backfill of retaining walls. The project geotechnical consultant should approve all backfill used for retaining walls. Wall backfill should be moisture-conditioned to slightly over the optimum moisture content; placed in lifts no greater than 12 inches in thickness, and then mechanically compacted with appropriate equipment to at least 90 percent of the laboratory standard. Hand-operated compaction equipment should be used to compact the backfill placed immediately adjacent the wall to avoid damage to the wall. Flooding or jetting of backfill material is not recommended.

6.6 EXTERIOR FLATWORK

Exterior flatwork should be a minimum 4 inches thick. Cold joints or saw cuts should be provided at least every 7 feet in each direction. Flatwork more than 7 feet in width across the minimum dimension should be reinforced with 6” by 6”, W4 by W4 welded wire mesh or No 3 bars spaced 12 inches center to center in both directions. Special jointing detail should be provided in areas of block-outs, notches, or other irregularities to avoid cracking at points of high stress. Subgrade soils below flatwork should be moistened to at least 120 percent of the optimum moisture content to a depth of 12 inches. Moistening should be accomplished by lightly spraying the area over a period of a few days just prior to pouring concrete. The geotechnical consultant should observe and verify the density and moisture content of subgrade soils prior to pouring concrete to ensure that the required compaction and pre-moistening recommendations have been met.

Drainage from flatwork areas should be directed to local area drains and/or other appropriate collection devices designed to carry runoff water to the street or other approved drainage structures. The concrete flatwork should also be sloped at a minimum gradient of 1 percent away from building foundations and retaining walls.

6.7 CONCRETE MIX DESIGN

Laboratory testing of onsite soil indicates **negligible** soluble sulfate content. Concrete designed to follow the procedures provided in ACI 318, Section 4.3, Table 4.3.1 for **negligible** sulfate exposure are anticipated to be adequate for mitigation of sulfate attack on concrete. Upon completion of rough grading, an evaluation of as-graded conditions and further laboratory testing will be required for the site to confirm or modify the conclusions provided in this section.

6.8 CORROSION

Results of preliminary testing of soils for pH, chloride, and minimum resistivity indicate the site is potentially **Moderately Corrosive** to metals that are in contact or close proximity to onsite soils. As such, specific recommendations should be obtained from a corrosion specialist if construction will include metals that will be near or in direct contact with site soils.

6.9 PRELIMINARY PAVEMENT DESIGN

6.9.1 Subgrade Preparation

Prior to placement of paving elements, subgrade soils should be moisture-conditioned to at least 120 percent of the optimum moisture content then compacted to at least 90 percent compaction for asphaltic concrete pavement areas and to at least 95 percent compaction for concrete pavement areas. Areas observed to pump or yield under vehicle traffic should be removed and replaced with firm and unyielding compacted soil or aggregate base materials.

6.9.2 Preliminary Pavement Structural Sections

Based on the soil conditions present at the site and an estimated traffic index, preliminary pavement sections are provided in the table below. An assumed “R-value” of 10 was used for the near-surface soil in this preliminary pavement design. The sections provided below are for planning purposes only and should be re-evaluated subsequent to site grading. Final pavement sections should be based on actual R-value testing of in-place soils and analysis of anticipated traffic.

TABLE 6.3
PRELIMINARY PAVEMENT STRUCTURAL SECTIONS

Location	Traffic Index	AC (inches)	Concrete Pavers (mm)	PCC (inches)	AB (inches)
Entry Way and Drives	5.5	3.0 4.0	--	--	12.0 9.0
		--	--	8.0	--
		--	80.0	--	13.0
Parking Stalls	--	3.0	--	--	6.0

6.9.1 Subgrade Preparation

Prior to placement of paving elements, subgrade soils should be scarified 6 inches, moisture-conditioned to at least 120 percent of the optimum moisture content then compacted to at least 90 percent of the maximum dry density determined in accordance with ASTM D1557. Areas observed to pump or yield under vehicle traffic should be removed and replaced with firm and unyielding engineered compacted soil or aggregate base materials.

6.9.2 Aggregate Base

Aggregate base materials should be Crushed Aggregate Base or Crushed Miscellaneous Base conforming to Section 200-2 of the Standard Specification for Public Works Construction (Greenbook) or Class 2 Aggregate Base conforming to the Caltrans' Standard Specifications. The materials should be moisture conditioned to slightly over the optimum moisture content then compacted to at least 95 percent of ASTM D 1557.

6.9.3 Asphaltic Concrete

Paving asphalt should be PG 64-10 conforming to the requirements of Section 203-1 of the Greenbook. Asphalt concrete materials should conform to Section 203-6 and construction should conform to Section 302 of the Greenbook.

6.9.4 Concrete Paver

Concrete pavers should conform to the requirements of ASTM C 936. Construction of the pavers, including bedding sand, should follow manufacturer's specifications. Typical thickness of bedding sand is about 1 inch. The gradation of bedding sand should meet the requirement in Table 6.4.

TABLE 6.4
Gradation for Sand Bedding

Sieve Size	Percent Passing
⅜”	100
No. 4	95 - 100
No. 8	80 - 100
No. 16	50 - 85
No. 30	25 - 60
No. 50	5 - 30
No. 100	0 - 10
No. 200	0 - 1

6.9.5 Portland Cement Concrete

Portland cement concrete used to construct concrete paving should conform to Section 201 of the Greenbook and should have a minimum compressive strength of 3,250 pounds per square inch (psi) at 28 days. Reinforcement and jointing of concrete pavement sections should be designed according to the minimum recommendations provided by the Portland Cement Association (PCA). For rigid pavement, transverse and longitudinal contraction joints should be provided at spacing no greater than 15 feet. Score joints may be constructed by saw cutting to a depth of ¼ of the slab thickness. Expansion/cold joints may be used in lieu of score joints. Such joints should be properly sealed. Where traffic will traverse over cold joints without keyways or dowels or edges of concrete paving, the edges should be thickened by 20% of the design thickness toward the edge over a horizontal distance of 5 feet.

6.10 POST GRADING CONSIDERATIONS

6.10.1 Site Drainage and Irrigation

The ground immediately adjacent to foundations should be provided with positive drainage away from the structures in accordance with 2019 CBC, Section 1804.4. No rain or excess water should be allowed to pond against structures such as walls, foundations, flatwork, etc.

Excessive irrigation water can be detrimental to the performance of the proposed site development. Water applied in excess of the needs of vegetation will tend to percolate into the ground. Such percolation can lead to nuisance seepage and shallow perched groundwater. Seepage can form on slope faces, on the faces of retaining walls, in streets, or other low-lying areas. These conditions could lead to adverse effects such as the formation of stagnant water that breeds insects, distress or damage of trees, surface erosion, slope instability, discoloration and salt buildup on wall faces, and premature failure of pavement. Excessive watering can also lead to elevated vapor emissions within buildings that can damage flooring finishes or lead to mold growth inside the home.

Key factors that can help mitigate the potential for adverse effects of overwatering include the judicious use of water for irrigation, use of irrigation systems that are appropriate for the type of vegetation and geometric configuration of the planted area, the use of soil amendments to enhance moisture retention, use of low-water demand vegetation, regular use of appropriate fertilizers, and seasonal adjustments of irrigation systems to match the water requirements of vegetation. Specific recommendations should be provided by a landscape architect or other knowledgeable professional.

6.10.2 Utility Trenches

Trench excavations should be constructed in accordance with the recommendations contained in Section 6.1.7 of this report. Trench excavations must also conform to the requirements of Cal/OSHA.

Trench backfill materials and compaction criteria should conform to the requirements of the local municipalities. As a minimum, utility trench backfill should be compacted to at least 90 percent of the laboratory standard. Materials placed within the pipe zone (6 inches below and 12 inches above the pipe) should consist of particles no greater than ¾ inches and have a SE of at least 30. The materials within the pipe zone should be moisture-conditioned and compacted by hand-operated compaction equipment. Above the pipe zone (>1 foot above pipe), the backfill may consist of general fill materials. Trench backfill should be moisture-conditioned to over the optimum moisture content, placed in lifts no greater than 12 inches in thickness, and then mechanically compacted with appropriate equipment to at least 90 percent of the laboratory standard. For trenches with sloped walls, backfill material should be placed in lifts no greater than 8 inches in loose thickness, and then compacted by rolling with a sheepsfoot roller or similar equipment. The project geotechnical consultant should perform density testing along with probing to verify that adequate compaction has been achieved.

Within shallow trenches (less than 18 inches deep) where pipes may be damaged by heavy compaction equipment, imported clean sand having a SE of 30 or greater may be utilized. The sand should be placed in the trench, thoroughly watered, and then compacted with a vibratory compactor. For utility trenches located below a 1:1 (H:V) plane projecting downward from the outside edge of the adjacent footing base or crossing footing trenches, concrete or slurry should be used as trench backfill.

6.11 PLAN REVIEW AND CONSTRUCTION SERVICES

We recommend ***Albus-Keefe & Associates, Inc.*** be engaged to review any future development plans, including foundation plans prior to construction. This is to verify that the assumptions of this report are valid and that the preliminary conclusions and recommendations contained in this report have been properly interpreted and are incorporated into the project plans and specifications. If we are not provided the opportunity to review these documents, we take no responsibility for misinterpretation of our preliminary conclusions and recommendations.

We recommend that a geotechnical consultant be retained to provide soil engineering services during construction of the project. These services are to observe compliance with the design, specifications or recommendations, and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

If the project plans change significantly from the assumed development described herein, the project geotechnical consultant should review our preliminary design recommendations and their applicability to the revised construction. If conditions are encountered during construction that appear to be different than those indicated in this report or subsequent design reports, the project geotechnical consultant should be notified immediately. Design and construction revisions may be required.

7.0 LIMITATIONS

This report is based on the proposed development and geotechnical data as described herein. The materials encountered on the project site, described in other literature, and utilized in our laboratory testing for this investigation are believed representative of the total project area, and the conclusions and recommendations contained in this report are presented on that basis. However, soil and bedrock materials can vary in characteristics between points of exploration, both laterally and vertically, and those variations could affect the conclusions and recommendations contained herein. As such, observation and testing by a geotechnical consultant during the grading and construction phases of the project are essential to confirming the basis of this report.

This report has been prepared consistent with that level of care being provided by other professionals providing similar services at the same locale and time period. The contents of this report are professional opinions and as such, are not to be considered a guaranty or warranty. This report should be reviewed and updated after a period of one year or if the site ownership or project concept changes from that described herein.

This report has been prepared for the exclusive use of **National Community Renaissance** and his project consultants in the planning and design of the proposed development. This report has not been prepared for use by parties or projects other than those named or described herein. This report may not contain sufficient information for other parties or other purposes. This report is subject to review by the controlling governmental agency.

Respectfully submitted,

ALBUS-KEEFE & ASSOCIATES, INC

Paul Hyun Jin Kim
Associate Engineer
G.E. 3106

8.0 REFERENCES

Publications

California Geologic Survey, Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California, 2008.

CDMG, "Seismic Hazard Zone Report for the Yorba Linda 7.5-Minute Quadrangle, Los Angeles, Orange and San Bernardino County, California," Seismic Hazard Zone Report 010, 2005.

NCEER, "Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils", Technical Report NCEER-97-0022, December 31, 1997.

Seed, HB, and Whitman, RV. "Design of Earth Retaining Structures for Dynamic Loads," ASCE Specialty Conference, Lateral Stresses in the Ground and Design of Earth Retaining Structures, Cornell Univ., Ithaca, New York, 103-147, 1970.

Southern California Earthquake Center (SCEC), University of Southern California, "Recommended Procedures for Implementation of DMG Special Publication 117 Guidelines for Analyzing and Mitigating Liquefaction Hazards in California", March 1999.

U.S. Geologic Survey. Unified Hazard Tool, https://earthquake.usgs.gov/hazards/interactive/

U.S. Geologic Survey. U.S. Seismic Design Maps, https://seismicmaps.org/

Tokimatsu, K. & Seed, H.B., "Evaluation of Settlement in Sands Due to Earthquake Shaking," Journal of Geotechnical Engineering, Vol. 113, No. 8, August, 1987.

Youd, T.L., Idriss, I.M., Andrus, R.D., Arango, I., Castro, G., Christian, J., Dobry, R., Finn, W.D.L., Harder, L.F., Hynes, M.E., Ishihara, K., Koester, J.P., Liao, S.S.C., Marcuson, W.F., Martin, G.R., Mitchell, J.K., Moriwaki, Y., Power, M.S., Robertson, P.K., Seed, R.B., and Stokoe, K.H., "Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils", Journal of Geotechnical and Geoenvironmental Engineering, October, 2001.

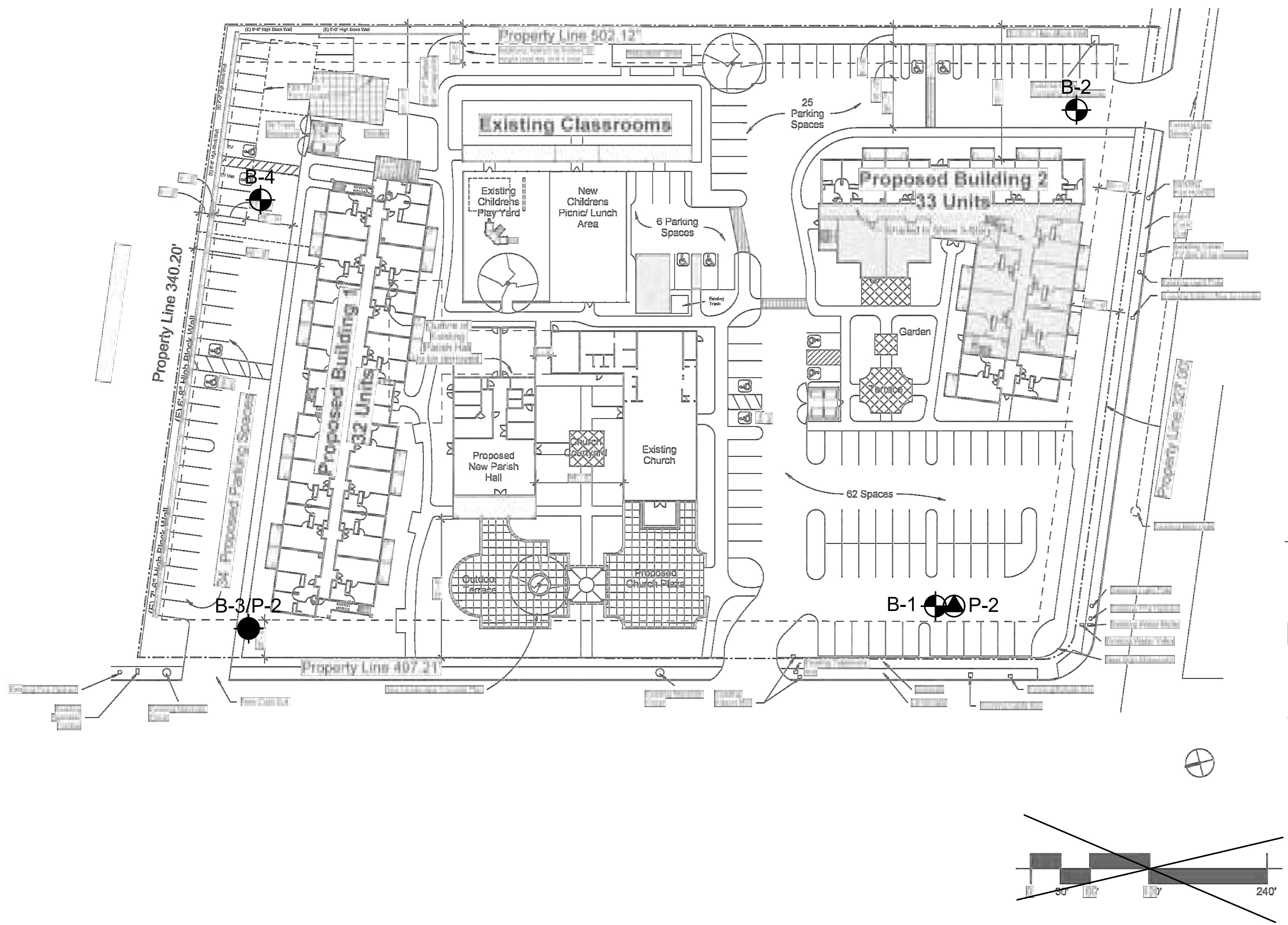
Plans

Conceptual Site Plan, Placentia, California, prepared by rrm design group Architect, dated September 05, 2019, scale: 1" = 30'

ALBUS-KEEFE & ASSOCIATES, INC.
GEOTECHNICAL CONSULTANTS

GEOTECHNICAL MAP

Job No.: 2859.00	Date: 12/27/19	Plate: 1



EXPLANATION

(Locations Approximate)

- Exploratory Boring
- Exploratory Percolation Test Boring
- Exploratory Boring and Percolation Test Boring

Site Coverage

Name	Area	Percentage
Lot Area (SF) :		169,716 SF/ 3.90 acres
Maximum Lot Coverage allowed:		60% (101,830 SF)
Proposed Lot Coverage:		55%
Building Footprints (Existing and Proposed)		35,631 SF
Parking and Driveways		53,824 SF
Covered Patios		3,678 SF
Total Proposed Lot Coverage		93,133 SF (55%)
Percentage Open Space Required:		40%
Percentage Open Space Provided:		45%

Residential Unit Count

	One Bedroom	Two Bedroom
Building 1	28	4
Building 2	31	2
	59 units	6 units

Total Residential Units: 65

rrm design group

SITE PLAN

1314 N. ANGELINA DR. - PLACENTIA, CA

09/05/19
#0934-02-RS17

A4

APPENDIX A

EXPLORATION BORING LOGS

EXPLORATION LOG

Project:		Location:
Address:		Elevation:
Job Number:	Client:	Date:
Drill Method:	Driving Weight:	Logged By:

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
5									
10									
15									
20									

EXPLANATION

Solid lines separate geologic units and/or material types.

Dashed lines indicate unknown depth of geologic unit change or material type change.

Solid black rectangle in Core column represents California Split Spoon sampler (2.5in ID, 3in OD).

Double triangle in core column represents SPT sampler.

Vertical Lines in core column represents Shelby sampler.

Solid black rectangle in Bulk column respresents large bag sample.

Other Laboratory Tests:

Max = Maximum Dry Density/Optimum Moisture Content
EI = Expansion Index
SO4 = Soluble Sulfate Content
DSR = Direct Shear, Remolded
DS = Direct Shear, Undisturbed
SA = Sieve Analysis (1" through #200 sieve)
Hydro = Particle Size Analysis (SA with Hydrometer)
200 = Percent Passing #200 Sieve
Consol = Consolidation
SE = Sand Equivalent
Rval = R-Value
ATT = Atterberg Limits

Albus-Keefe & Associates, Inc.

Plate A-1

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-1
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 294
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Asphalt = 3.5"							
		Base = 5"							
		ARTIFICIAL FILL (Af) Sandy Clay (CL): Grayish brown, moist, very stiff, fine to medium grained sand		25			15.9	113.2	
5		**ALLUVIUM (Qal)** Sandy Clay (CL): Reddish brown, moist, very stiff, fine to medium grained sand, more sand		34			14.4	115	Consol
		Clayey Sand (SC): Reddish brown, moist, medium dense, fine to coarse grained sand, trace pinhole pores		28			12.7	119.3	
10		@ 10 ft, trace pinhole pores		21			12.8	117.3	
15		Sand (SP): Reddish brown, moist, medium dense, fine to medium grained sand		10					
		Clayey Sand (SC): Reddish brown, moist, medium dense, fine to medium grained sand							
20		Sandy Clay (CL): Reddish brown, moist, hard, fine grained sand		28					

Albus-Keefe & Associates, Inc.

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-1
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 294
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Silty Clay with Sand (CL): Light reddish brown, moist, hard, fine grained sand		19					
30		Silty Sand trace Clay (SM): Light reddish brown, moist, medium dense, fine grained sand		12					200
35		Clayey Sand (SC): Light reddish brown, moist, medium dense, fine to medium grained sand		10					SA Hydro
		Sand with Silt (SP): Light reddish brown, moist, medium dense, fine to medium grained sand							
40		Silty Sand trace Clay (SM): Light reddish brown, moist, dense, fine grained sand		16					200
45		Sandy Clay (CL): Reddish brown, moist, hard, fine grained sand		20					

Albus-Keefe & Associates, Inc.

Plate A-3

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-1
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 294
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		<u>Clayey Sand (SC):</u> Light reddish brown, moist, very dense, fine to coarse grained sand		28					
		Total Depth 51.5 feet No Groundwater Boring backfilled with soil cuttings Percolation Well (10ft offset): 0-30' solid 3" pipe 30-35' perforated 3" pipe caved to 25', no gravel added							

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-2
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 296
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Grass							
		ALLUVIUM (Qal) Sandy Clay (CL): Light reddish brown, dry to damp, hard, fine grained sand, trace pinhole pores and fine roots		58			5.7	115.1	
5		@ 4 ft, some medium grained sand, trace pinhole pores and fine roots		38			10.1	120	Consol
		Silty Sand with Clay (SM): Light reddish brown, moist, medium dense, fine to medium grained sand, some coarse grained sand, trace pinhole pores		20			7.3	110.6	Consol
10		Silty Clay with Sand (CL-ML): Light reddish brown to reddish brown, moist, very stiff, fine grained sand, trace pinhole pores		28			14.8	109.1	
15		Silty Clay (CL-ML): Light reddish brown to light gray, moist, stiff		8					
20				11					

Albus-Keefe & Associates, Inc.

Plate A-2

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-2
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 296
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
				10					
30		Sandy Clay (CL): Reddish brown, moist, very stiff, fine grained sand		8					
		Total Depth 31.5 feet No Groundwater Boring backfilled with soil cuttings							

Albus-Keefe & Associates, Inc.

Plate A-3

EXPLORATION LOG

Project: Santa Angelina Senior Community	Location: B-3
Address: 1314 N Angelina Dr, Placentia, CA	Elevation: 297
Job Number: 2859.00 / Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger / Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Grass							
		ALLUVIUM (Qal) Sandy Clay (CL): Light reddish brown, dry to damp, very stiff, fine grained sand, trace pinhole pores		38			10	112.1	
		@ 4 ft, moist, hard		74			11.1	119.4	
5									
		@ 6 ft, Gray to reddish brown, very stiff, less sand		32			14.4	117	
10		@ 10 ft, hard, less gray, more sand		37			14.3	113.6	
15		@ 15 ft, very stiff		10					
20				14					

Albus-Keefe & Associates, Inc.

Plate A-7

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-3
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 297
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		@ 25 ft, hard, more sand		17					
30		<u>Silty Sand / Sandy Silty trace Clay (SM/ML):</u> Light reddish brown, moist, medium dense / very stiff		8					200
35		<u>Silty Sand trace Clay (SM):</u> Light reddish brown, moist, very stiff		13					200
		Total Depth 36.5 feet No Groundwater Boring backfilled with soil cuttings Percolation Well: 0-30' solid 3" pipe 30-35' perforated 3" pipe caved to 27', no gravel added							

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-4
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 297
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
	Grass							Max EI SO4 DS ATT pH Resist Ch
	ALLUVIUM (Qal)							
	Sandy Clay with Silt (CL): Reddish brown, damp to moist, stiff, fine grained sand, trace pinhole pores and fine roots		16			10.6	103.2	
	@ 4 ft, hard		41			10.3	114.5	Consol
5	Clayey Sand (SC): Light reddish brown, moist, dense, fine to medium grained sand							
	Sandy Clay with Silt (CL): Reddish brown, moist, very stiff, fine grained sand, trace pinhole pores		35			19.9	103.7	
10	@ 10 ft, trace pinhole pores		29			22.2	98	
15	Silty Clay trace Sand (CL): Light reddish brown to light gray, damp, very stiff, fine grained sand		13					
20	Silty Sand / Sandy Silt trace Clay (SM/ML): Light reddish brown, damp, medium dense / very stiff, fine grained sand		15					

Albus-Keefe & Associates, Inc.

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-4
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 297
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Silty Sand trace Clay (SM): Light reddish brown, damp, medium dense, fine grained sand		11					
30		Sand (SP): Light reddish brown, damp, very dense, fine to coarse grained sand		32					
		Total Depth 31.5 feet No Groundwater Boring backfilled with soil cuttings							

APPENDIX B

LABORATORY TEST PROGRAM

LABORATORY TESTING PROGRAM

Soil Classification

Soils encountered within the exploratory borings were initially classified in the field in general accordance with the visual-manual procedures of the Unified Soil Classification System (ASTM D2488). The samples were re-examined in the laboratory and classifications reviewed and then revised where appropriate. The assigned group symbols are presented in the Boring Logs provided in Appendix A.

In Situ Moisture and Density

Moisture content and dry density of in-place soil materials were determined in representative strata. Test data are summarized on the Boring Logs provided in Appendix A.

Laboratory Maximum Dry Density

Maximum dry density and optimum moisture content of onsite soils were determined for selected samples in general accordance with Method A of ASTM D 1557. Pertinent test values are given on Table B.

Expansion Potential

An Expansion Index test was performed on a selected sample in accordance with ASTM D 4829. The test result and expansion potential are presented on Table B.

Grain-Size Analyses

Grain size analyses were performed on selected samples of site materials. These tests were performed in accordance with ASTM D 422. Results are graphically presented on Plate B.

Consolidation

Consolidation tests were performed for selected soil samples in general conformance with ASTM D 2435. Axial loads were applied in several increments to a laterally restrained 1-inch-high sample. Loads were applied in geometric progression by doubling the previous load, and the resulting deformations were recorded at selected time intervals. The test samples were inundated at selected loads to evaluate the effects of a sudden increase in moisture content (hydro-consolidation potential). Results of the tests are graphically presented on Plates B-2 to B-5.

Direct Shear

The Coulomb shear strength parameters, angle of internal friction and cohesion, were determined for a bulk sample obtained from one our borings. The tests were performed in general conformance with Test Method ASTM D 3080. The sample was remolded to 90 percent of maximum dry density and at the optimum moisture content. Three specimens were prepared for each test, artificially saturated, and then sheared under varied loads at an appropriate constant rate of strain. Results are graphically presented on Plate B-6.

Atterberg Limits

Atterberg Limits (Liquid Limit, Plastic Limit, and Plasticity Index) were performed in accordance with Test Method ASTM D4318. Pertinent test values are presented within Table B.

Corrosion

Select samples were tested for minimum resistivity, chloride, and pH in accordance with California Test Method 643. Results of these tests are provided in Table B.

Soluble Sulfate Content

A chemical analysis was performed on a selected soil sample to determine soluble sulfate content. The test was performed in accordance with California Test Method (CTM) 417. The test result is included in Table B.

Percent Passing No. 200 Sieve

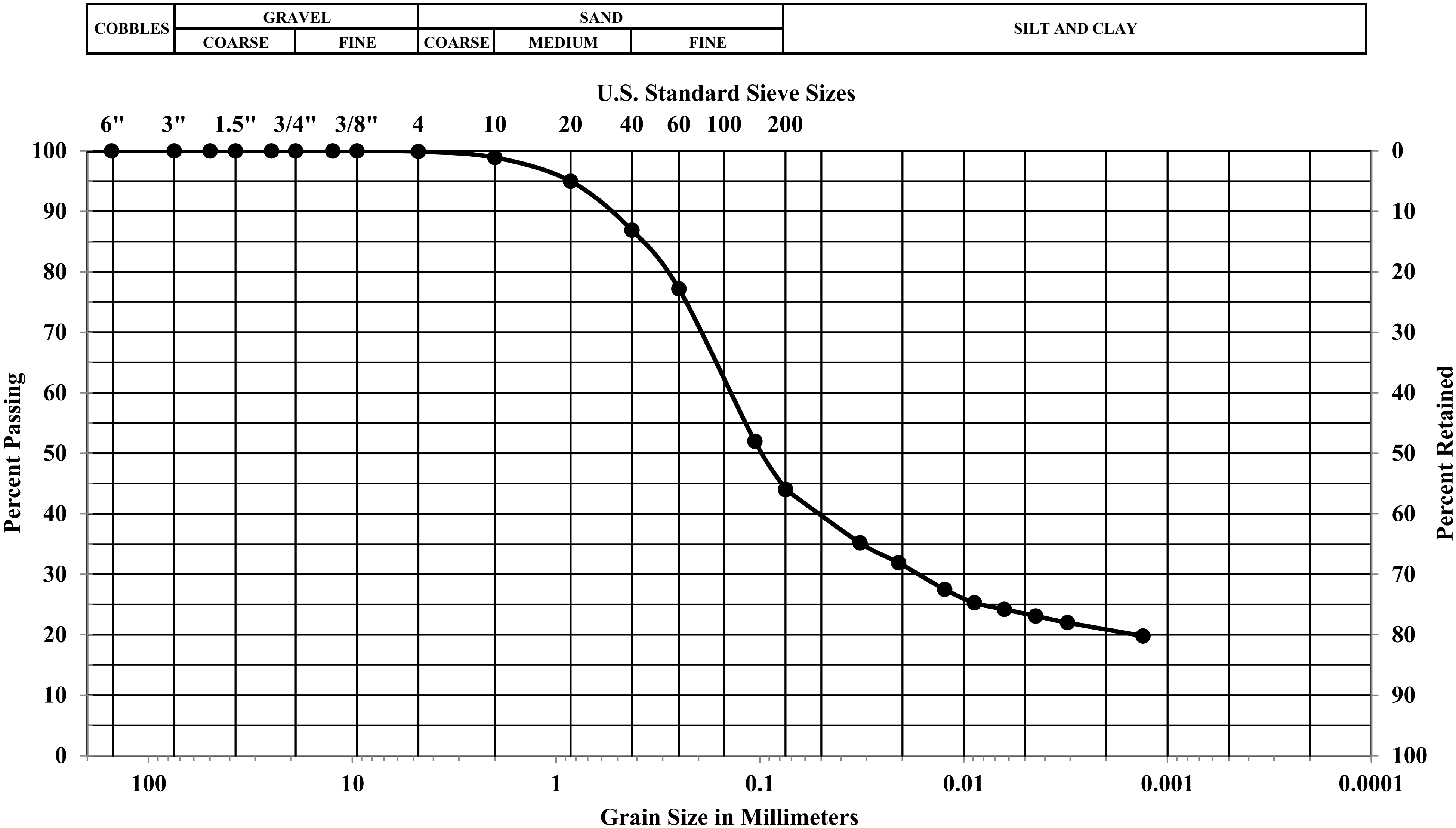
Percent of material passing the No. 200 sieve was determined on selected samples to verify visual classifications performed in the field. These tests were performed in accordance with ASTM D 1140. Test results are presented on Table B.

TABLE B
SUMMARY OF LABORATORY TEST RESULTS

Boring Number	Depth (feet)	Soil Type	Test Results	
B-1	30	Silty Sand (SM)	Percent Passing #200 Sieve:	45.3%
B-1	40	Silty Sand (SM)	Percent Passing #200 Sieve:	30.5%
B-3	30	Silty Sand/ Sandy Silt (SM/ML)	Percent Passing #200 Sieve:	53.7%
B-3	35	Silty Sand (SM)	Percent Passing #200 Sieve:	33.2 %
B-4	0-5	Sandy Clay (CL)	Maximum Dry Density (pcf):	122.5
			Optimum Moisture (%):	11.5
			Liquid Limit:	32
			Plastic Index:	16
			Soluble Sulfate Content (%):	0.000
			Sulfate Exposure:	Negligible
			pH:	7.36
			Minimum Resistivity:	2500 Ohm-cm
			Chloride:	24.2 ppm
			Expansion Index:	49
			Expansion Potential:	Low

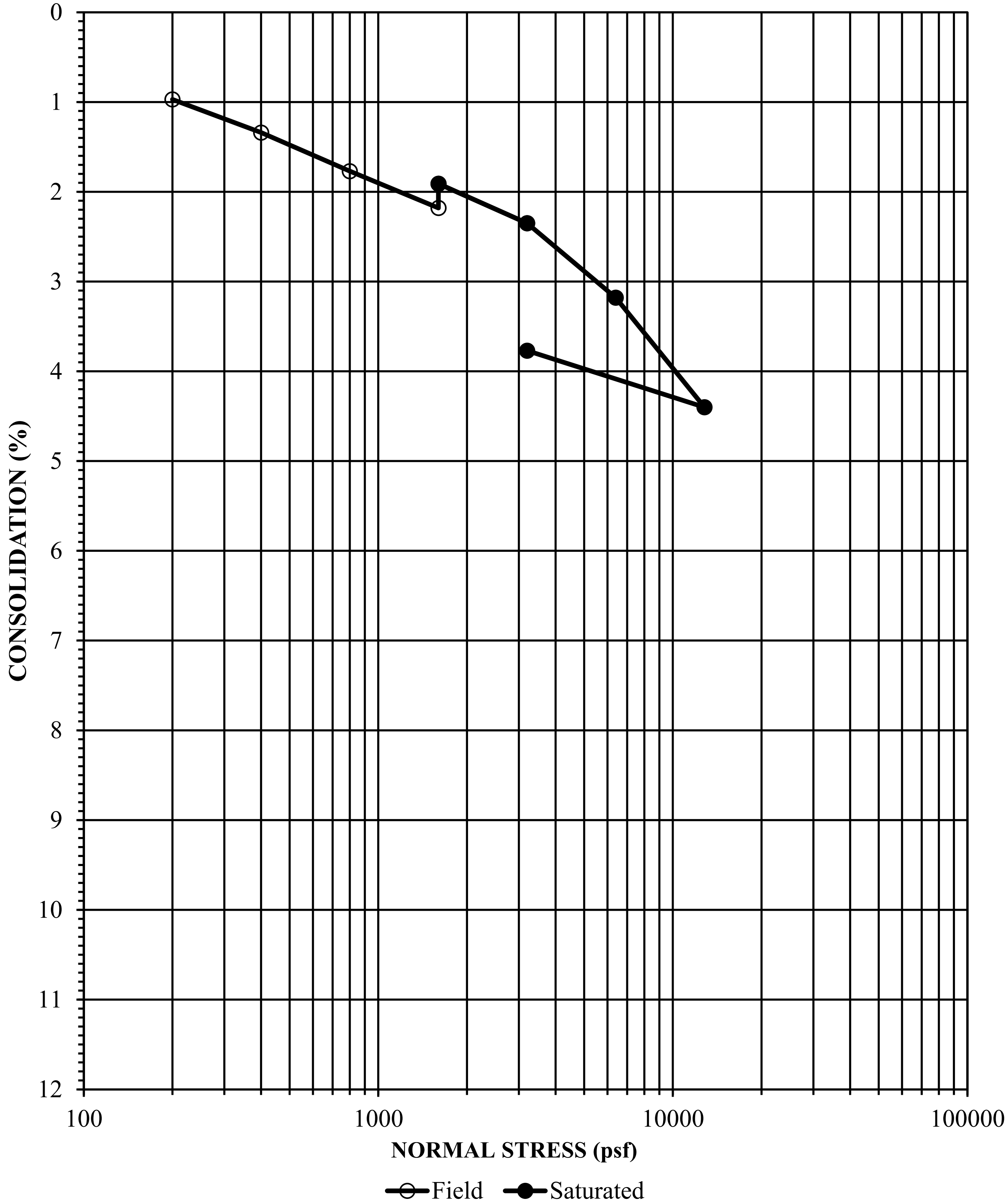
Additional laboratory test results are provided on the boring logs provided in Appendix A and on the Plates that follow.

GRAIN SIZE DISTRIBUTION



Job Number	Location	Depth	Description
2859.00	B-1	35-36.2	Clayey Sand (SC)

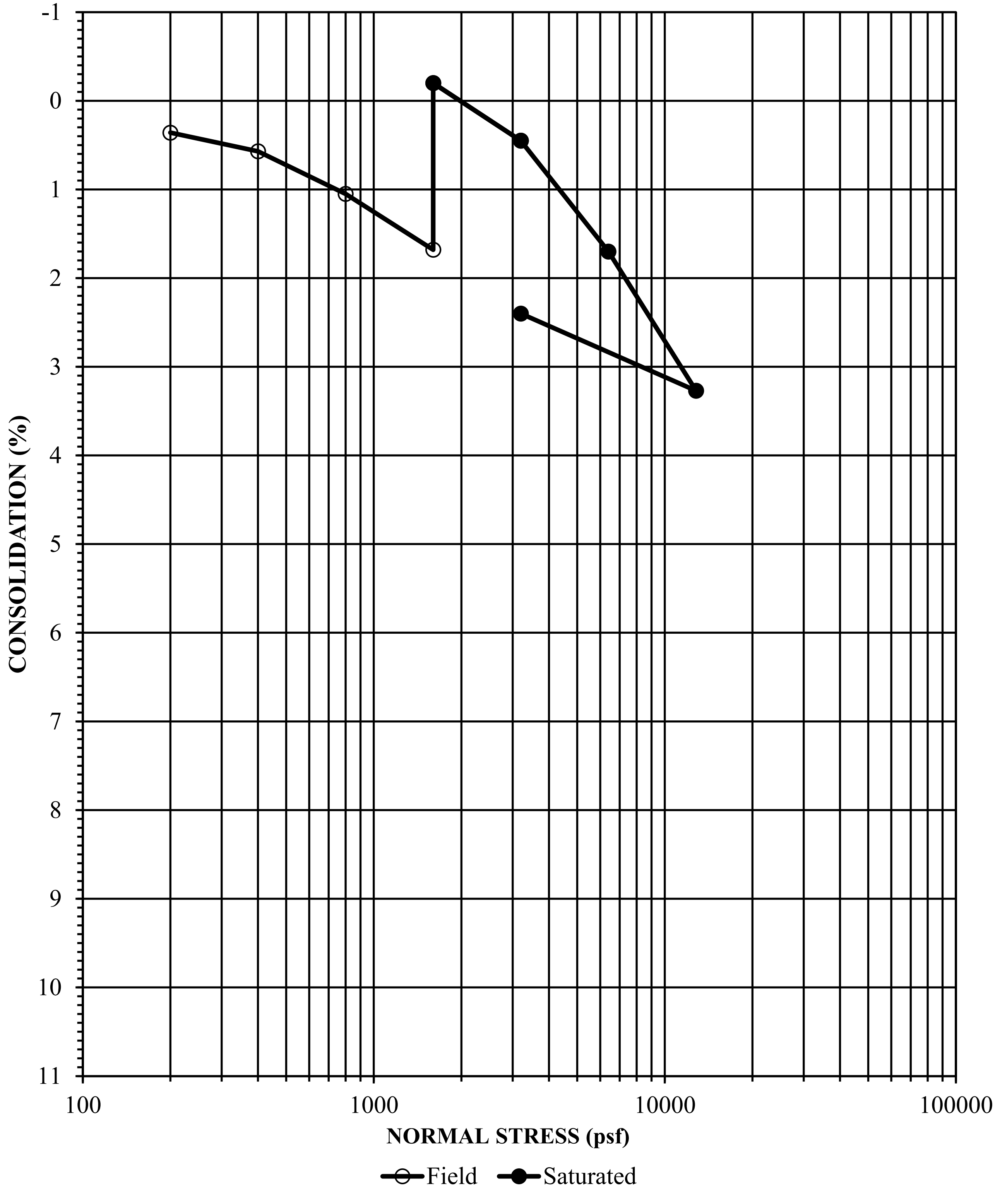
CONSOLIDATION



Job Number	Location	Depth	Description
2859.00	B-1	4	Sandy Clay (CL)

Initial Dry Density (pcf)	Initial Moisture Content (%)	Final Moisture Concent (%)
117.9	11.2	12

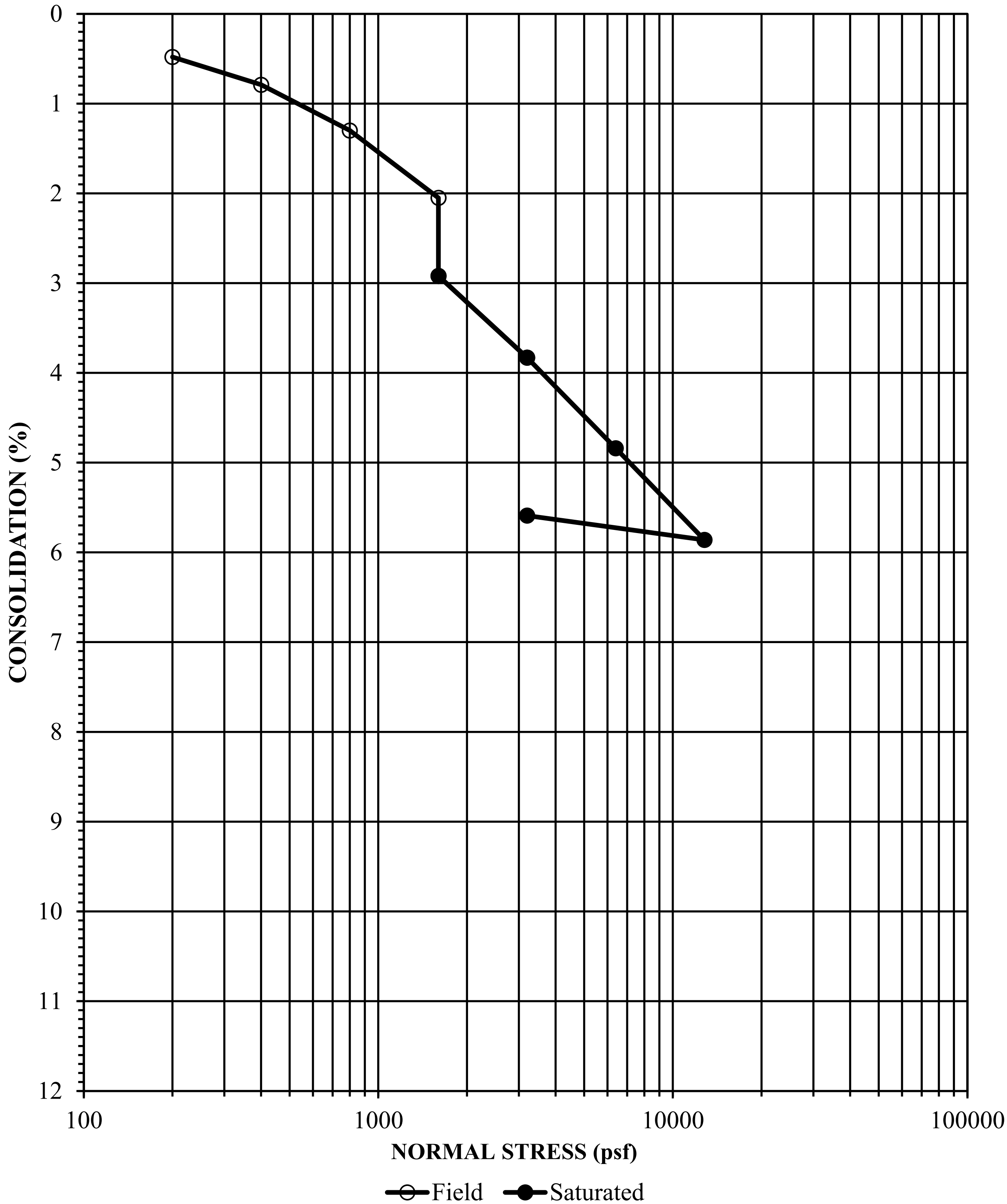
CONSOLIDATION



Job Number	Location	Depth	Description
2859.00	B-2	4	Sandy Clay (CL)

Initial Dry Density (pcf)	Initial Moisture Content (%)	Final Moisture Concent (%)
118.7	7.7	12.7

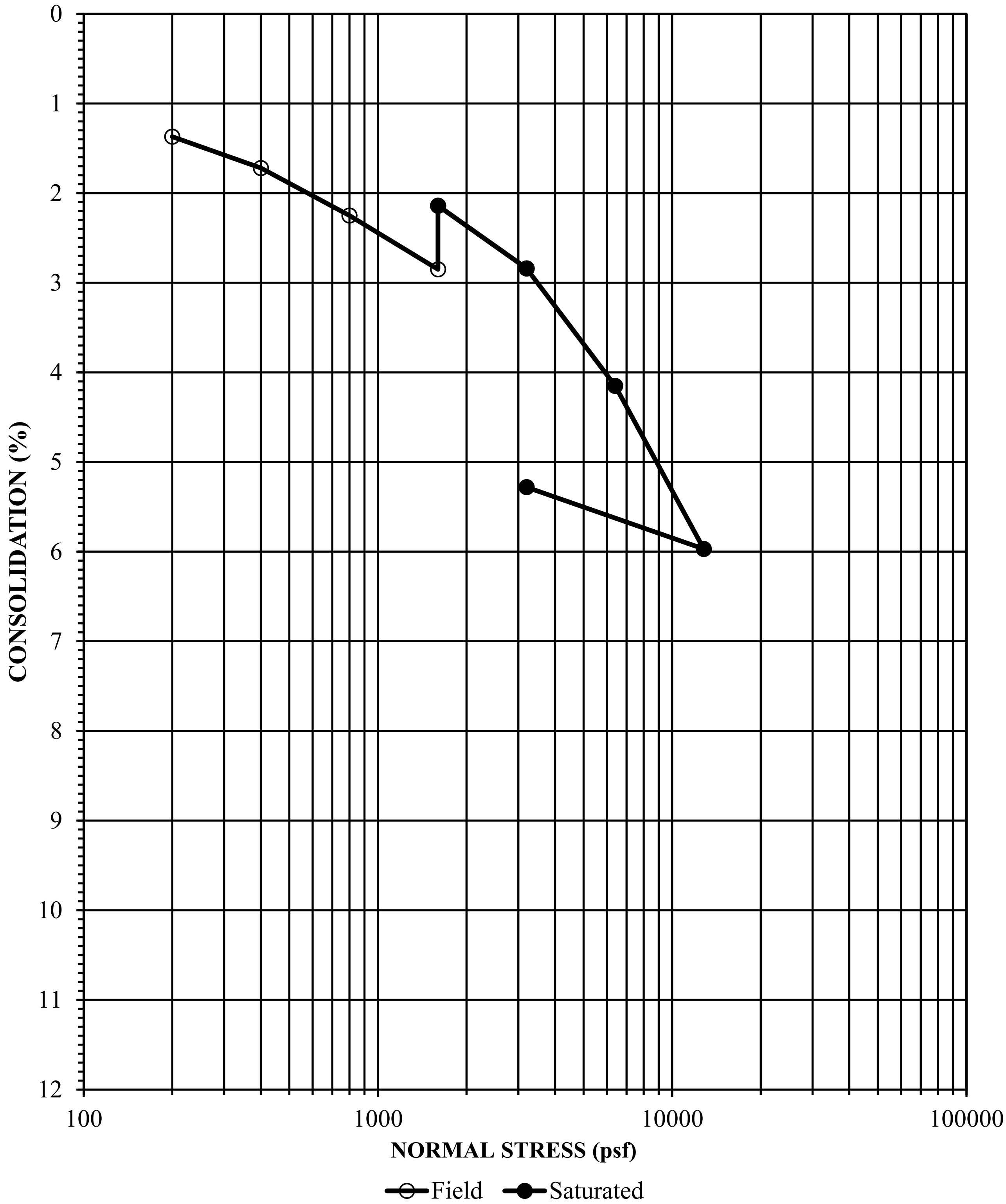
CONSOLIDATION



Job Number	Location	Depth	Description
2859.00	B-2	6	Silty Sand trace Clay (SM)

Initial Dry Density (pcf)	Initial Moisture Content (%)	Final Moisture Concent (%)
110	8.1	14.1

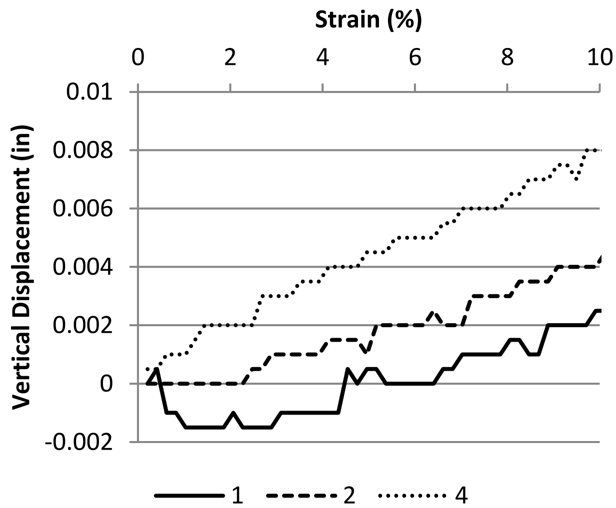
CONSOLIDATION

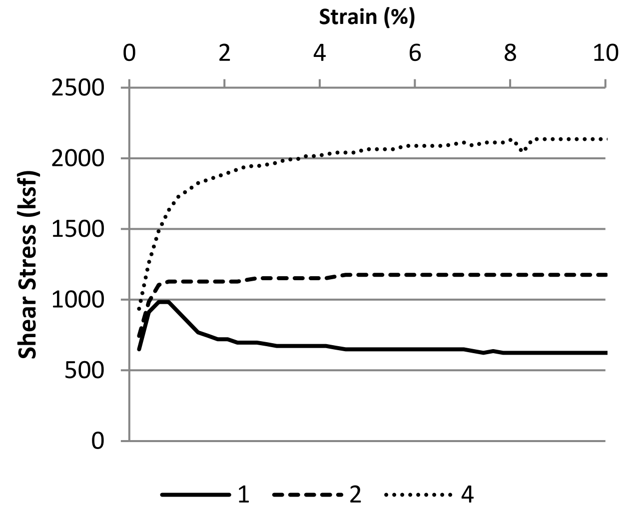


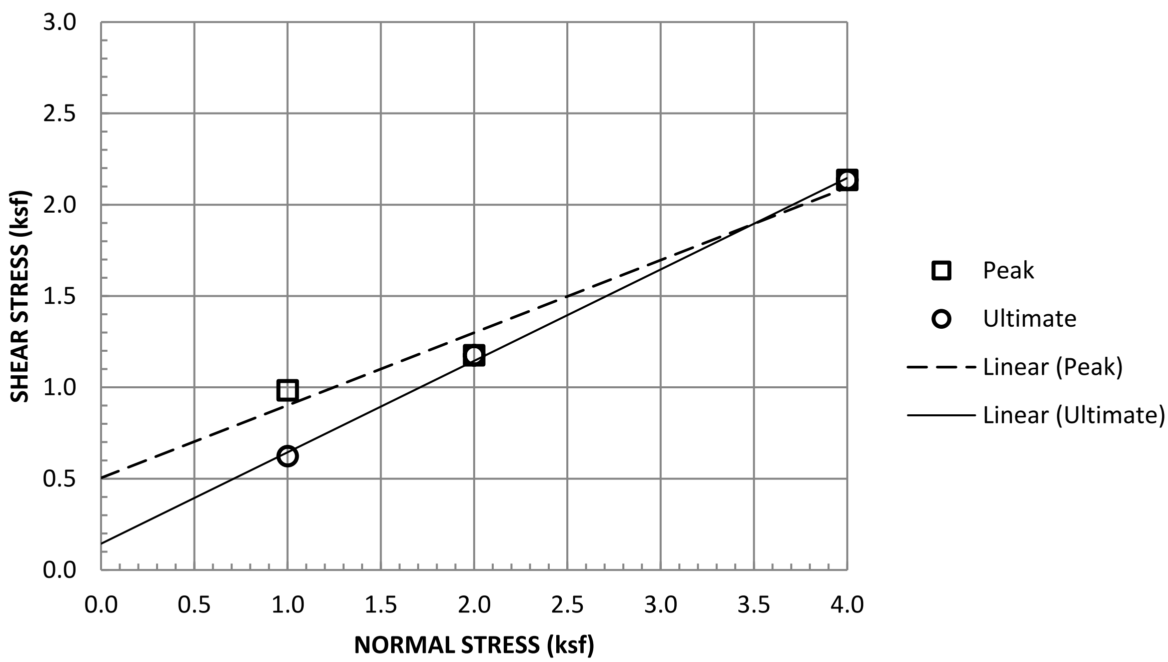
Job Number	Location	Depth	Description
2859.00	B-4	4	Sandy Clay (CL)

Initial Dry Density (pcf)	Initial Moisture Content (%)	Final Moisture Concent (%)
112	7.8	15.6

DIRECT SHEAR







Sample Type:	Remolded 90% of 122.5 @ 11.5%, Saturate		
Normal Stress (ksf)	1	2	4
Peak Shear Stress (ksf)	0.984	1.176	2.136
Peak Displacement (in)	0.003	0.005	0.008
Ultimate Shear Stress (ksf)	0.624	1.176	2.136
Ultimate Displacement (in)	0.25	0.25	0.25
Initial Dry Density (pcf)	110.3	110.3	110.3
Initial Moisture Content (%)	11.5	11.5	11.5
Final Moisture Content (%)	15.4	16.8	17
Strain Rate (in/min)	.005		

Job Number	Location	Depth	Description
2859.00	B-4	0-5	Sandy Clay (CL)

ALBUS-KEEFE & ASSOCIATES, INC
GEOTECHNICAL CONSULTANTS

January 20, 2020
J.N.: 2859.00

Ms. Sarah Walker
National Community Renaissance
4322 Piedmont Drive
San Diego, CA 92107

Subject: Preliminary Percolation Study, Proposed Residential Development, 1314 Angelina Drive, Placentia, California.

Dear Ms. Walker,

Albus-Keefe & Associates, Inc. has completed a geotechnical investigation of the site for evaluation of the percolation characteristics of the site soils. The scope of this investigation consisted of the following:

- Exploratory drilling, soil sampling and test well installation
- Field percolation testing
- Laboratory testing of selected soil samples
- Engineering analysis of the data
- Preparation of this report

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

Site Location and Description

The site is located at 1314 North Angelina Drive within the city of Placentia, California. The property is bordered by North Angelina Drive to the West, single-family residences to the North and East, and Morse Avenue to the South. The location of the site and its relationship to the surrounding areas is shown on Figure 1, Site Location Map.

The site consists of a rectangular-shaped property containing approximately 4 acres of land. The site is relatively flat with elevations ranging from EL. 294 to EL. 297 above mean sea level (based on Google Earth) descending to the south-west. The site is currently occupied by Blessed Sacrament Episcopal Church. There are currently two existing structures and it appears the structure located more westerly is used for church gatherings while the more easterly structure is a school facility. Associated parking areas are located along the Southern boundary with vegetation occupying the remainder of the site. Vegetation includes general landscaping in and around the structures, planters within the parking areas, grass and moderate- to large-sized trees within the open spaces. Perimeter walls run along the North and East boundaries and appear to be associated with the single-family residences.

N

SITE LOCATION MAP

Proposed Residential Development
1314 Angelina Drive
Placentia, California

NOT TO SCALE

FIGURE 1

Proposed Development

Based on the conceptual site plan by RRM Design Group, dated September 5, 2019, the proposed project includes the development of two residential buildings accommodating 65 units. Building 1 at the north end of the site is a linear two-story structure with double-loaded corridors. Building 2 is a two-story, L-shaped building located interior to the site with a three-story element at the northern end of the building transitioning to two stories toward the eastern property line. Associated parking, underground utilities and a storm water disposal system are also planned.

No grading or structural plans were available in preparing of this report. However, we anticipate that minor rough grading of the site will be required to achieve future surface configuration. We expect the proposed structures will be at grade utilize wood-frame construction yielding relatively light foundation loads.

SUMMARY OF FIELD AND LABORATORY WORK

Subsurface Investigation

Subsurface exploration for this investigation was conducted on December 17, 2019, and consisted of drilling four (4) soil borings to depths ranging from approximately 31.5 to 51.5 feet below the existing ground surface (bgs). The borings were drilled using a truck-mounted, continuous flight, hollow-stem-auger drill rig. A representative of Albus-Keefe & Associates, Inc. logged the exploratory borings. Visual and tactile identifications were made of the materials encountered, and their descriptions are presented in the Exploration Logs in Appendix A. The approximate locations of the exploratory excavations completed by this firm are shown on the enclosed Geotechnical Map, Plate 1.

Bulk, relatively undisturbed and Standard Penetration Test (SPT) samples were obtained at selected depths within the exploratory borings for subsequent laboratory testing. Relatively undisturbed samples were obtained using a 3-inch O.D., 2.5-inch I.D., California split-spoon soil sampler lined with brass rings. SPT samples were obtained from the boring using a standard, unlined SPT soil sampler. During each sampling interval, the sampler was driven 18 inches with successive drops of a 140-pound automatic hammer falling 30 inches. The number of blows required to advance the sampler was recorded for each six inches of advancement. The total blow count for the lower 12 inches of advancement per soil sample is recorded on the exploration log. Samples were placed in sealed containers or plastic bags and transported to our laboratory for analyses. The borings were backfilled with auger cuttings upon completion of sampling.

One additional boring was drilled adjacent to boring B-1 for percolation testing (P-1) and one additional percolation well was also installed in B-3 (P-2).

Percolation Testing

Percolation testing was performed on December 17, 2019, in general conformance with the constant-head test procedures outlined in the referenced Well Permeameter Method (USBR 7300-89). A water hose attached to a water source on site was connected to an inline flowmeter to measure the water flow. The flowmeter is capable of measuring flow rates up to 10 gallons per minute and as low as 0.06 gallons per minute. A valve was connected in line with the flowmeter to control the flow rate.

A filling hose was used to connect the flowmeter and the test wells. Water was introduced by the filling hose near the bottom of the test wells. A water level meter with 1/100-foot divisions was used to measure the depths to water surface from the top of well casings.

Flow to the wells was terminated upon either completion of testing of all the pre-determined water levels or the flow rate exceeded the maximum capacity of the flowmeter. Measurements obtained during the percolation testing are provided in Appendix C on Plates C-1 and C-2.

Laboratory Testing

Selected soil samples of representative earth materials were tested to assist in the formulation of conclusions and recommendations presented in this report. Tests consisted of in-situ moisture contents and dry densities, and sieve analyses. Results of laboratory testing relevant to percolation characteristics are presented in Appendix B and on the Exploration Logs in Appendix A.

ANALYSIS OF DATA

Subsurface Conditions

Descriptions of the earth materials encountered during our investigation are summarized below and are presented in detail on the Exploration Logs presented in Appendix A.

Soil materials encountered at the subject site generally consisted of Quaternary Alluvial (Qal). However, artificial fill materials were encountered within the parking lot at B-1 for an approximate depth of 4 feet below ground surface. The fill materials consisted of a sandy clay that was grayish brown, moist, very stiff with fine to medium grained sand.

The Qal materials were encountered to the maximum depth explored of 51.5 feet and are comprised of interbedded layers of damp to moist, reddish brown and light reddish-brown sandy clay, silty sand, clayey sand, silty clay, and sand. The granular alluvial soils are typically medium dense and the fine-grained alluvial soils are typically very stiff to hard.

A more detailed description of the interpreted soil profile at each of the boring locations, based upon the soil cuttings and soil samples, are presented in Appendix A. The stratigraphic descriptions in the logs represent the predominant materials encountered during investigation. Relatively thin, often discontinuous layers of different material may occur within the major divisions.

Groundwater

Groundwater was not encountered during this firm's subsurface exploration to the maximum depth of 51.5 feet. Based on a review of the referenced CDMG Special Report, the historical groundwater for the site is not available. Additional review of the Department of Water Resources groundwater level data for the nearby well 338950N1178554W001 indicates that groundwater for the area is below 150 feet from 1970 to present. The last recorded reading at the time of this report was November 13, 2019. From this data we anticipate ground water will remain below a depth of 100 feet during the next 50 years.

Percolation Data

Analyses were performed to evaluate permeability using the flow rate obtained at the end of the constant-head stage of field percolation testing. These analyses were performed in accordance with the procedures provided in the referenced USBR 7300-89. The procedure essentially uses a closed-form solution to the percolation out of a small-diameter well.

Using the USBR method, we calculated a composite permeability value for the head conditions maintained in the wells. The results are summarized in Table 1 below and the supporting analyses are included in Appendix C, Plates C-3 and C-4.

TABLE 1
Summary of Back-Calculated Permeability Coefficient

	Total Depth of Well (ft)	Depth to Water in Well (ft)	Height of Water in Well (ft)	Static Flow Rate (gal./min.)	Estimated Permeability, k_s (in/hr.)
P-1	34.95	31.25	3.7	0.22	0.53
P-2	35	31.5	3.5	0.44	1.15

Design of Dry Well

The ***infiltration rate*** in a dry well is dependent upon several factors including the soil permeabilities of the various soil layers throughout the soil mass, hydraulic gradient of water pressure head in the soil mass, and depth to groundwater. The infiltration rate is related to the permeability by Darcy's equation:

$V = ki$

Where:
- V= water velocity (infiltration rate)
- k= permeability
- i=hydraulic gradient

The presence of differing soil layers with differing permeabilities, the variable head condition in the well shaft, and presence of ground water are factors that make determining the effective infiltration rate of a dry well somewhat complicated. We have performed the Well Permeameter tests in accordance with the test method. This test provides a means to estimate the ***Permeability Rate*** of the soils influencing the dry well, not the infiltration rate. Therefore, the effective infiltration rate must be determined using the relationship between permeability and infiltration rate as expressed by Darcy's equation. Solution of the Darcy equation essentially requires solving a differential mass balance equation. Due to these complications, the infiltration characteristics of the proposed dry well were modeled using a computer program.

Infiltration in a dry well was modeled using the software Seep/W, version 2007, by Geo-Slope International. The program allows for modeling of both partially-saturated and saturated porous medium using a finite element approach to solve Darcy's Law. The program can evaluate both steady-state and transient flow in planar and axisymmetric cases. Boundaries of the model can be identified with various conditions including fix total head, fix pressure head, fix flow rate, and head as a function of flow. Soil conductivity properties can be modeled with either Fredlund et al (1994), Green and Corey (1971), Van Genuchten (1980), or Saxton et al. (1986). The parameters suggested by Van Genuchten (1980) were selected for use in our model and were based on test results of particle-size analyses and estimated in-place densities.

A Seep/W model was setup with the bottom of the dry well at a depth of 52 feet below ground surface. The top 20 feet of the dry well was assumed to consist of a shaft that is 6 feet in diameter and contains a settling chamber having an inside diameter of 4 feet, outside diameter of 4.5 feet, and length of 18 feet. Below 20 feet, the shaft diameter was 4 feet in diameter. The annular space around the chamber between the depths of 0 and 13 feet was assumed to consist of a cement slurry. Below a depth of 13 feet, the annular space around the chamber and below the chamber is assumed to consist of gravel. A more detailed model of the dry well design can be found on Plate 2.

The model consisted of three zones of material to represent the general soil profile. Material 1 was represented to model fine-grained clayey soils that are essentially impermeable. The saturated conductivity of material 2 was selected based on the coefficient of permeability estimated from percolation tests as well as laboratory gradation test results. The saturated conductivity of material 3 was selected based on correlations with laboratory gradation test results (Plate B-1). The soil parameters are summarized in Table 2.

Water in the well was assumed to be at a depth of 7 feet below the ground surface so a fix-head boundary was set with a total head elevation of 93 feet around the edge of the well (ground surface was set to an elevation of 100 feet).

TABLE 2
Summary of Characteristic Curve Parameters

Material No.	Material Type	Depth (ft)	Sat. Perm., Ks (in/hr)	Van Genuchten Parameters				
				a (psf)	n	m	Sat. Water Content	Residual Water Content
1	Imperm	0-27.5, 42.5-47.5	0.001	208.22	1.10	0.09	0.54	0.01
2	SM	27.5-42.5	0.7	44.025	1.26	0.20	0.40	0.01
3	SC	>47.5	0.5	27.86	1.17	0.15	0.43	0.01

A steady state analysis was performed to estimate the maximum inflow that the well can accommodate. Using a well as described above, we obtain a static total flow of 0.025 ft^3/sec. A plot depicting the resulting pressure head contours and flow vectors for the model is provided on Plate C-5. The average infiltration rate can be determined by taking the flow rate divided by the wetted surface area. The surface area is equal to 546.64 square feet which includes the side and bottom area. Based on the above flow rate and surface area, the average "measured" infiltration rate across the wetted surface area is 1.9 in/hr.

To evaluate the time required to empty the well once no more water is introduced, the model was reanalyzed with a variable head condition that was dependent upon the volume of water leaving the well. As water infiltrates into the surrounding soil, the volume of water remaining in the well is reduced as well as the resulting water head. A graph of the well head versus exit volume is provided in Figure 2. The function assumes a void ratio of 0.4 within the zones occupied by gravel. If some other well configuration is used, then the analyses will require updating.

The analysis was performed as a transient case over a total time of 5.28 hours. The conditions in the model were evaluated in 40 increments of time over the total duration. From our analyses, the water is evacuated from the chamber in approximately 2.5 hours. Plots depicting the resulting pressure head contours and flow vectors at selected times are provided in Appendix C on Plates C-5 through C-8. A plot of time versus water height in the well is shown on Figure 3.

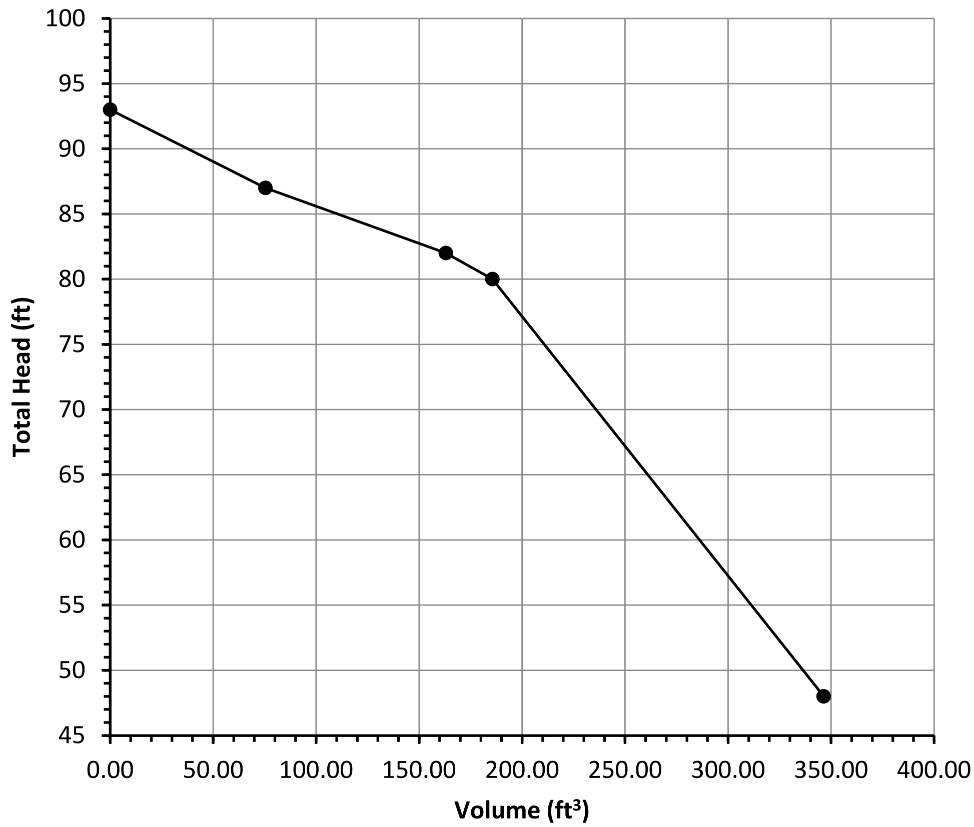


FIGURE 2- Well Head versus Exit Volume

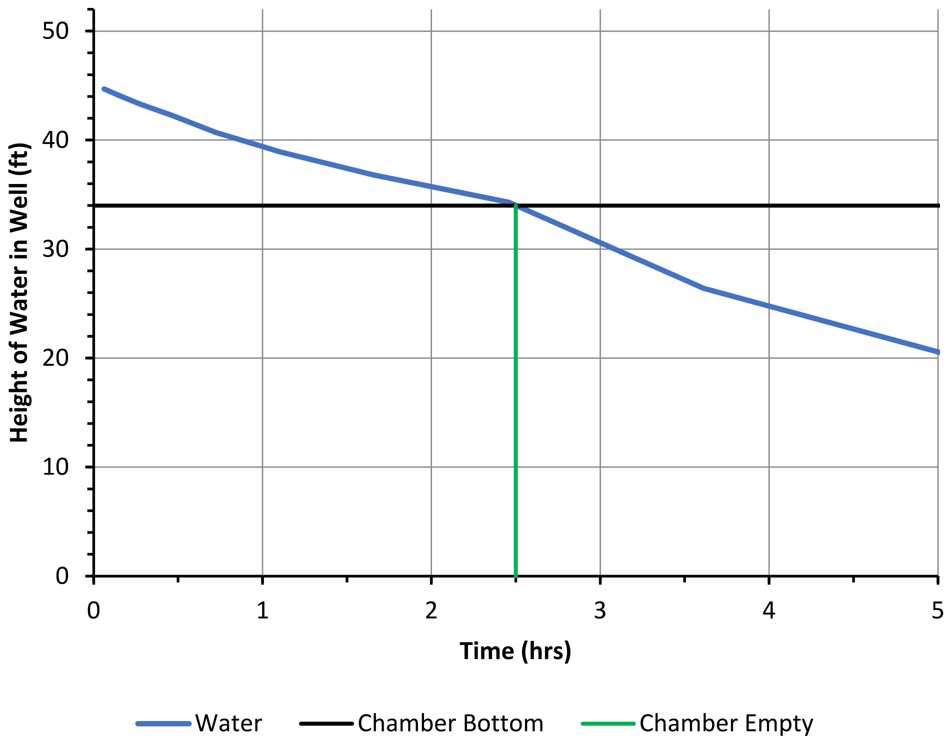


FIGURE 3- Water Head Versus Time

CONCLUSIONS AND RECOMMENDATIONS

Results of our work indicate a storm water disposal system consisting of a dry well is feasible at the site. The use of a dry well is not anticipated to result in worsening any adverse conditions or hazards that may be present for the proposed site development or adjacent properties including subsidence, landsliding, or liquefaction. As discussed above, the historic groundwater level in this area was not available. However, we estimate that groundwater is currently at least 150 feet below ground surface and we anticipate will remain at least 100 feet below ground surface for the life of the project. Therefore, a dry well having a total depth of 52 will maintain a clearance above groundwater greater than the minimum required clearance of 10 feet.

Based on the results of percolation testing and analyses, the well configuration as depicted on Plate 2 may utilize a "measured" peak flow rate of 0.025 ft^3/sec. This flow rate corresponds to an average peak infiltration rate of 1.9 in./hr. This flow rate and infiltration rate only apply to the well configuration evaluated and will differ for other configurations. These values are "measured" values and as such, an appropriate factor of safety should be applied to determine the "design" rates.

The "measured" infiltration rates reported above should be adjusted by applying an appropriate factor of safety. Table 3 includes the details of estimating this factor of safety for Factor Category A per requirements of the Santa Ana Regional Water Quality Control Board. The civil engineer should assign appropriate factor values for Factor Category B to obtain the overall factor of safety.

TABLE 3
Factor Values for Factor Category A

Infiltration Facility Safety Factor Determination Worksheet					
Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w * v
A	Suitability Assessment	Soil assessment methods	0.25	1	0.25
		Predominant soil texture	0.25	1	0.25
		Site soil variability	0.25	1	0.25
		Depth to groundwater / impervious layer	0.25	3	0.75
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			1.5

Once water flow to the well has ceased, we estimate the chamber will require approximately 2.5 hours to empty. As such, the time to empty the dry well should be considered in the overall draw down time of the storm system.

Should you require multiple dry wells across the site, the wells should be spaced at least 120 feet, center to center, to avoid cross influence. The wells should be located at least 10 feet horizontally from any habitable structure or property line.

The actual flow capacity of the dry well could be less or more than the estimated value. As such, provisions should be made to accommodate excess flow quantities in the event the dry well does not infiltrate the anticipated amount. The design also assumes that sediments will be removed from the inflowing water through an upper chamber or other device. Sediments that are allowed to enter the dry well will tend to degrade the flow capacity by plugging up the infiltration surfaces.

In general, the dry well shaft is anticipated to be adequately stable under temporary construction conditions for uncased drilling. However, layers or lenses of granular materials are present and may be prone to sloughing and caving. In the event of caving, casing will be required to install the well. Workers should not enter the shaft unless the excavation is laid back or shored in accordance with OSHA requirements. The placement and compaction of backfill materials, including the gravel and slurry, should be observed by the project geotechnical consultant.

LIMITATIONS

This report is based on the geotechnical data as described herein. The materials encountered in our boring excavations and utilized in our laboratory testing for this investigation are believed representative of the project area, and the conclusions and recommendations contained in this report are presented on that basis. However, soil and bedrock materials can vary in characteristics between points of exploration, both laterally and vertically, and those variations could affect the conclusions and recommendations contained herein. As such, observations by a geotechnical consultant during the construction phase of the storm water infiltration systems are essential to confirming the basis of this report.

This report has been prepared consistent with that level of care being provided by other professionals providing similar services at the same locale and time period. The contents of this report are professional opinions and as such, are not to be considered a guaranty or warranty.

This report should be reviewed and updated after a period of one year or if the site ownership or project concept changes from that described herein.

This report has been prepared for the exclusive use of **National Community Renaissance** to assist the project consultants in the design of the proposed development. This report has not been prepared for use by parties or projects other than those named or described herein. This report may not contain sufficient information for other parties or other purposes.

This report is subject to review by the controlling governmental agency.

We appreciate this opportunity to be of service to you. If you should have any questions regarding the contents of this report, please do not hesitate to call.

Sincerely,

ALBUS-KEEFE & ASSOCIATES, INC.

David E. Albus
Principal Engineer
GE 2455

REGISTERED PROFESSIONAL ENGINEER
DAVID E. ALBUS
No. 2455
Exp. 12/31/20
GEOTECHNICAL
STATE OF CALIFORNIA

Enclosures: Plate 1- Geotechnical Map
Plate 2- Dry Well Diagram
Appendix A - Exploratory Logs
Appendix B – Laboratory Testing
Appendix C - Percolation Testing and Analyses

REFERENCES

Publications and Reports

CDMG, "Seismic Hazard Zone Report for the Yorba Linda 7.5-Minute Quadrangle, Orange County, California", Seismic Hazard Zone Report 010, 2005.

Californian Department of Water Resources Water Data Library (accessed 2019): http://wdl.water.ca.gov/waterdatalibrary/

Procedure for Performing Field Permeability Testing by the Well Permeameter Method, by United States Department of The Interior, Bureau of Reclamation (USBR 7300-89).

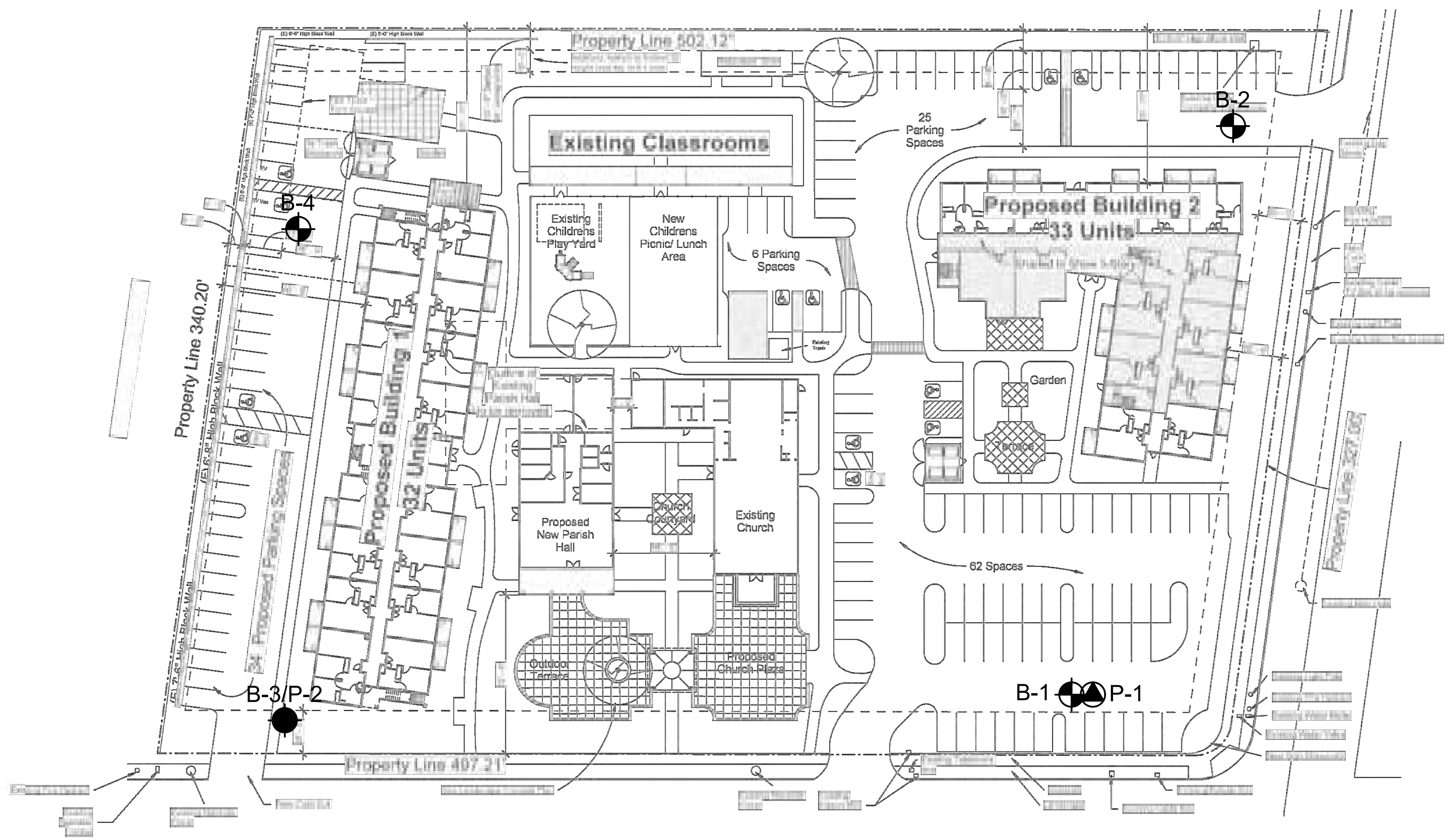
Saxton, K.E., W.J. Rawls, J.S. Romberger, and R.I. Papendick. 1986. Estimating generalized soil-water characteristics from texture. Soil Sci. Soc. Am. J. 50(4):1031-103.

Department of The Navy, (1982), *Soil Mechanics, Design Manual 7.1*, Naval Facilities Engineering Command (NAVFAC).

ALBUS-KEEFE & ASSOCIATES, INC.
GEOTECHNICAL CONSULTANTS

GEOTECHNICAL MAP

Job No.: 2859.00	Date: 1/20/20	Plate: 1



EXPLANATION

(Locations Approximate)

- Exploratory Boring
- Exploratory Percolation Test Boring
- Exploratory Boring and Percolation Test Boring

Site Coverage

Name	Area	Percentage
Lot Area (SF) :		169,716 SF/ 3.90 acres
Maximum Lot Coverage allowed:		60% (101,830 SF)
Proposed Lot Coverage:		55%
Building Footprints (Existing and Proposed)		35,631 SF
Parking and Driveways		53,824 SF
Covered Patios		3,678 SF
Total Proposed Lot Coverage		93,133 SF (55%)
Percentage Open Space Required:		40%
Percentage Open Space Provided:		45%

Residential Unit Count

	One Bedroom	Two Bedroom
Building 1	28	4
Building 2	31	2
	59 units	6 units

Total Residential Units: 65

rrm design group

SITE PLAN

1314 N. ANGELINA DR. - PLACENTIA, CA

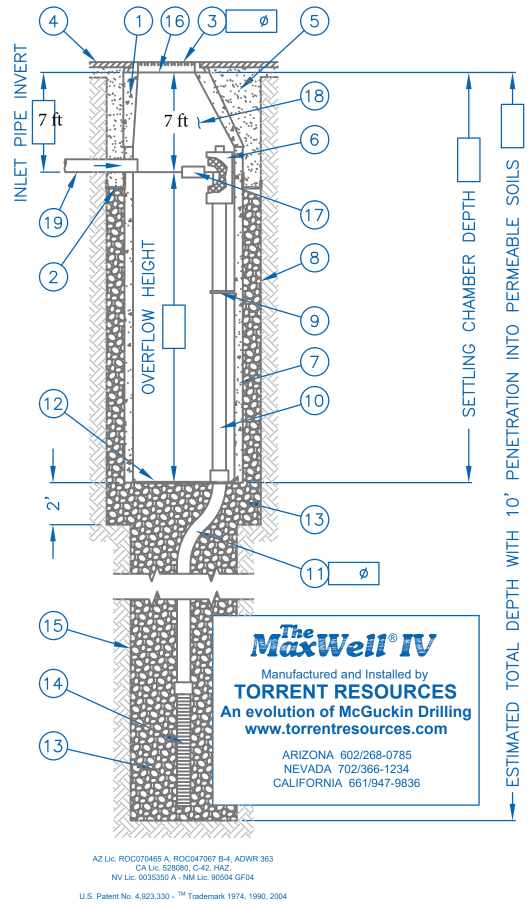
09/05/19
#0934-02-RS17

A4

MAXWELL® IV DRAINAGE SYSTEM DETAIL AND SPECIFICATIONS

ITEM NUMBERS

1. **Manhole Cone** - Modified Flat Bottom.
2. **Moisture Membrane** - 6 Mil. Plastic. Applies only when native material is used for backfill. Place membrane securely against eccentric cone and hole sidewall.
3. **Bolted Ring & Grate** - Diameter as shown. Clean cast iron with wording **"Storm Water Only"** in raised letters. **Bolted in 2 locations** and secured to cone with mortar. Rim elevation ±0.02' of plans.
4. **Graded Basin or Paving** (by Others).
5. **Compacted Base Material** - 1-Sack Slurry except in landscaped installtions with no pipe connections.
6. **PureFlo® Debris Shield** - Rolled 16 ga. steel X 24" length with vented anti-siphon and Internal .265" Max. SWO flattened expanded steel screen X 12" length. **Fusion bonded epoxy coated.**
7. **Pre-cast Liner** - 4000 PSI concrete 48" ID. X 54" OD. **Center in hole** and align sections **to maximize bearing surface.**
8. **Min. 6' Ø Drilled Shaft.**
9. **Support Bracket** - Formed 12 Ga. steel. **Fusion bonded epoxy coated.**
10. **Overflow Pipe** - Sch. 40 PVC mated to drainage pipe at base seal.
11. **Drainage Pipe** - ADS highway grade with TRI-A coupler. **Suspend pipe** during backfill operations to prevent buckling or breakage. Diameter as noted.
12. **Base Seal** - Geotextile or concrete slurry.
13. **Rock** - Washed, sized between 3/8" and 1-1/2" to **best complement soil conditions.**
14. **FloFast® Drainage Screen** - Sch. 40 PVC 0.120" slotted well screen with 32 slots per row/ft.Diameter varies 120" overall length with TRI-B coupler.
15. **Min. 4' Ø Shaft** - Drilled to **maintain permeability** of drainage soils.
16. **Fabric Seal** - U.V. resistant geotextile - **to be removed by customer** at project completion.
17. **Absorbent** – Hydrophobic Petrochemical Sponge. Min. to 128 oz. capacity.
18. **Freeboard Depth** Varies with inlet pipe elevation. Increase settling chamber depth as needed to maintain all inlet pipe elevations above overflow pipe inlet.
19. **Optional Inlet Pipe** (Maximum 4", by Others). Extend moisture membrane and compacted base material or 1 sack slurry backfill below pipe invert.



The referenced drawing and specifications are available on CAD either through our office or web site. This detail is copyrighted (2004) but may be used as is in construction plans without further release. For information on product application, individual project specifications or site evaluation, contact our Design Staff for no-charge assistance in any phase of your planning.

CALCULATING MAXWELL IV REQUIREMENTS

The type of property, soil permeability, rainfall intensity and local drainage ordinances determine the number and design of MaxWell Systems. For general applications draining retained stormwater, use one standard **MaxWell IV** per the instructions below for up to 3 acres of landscaped contributory area, and up to 1 acre of paved surface. For larger paved surfaces, subdivision drainage, nuisance water drainage, connecting pipes larger than 4" Ø from catch basins or underground storage, or other demanding applications, refer to our **MaxWell® Plus** System. For industrial drainage, including gasoline service stations, our **Envibro® System** may be recommended. For additional considerations, please refer to **"Design Suggestions For Retention And Drainage Systems"** or consult our Design Staff.

COMPLETING THE MAXWELL IV DRAWING

To apply the **MaxWell IV** drawing to your specific project, simply fill in the blue boxes per instructions below. For assistance, please consult our Design Staff.

ESTIMATED TOTAL DEPTH

The Estimated Total Depth is the approximate depth required to achieve 10 continuous feet of penetration into permeable soils. Torrent utilizes specialized **"crowd"** equipped drill rigs to penetrate difficult, cemented soils and to reach permeable materials at depths up to **180 feet.** Our extensive database of drilling logs and soils information is available for use as a reference. Please contact our Design Staff for site-specific information on your project.

SETTLING CHAMBER DEPTH

On MaxWell IV Systems of over 30 feet overall depth and up to 0.25cfs design rate, the **standard** Settling Chamber Depth is **18 feet .** For systems exposed to greater contributory area than noted above, extreme service conditions, or that require higher design rates, chamber depths up to 25 feet are recommended.

' OVERFLOW HEIGHT

The Overflow Height and Settling Chamber Depth determine the effectiveness of the settling process. The higher the overflow pipe, the deeper the chamber, the greater the settling capacity. For normal drainage applications, an overflow height of **13 feet** is used with the standard settling chamber depth of **18 feet**. Sites with higher design rates than noted above, heavy debris loading or unusual service conditions require greater settling capacities

"Ø DRAINAGE PIPE

This dimension also applies to the **PureFlo®** Debris Shield, the **FloFast®** Drainage Screen, and fittings. The size selected is based upon system design rates, soil conditions, and the need for adequate venting. Choices are 6", 8", or 12" diameter. Refer to "Design Suggestions for Retention and Drainage Systems" for recommendations on which size best matches your application.

"Ø BOLTED RING & GRATE

Standard models are quality cast iron and available to fit 24" Ø or 30" Ø manhole openings. All units are bolted in two locations with wording "Storm Water Only" in raised letters. For other surface treatments, please refer to "Design Suggestions for Retention and Drainage Systems."

"Ø INLET PIPE INVERT

Pipes up to 4" in diameter from catch basins, underground storage, etc. may be connected into the settling chamber. Inverts deeper than 5 feet will require additional settling chamber depth to maintain effective overflow height.

TORRENT RESOURCES INCORPORATED

1509 East Elwood Street, Phoenix Arizona 85040~1391
phone 602~268~0785 fax 602~268~0820

Nevada 702~366~1234

AZ Lic. ROC070465 A, ROC047067 B-4; ADWR 363
CA Lic. 528080 A, C-42, HAZ ~ **NV Lic.** 0035350 A ~ **NM Lic.** 90504 GF04

TORRENT RESOURCES (CA) INCORPORATED

phone 661~947~9836

CA Lic. 886759 A, C-42

www.TorrentResources.com

An evolution of McGuckin Drilling

The watermark for drainage solutions.®

TORRENT RESOURCES

APPENDIX A

EXPLORATORY LOGS

EXPLORATION LOG

Project:		Location:
Address:		Elevation:
Job Number:	Client:	Date:
Drill Method:	Driving Weight:	Logged By:

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		EXPLANATION							
		Solid lines separate geologic units and/or material types.							
5		Dashed lines indicate unknown depth of geologic unit change or material type change.							
		Solid black rectangle in Core column represents California Split Spoon sampler (2.5in ID, 3in OD).							
		Double triangle in core column represents SPT sampler.							
10		**Vertical Lines** in core column represents Shelby sampler.							
		Solid black rectangle in Bulk column respresents large bag sample.							
15		**Other Laboratory Tests:** Max = Maximum Dry Density/Optimum Moisture Content EI = Expansion Index SO4 = Soluble Sulfate Content DSR = Direct Shear, Remolded DS = Direct Shear, Undisturbed SA = Sieve Analysis (1" through #200 sieve) Hydro = Particle Size Analysis (SA with Hydrometer)							
20		200 = Percent Passing #200 Sieve Consol = Consolidation SE = Sand Equivalent Rval = R-Value ATT = Atterberg Limits							

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-1
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 294
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Asphalt = 3.5"							
		Base = 5"							
		ARTIFICIAL FILL (Af) Sandy Clay (CL): Grayish brown, moist, very stiff, fine to medium grained sand		25			15.9	113.2	
5		**ALLUVIUM (Qal)** Sandy Clay (CL): Reddish brown, moist, very stiff, fine to medium grained sand, more sand		34			14.4	115	Consol
		Clayey Sand (SC): Reddish brown, moist, medium dense, fine to coarse grained sand, trace pinhole pores		28			12.7	119.3	
10		@ 10 ft, trace pinhole pores		21			12.8	117.3	
15		Sand (SP): Reddish brown, moist, medium dense, fine to medium grained sand		10					
		Clayey Sand (SC): Reddish brown, moist, medium dense, fine to medium grained sand							
20		Sandy Clay (CL): Reddish brown, moist, hard, fine grained sand		28					

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-1
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 294
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		<u>Silty Clay with Sand (CL):</u> Light reddish brown, moist, hard, fine grained sand		19					
30		<u>Silty Sand trace Clay (SM):</u> Light reddish brown, moist, medium dense, fine grained sand		12					200
35		<u>Clayey Sand (SC):</u> Light reddish brown, moist, medium dense, fine to medium grained sand		10					SA Hydro
		<u>Sand with Silt (SP):</u> Light reddish brown, moist, medium dense, fine to medium grained sand							
40		<u>Silty Sand trace Clay (SM):</u> Light reddish brown, moist, dense, fine grained sand		16					200
45		<u>Sandy Clay (CL):</u> Reddish brown, moist, hard, fine grained sand		20					

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-1
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 294
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Clayey Sand (SC): Light reddish brown, moist, very dense, fine to coarse grained sand		28					
		Total Depth 51.5 feet No Groundwater Boring backfilled with soil cuttings Percolation Well (10ft offset): 0-30' solid 3" pipe 30-35' perforated 3" pipe caved to 25', no gravel added							

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-2
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 296
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Grass							
		ALLUVIUM (Qal) Sandy Clay (CL): Light reddish brown, dry to damp, hard, fine grained sand, trace pinhole pores and fine roots		58			5.7	115.1	
5		@ 4 ft, some medium grained sand, trace pinhole pores and fine roots		38			10.1	120	Consol
		Silty Sand with Clay (SM): Light reddish brown, moist, medium dense, fine to medium grained sand, some coarse grained sand, trace pinhole pores		20			7.3	110.6	Consol
10		Silty Clay with Sand (CL-ML): Light reddish brown to reddish brown, moist, very stiff, fine grained sand, trace pinhole pores		28			14.8	109.1	
15		Silty Clay (CL-ML): Light reddish brown to light gray, moist, stiff		8					
20				11					

Albus-Keefe & Associates, Inc.

Plate A-2

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-2
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 296
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
				10					
30		Sandy Clay (CL): Reddish brown, moist, very stiff, fine grained sand		8					
		Total Depth 31.5 feet No Groundwater Boring backfilled with soil cuttings							

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-3
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 297
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Grass							
		ALLUVIUM (Qal) <u>Sandy Clay (CL):</u> Light reddish brown, dry to damp, very stiff, fine grained sand, trace pinhole pores		38			10	112.1	
		@ 4 ft, moist, hard		74			11.1	119.4	
5									
		@ 6 ft, Gray to reddish brown, very stiff, less sand		32			14.4	117	
10		@ 10 ft, hard, less gray, more sand		37			14.3	113.6	
15		@ 15 ft, very stiff		10					
20				14					

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-3
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 297
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		@ 25 ft, hard, more sand		17					
30		Silty Sand / Sandy Silty trace Clay (SM/ML): Light reddish brown, moist, medium dense / very stiff		8					200
35		Silty Sand trace Clay (SM): Light reddish brown, moist, very stiff		13					200
		Total Depth 36.5 feet No Groundwater Boring backfilled with soil cuttings Percolation Well: 0-30' solid 3" pipe 30-35' perforated 3" pipe caved to 27', no gravel added							

Albus-Keefe & Associates, Inc.

Plate A-8

EXPLORATION LOG

Project: Santa Angelina Senior Community	Location: B-4
Address: 1314 N Angelina Dr, Placentia, CA	Elevation: 297
Job Number: 2859.00 / Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger / Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		Grass							Max EI SO4 DS ATT pH Resist Ch
		ALLUVIUM (Qal)							
		Sandy Clay with Silt (CL): Reddish brown, damp to moist, stiff, fine grained sand, trace pinhole pores and fine roots		16			10.6	103.2	
		@ 4 ft, hard		41			10.3	114.5	Consol
5		Clayey Sand (SC): Light reddish brown, moist, dense, fine to medium grained sand							
		Sandy Clay with Silt (CL): Reddish brown, moist, very stiff, fine grained sand, trace pinhole pores		35			19.9	103.7	
10		@ 10 ft, trace pinhole pores		29			22.2	98	
15		Silty Clay trace Sand (CL): Light reddish brown to light gray, damp, very stiff, fine grained sand		13					
20		Silty Sand / Sandy Silt trace Clay (SM/ML): Light reddish brown, damp, medium dense / very stiff, fine grained sand		15					

EXPLORATION LOG

Project: Santa Angelina Senior Community		Location: B-4
Address: 1314 N Angelina Dr, Placentia, CA		Elevation: 297
Job Number: 2859.00	Client: National Community Renaissance	Date: 12/17/2019
Drill Method: Hollow-Stem Auger	Driving Weight: 140 lbs / 30 in	Logged By: DDA

Depth (feet)	Lith-ology	Material Description	Water	Samples: Blows Per Foot	Samples: Core	Samples: Bulk	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Dry Density (pcf)	Laboratory Tests: Other Lab Tests
		<u>Silty Sand trace Clay (SM):</u> Light reddish brown, damp, medium dense, fine grained sand		11					
30		<u>Sand (SP):</u> Light reddish brown, damp, very dense, fine to coarse grained sand		32					
		Total Depth 31.5 feet No Groundwater Boring backfilled with soil cuttings							

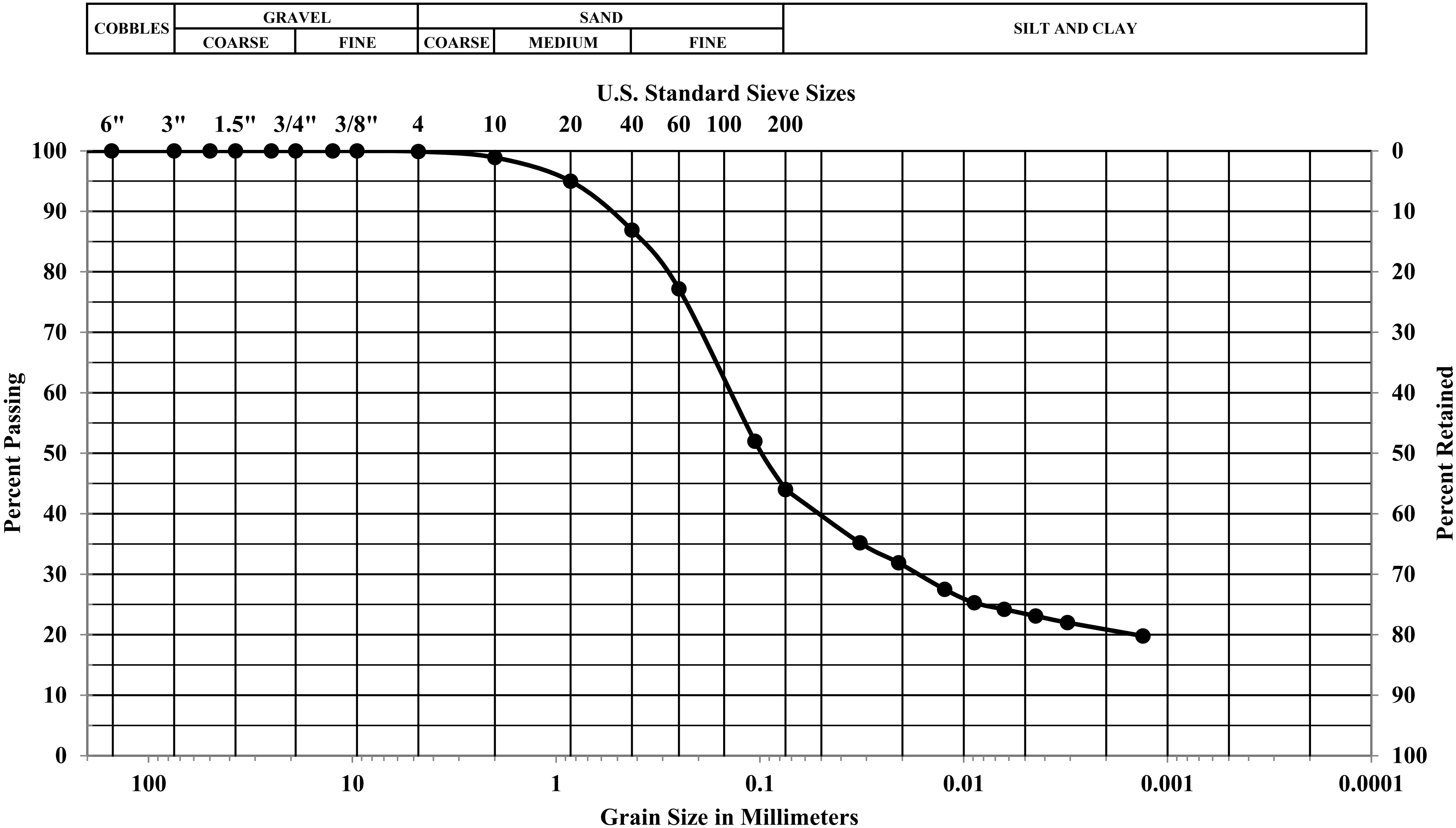
Albus-Keefe & Associates, Inc.

Plate A-10

APPENDIX B

LABORATORY TEST PROGRAM

GRAIN SIZE DISTRIBUTION



Job Number	Location	Depth	Description
2859.00	B-1	35-36.2	Clayey Sand (SC)

APPENDIX C

PERCOLATION TESTING AND ANALYSES

Field Percolation Testing - Constant Head

Client: NCR

Job. No.: 2859.00

Date Tested: 12/17/2019

Test by: ddalbus

Location: B-1 / P-1

Top of Casing to Bottom of Well (ft): 35.1

Elev. of Ground Surface (ft): 294

Diam. of Test Hole (in): 8

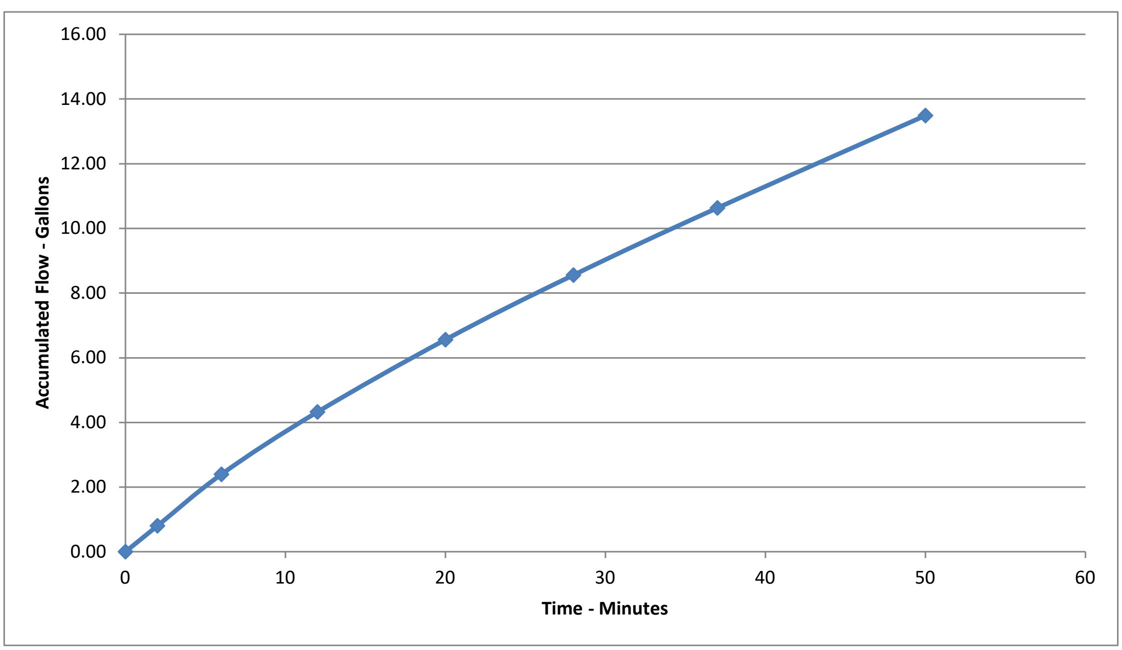
Diam. of Casing (in): 3

Ht. to Top of Casing (ft): 0.15

Water Tempurature (C°): 21

Constant Head

Elapsed Time (minutes)	Time	Depth to H2O (ft)	Flow Rate (gal./min.)	Total H_2O used (gal)
0	15:40	31.4	0.46	0.00
2	15:42	31.4	0.34	0.80
6	15:46	31.4	0.30	2.40
12	15:52	31.4	0.26	4.32
20	16:00	31.4	0.24	6.56
28	16:08	31.4	0.22	8.56
37	16:17	31.40	0.22	10.63
50	16:30	31.40	0.22	13.49



Field Percolation Testing - Constant Head

Client: NCR

Job. No.: 2859.00

Date Tested: 12/17/2019

Test by: ddalbus

Location: B-3 / P-2

Top of Casing to Bottom of Well (ft): 35

Elev. of Ground Surface (ft): 297

Diam. of Test Hole (in): 8

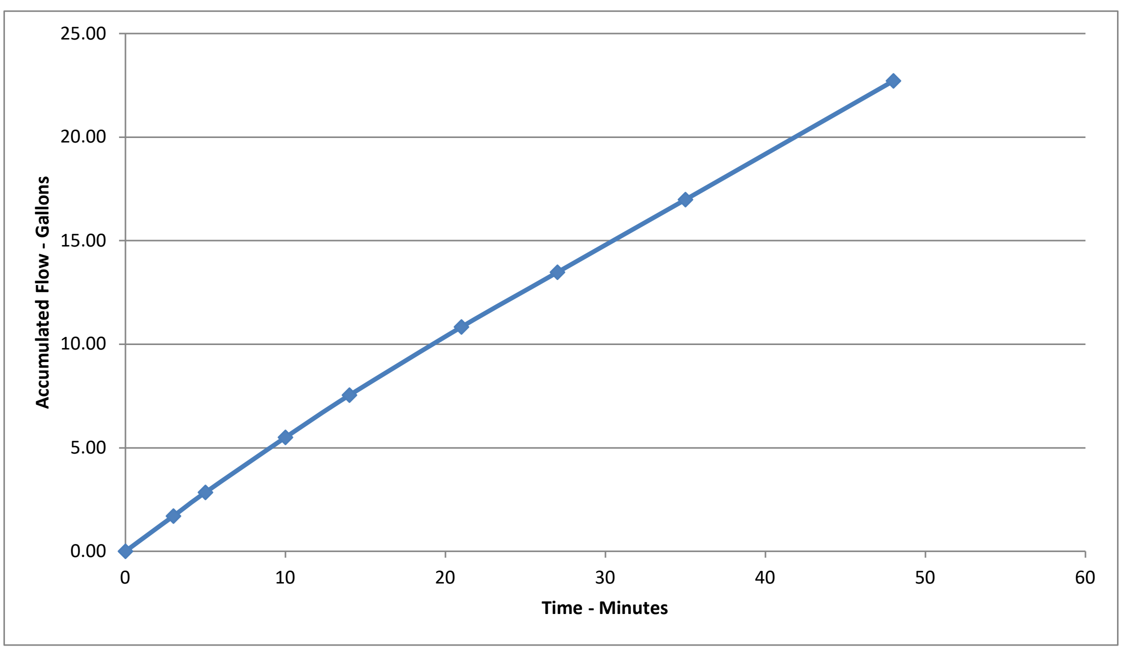
Diam. of Casing (in): 3

Ht. to Top of Casing (ft): 0

Water Tempurature (C°): 21

Constant Head

Elapsed Time (minutes)	Time	Depth to H2O (ft)	Flow Rate (gal./min.)	Total H_2O used (gal)
0	14:27	31.5	0.60	0.00
3	14:30	31.5	0.54	1.71
5	14:32	31.5	0.52	2.85
10	14:37	31.5	0.50	5.50
14	14:41	31.5	0.44	7.54
21	14:48	31.5	0.44	10.83
27	14:54	31.50	0.44	13.47
35	15:02	31.50	0.44	16.99
48	15:15	31.50	0.44	22.71



INFILTRATION WELL DESIGN

Constant Head
USBR 7300-89 Method

J.N.: 2859.00
Client: NCR
Well No.: B-1 / P-1

Low Water Table	Condition 1	
High Water Table & Water Below Bottom of Well	Condition 2	
High water Table with Water Above the Well Bottom	Condition 3	
		Units:
Enter Condition (1, 2 or 3):	1	
Ground Surface to Bottom of Well (**h_1**):	34.95	feet
Depth to Water (**h_2**):	31.25	feet
Height of Water in the Well (h_1-h_2=**h**):	3.7	feet
Radius of Well (**r**):	4.0	Inches
Minimum Volume Required:	729.4	Gal.
Discharge Rate of Water Into Well for Steady-State Condition (**q**):	0.22	Gal/min.
Temperature (**T**):	21	Celsius
(Viscosity of Water @ Temp. T) / (Viscosity of water @ 20° C) (**V**):	0.9647	ft^3/min.
Unsaturated Distance Between the Water Surface in the Well and the Water table (**T_u**):		Ignore T_u
Factor of Safety:	1	
Coefficient of Permeability @ 20° C (**k_{20}**):	7.29E-04	ft/min.
Design k_{20}:	0.53	in./hr.

The presence or absence of a water table or impervious soil layer within a distance of less than three times that of the water depth in the well (measured from the water surface) will enable the water table to be classified as **Condition I**, **Condition II**, **Condtion III**.

Low Water Table-When the distance from the water surface in the test well to the ground water table, or to an impervious soil layer which is considered for test puposes to be equivalent to a water table, is greater than three times the depth of water in the well, classify as **Condition I**.

High Water Table-When the distance from the water surface in the test well to the ground water table or to an impervious layer is less than three times the depth of water in the well, a high water table condition exists. Use **Condition II** when the water table or impervious layer is below the well bottom. Use **Condition III** when the water table or impervious layer is above the well bottom.

INFILTRATION WELL DESIGN

Constant Head
USBR 7300-89 Method

J.N.: 2859.00
Client: NCR
Well No.: B-3 / P-2

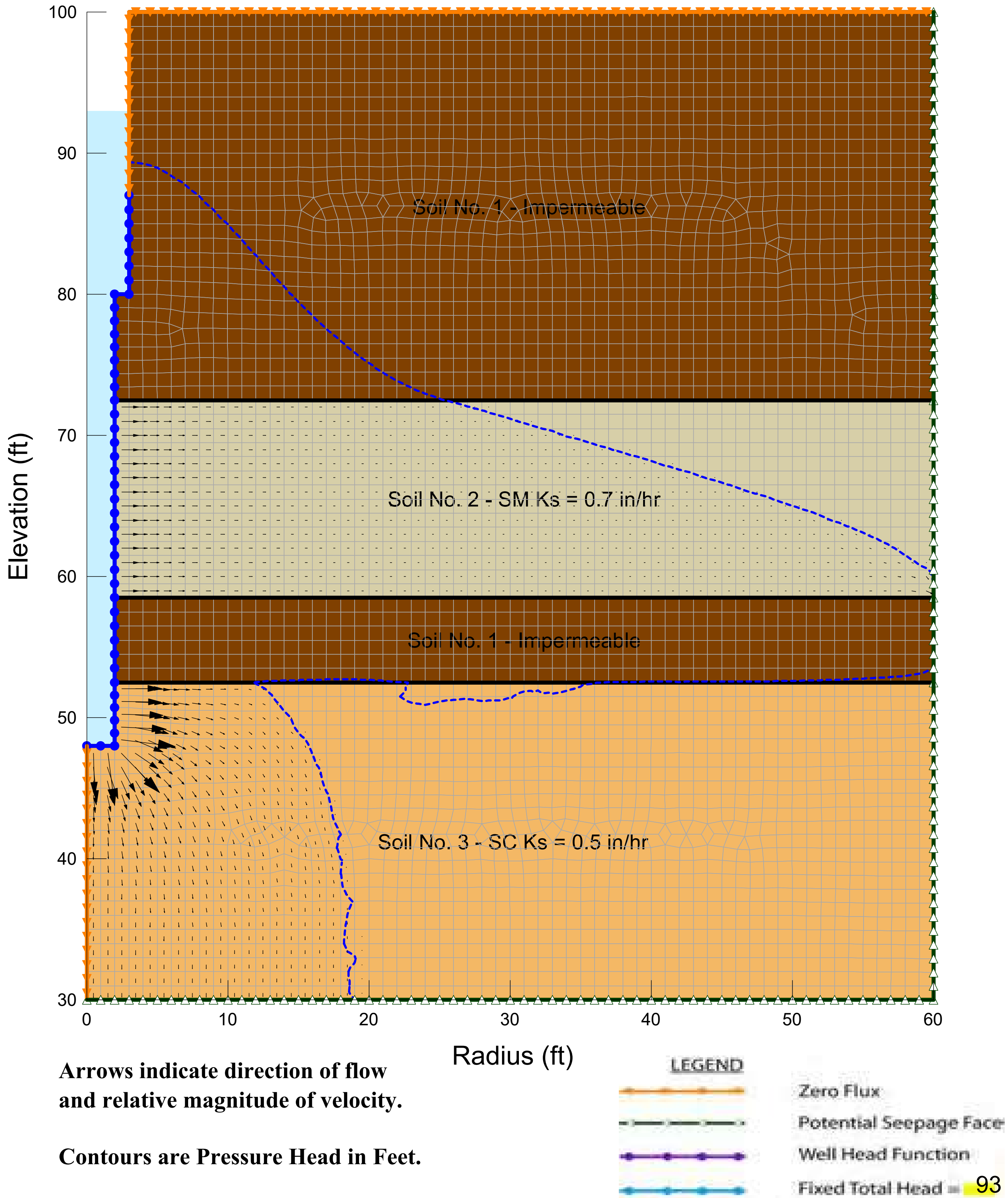
Low Water Table	Condition 1	
High Water Table & Water Below Bottom of Well	Condition 2	
High water Table with Water Above the Well Bottom	Condition 3	
		Units:
Enter Condition (1, 2 or 3):	1	
Ground Surface to Bottom of Well ($\mathbf{h_1}$):	35	feet
Depth to Water ($\mathbf{h_2}$):	31.5	feet
Height of Water in the Well (h_1-h_2=**h**):	3.5	feet
Radius of Well (**r**):	4.0	Inches
Minimum Volume Required:	642.6	Gal.
Discharge Rate of Water Into Well for Steady-State Condition (**q**):	0.44	Gal/min.
Temperature (**T**):	21	Celsius
(Viscosity of Water @ Temp. T) / (Viscosity of water @ 20° C) (**V**):	0.9647	ft^3/min.
Unsaturated Distance Between the Water Surface in the Well and the Water table ($\mathbf{T_u}$):		Ignore T_u
Factor of Safety:	1	
Coefficient of Permeability @ 20° C ($\mathbf{k_{20}}$):	1.59E-03	ft/min.
Design k_{20}:	1.15	in./hr.

The presence or absence of a water table or impervious soil layer within a distance of less than three times that of the water depth in the well (measured from the water surface) will enable the water table to be classified as **Condition I**, **Condition II**, **Condtion III**.

Low Water Table-When the distance from the water surface in the test well to the ground water table, or to an impervious soil layer which is considered for test puposes to be equivalent to a water table, is greater than three times the depth of water in the well, classify as **Condition I**.

High Water Table-When the distance from the water surface in the test well to the ground water table or to an impervious layer is less than three times the depth of water in the well, a high water table condition exists. Use **Condition II** when the water table or impervious layer is below the well bottom. Use **Condition III** when the water table or impervious layer is above the well bottom.

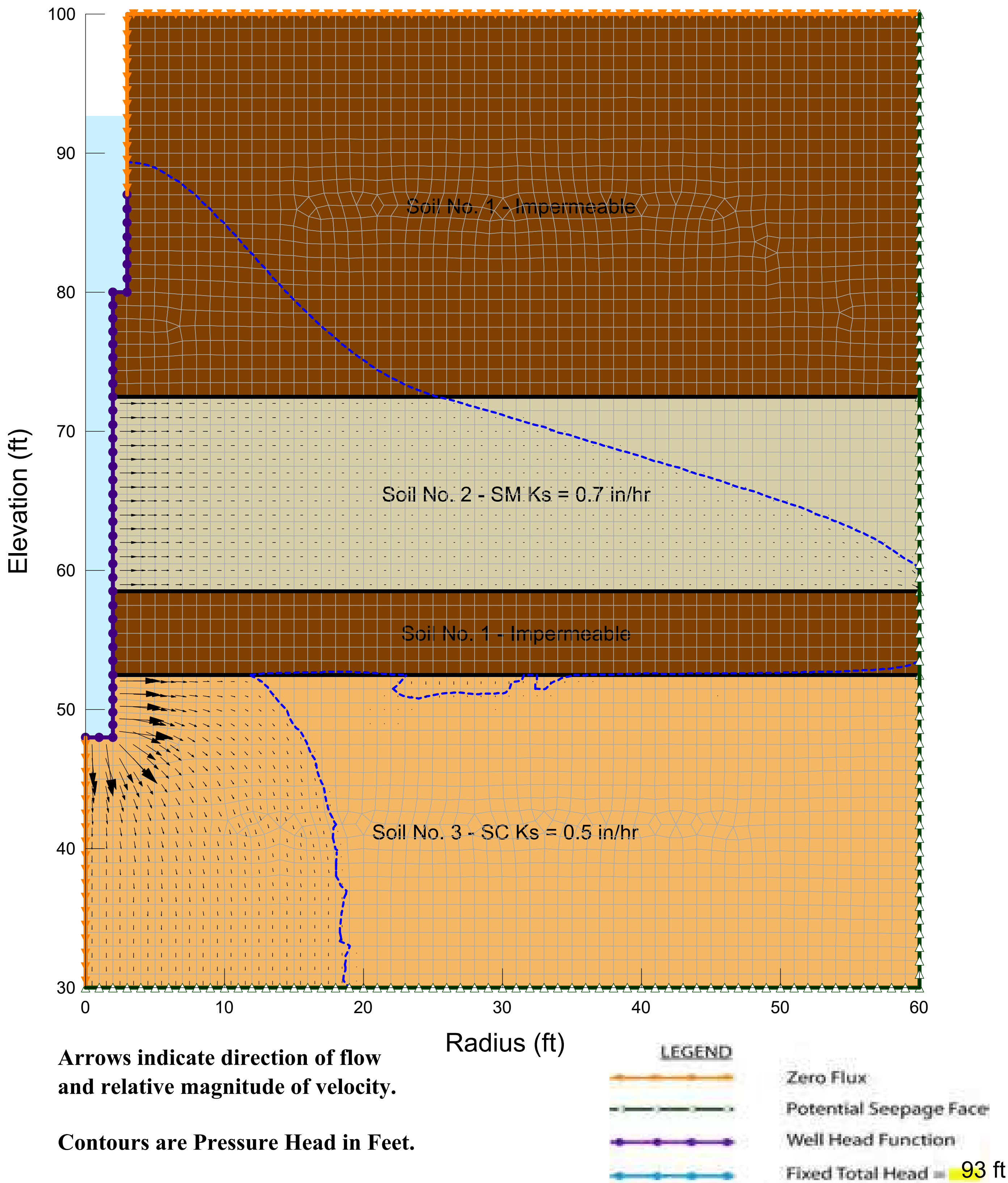
STEADY STATE
FLOW ANALYSIS OF 52 ft DEEP DRY WELL



Arrows indicate direction of flow and relative magnitude of velocity.

Contours are Pressure Head in Feet.

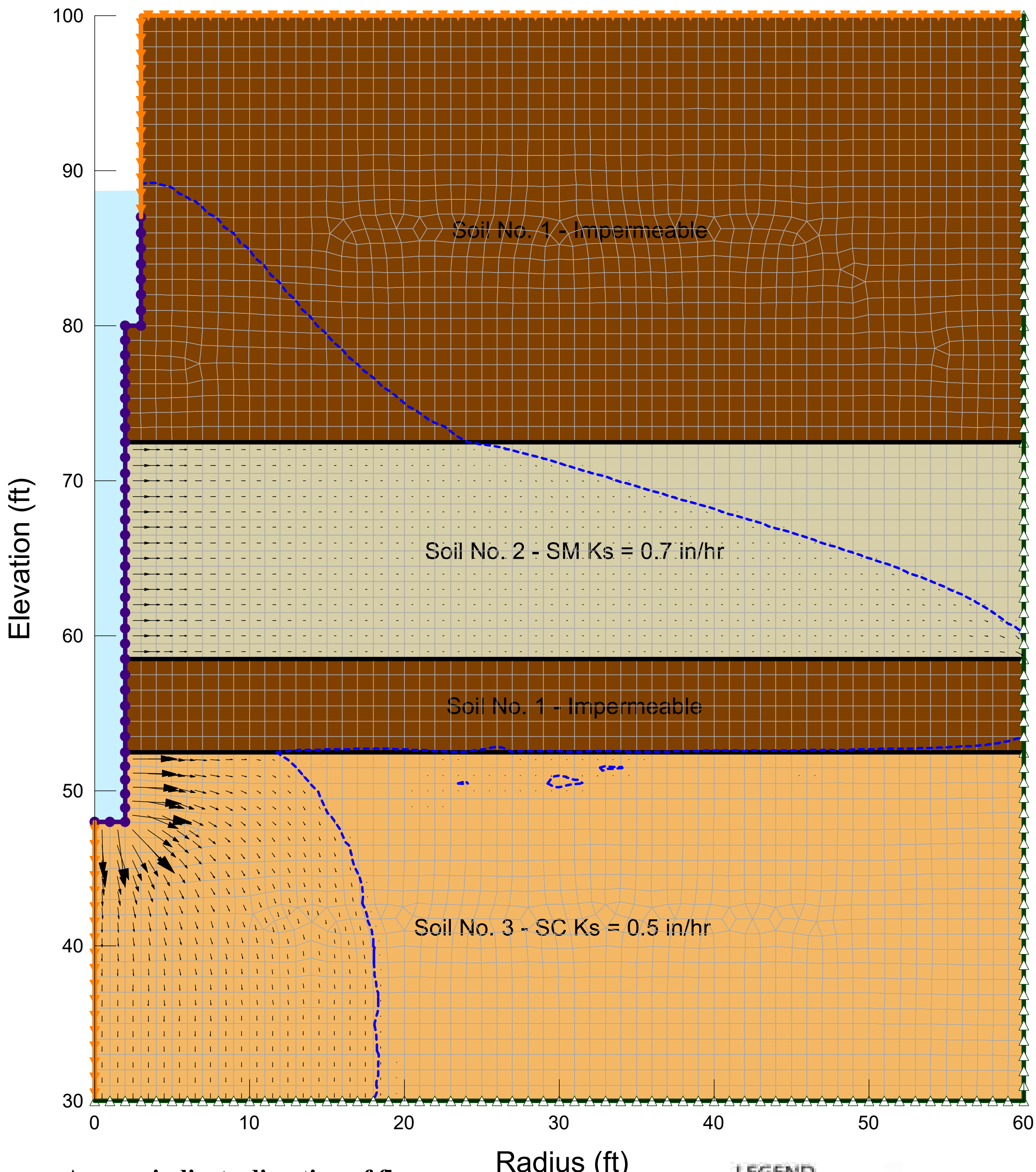
TRANSIENT @ 0.06 hrs
FLOW ANALYSIS OF 52 ft DEEP DRY WELL



Arrows indicate direction of flow and relative magnitude of velocity.

Contours are Pressure Head in Feet.

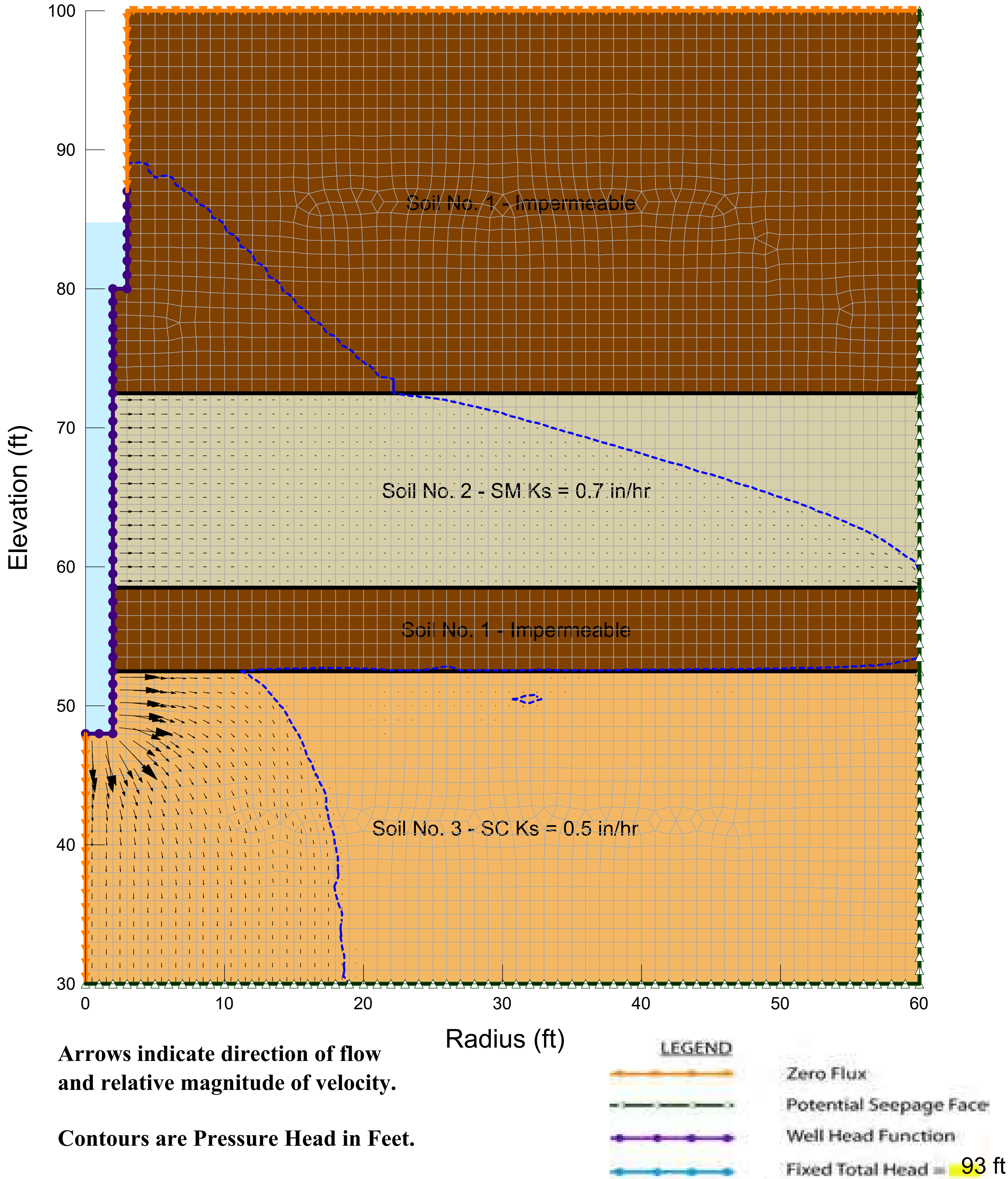
TRANSIENT @ 0.72 hrs
FLOW ANALYSIS OF 52 ft DEEP DRY WELL



Arrows indicate direction of flow and relative magnitude of velocity.

Contours are Pressure Head in Feet.

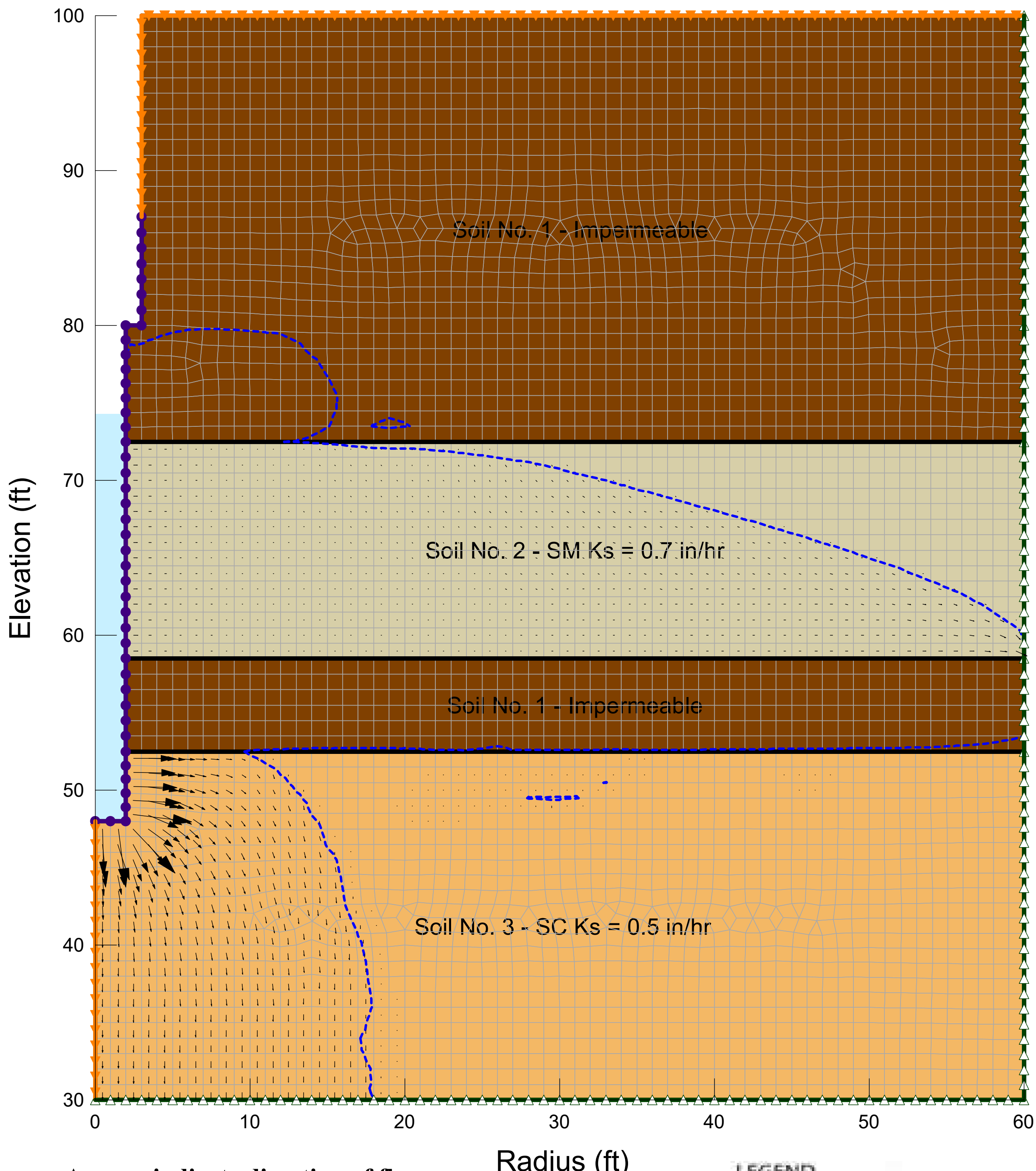
TRANSIENT @ 1.66 hrs
FLOW ANALYSIS OF 52 ft DEEP DRY WELL



Arrows indicate direction of flow and relative magnitude of velocity.

Contours are Pressure Head in Feet.

TRANSIENT @ 3.6 hrs
FLOW ANALYSIS OF 52 ft DEEP DRY WELL



Arrows indicate direction of flow and relative magnitude of velocity.

Contours are Pressure Head in Feet.

LEGEND

Zero Flux
Potential Seepage Face
Well Head Function
Fixed Total Head = 93 ft

APPENDIX G

2-YEAR HYDROLOGY CALCULATIONS

```
****************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                           Analysis prepared by:

                             fuscoe engineering
                              16795 Von Karman
                                 Suite 100
                                 Irvine, CA

 ************************** DESCRIPTION OF STUDY **************************
* Placentia Senior Housing                                                 *
* 1314 N. Angelina, Placentia                                              *
* Existing Condition - 2-year storm event                                  *
 **************************************************************************

  FILE NAME: EXANG2.DAT
  TIME/DATE OF STUDY: 10:48 04/14/2020
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    301.70  DOWNSTREAM(FEET) =    298.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.712
```

```
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.389
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "1 DWELLING/ACRE"          B        0.88      0.30     0.800    36   11.71
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.800
  SUBAREA RUNOFF(CFS) =      0.91
  TOTAL AREA(ACRES) =      0.88   PEAK FLOW RATE(CFS) =      0.91

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    298.00  DOWNSTREAM(FEET) =    297.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    72.00   CHANNEL SLOPE =  0.0139
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  20.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   2.00
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.317
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL GOOD COVER
  "GRASS"                    B        0.43      0.30     1.000    41
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.11
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.06
  AVERAGE FLOW DEPTH(FEET) =   0.09   TRAVEL TIME(MIN.) =   1.13
  Tc(MIN.) =   12.84
  SUBAREA AREA(ACRES) =     0.43       SUBAREA RUNOFF(CFS) =    0.39
  EFFECTIVE AREA(ACRES) =      1.31     AREA-AVERAGED Fm(INCH/HR) =   0.26
  AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   0.87
  TOTAL AREA(ACRES) =        1.3         PEAK FLOW RATE(CFS) =       1.25

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.09   FLOW VELOCITY(FEET/SEC.) =   1.11
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    103.00 =     402.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  297.00  DOWNSTREAM ELEVATION(FEET) =  294.80
  STREET LENGTH(FEET) =   283.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 24.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  19.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0160
```

```
Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.59
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.30
  HALFSTREET FLOOD WIDTH(FEET) =    8.90
  AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.75
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.53
STREET FLOW TRAVEL TIME(MIN.) =   2.69   Tc(MIN.) =   15.53
*   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.181
SUBAREA LOSS RATE DATA(AMC  I ):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
APARTMENTS                 C       0.35      0.25     0.200    50
RESIDENTIAL
"8-10 DWELLINGS/ACRE"      C       0.35      0.25     0.400    50
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.300
SUBAREA AREA(ACRES) =    0.70      SUBAREA RUNOFF(CFS) =    0.70
EFFECTIVE AREA(ACRES) =      2.01    AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  0.67
TOTAL AREA(ACRES) =        2.0       PEAK FLOW RATE(CFS) =       1.78

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.31   HALFSTREET FLOOD WIDTH(FEET) =   9.34
FLOW VELOCITY(FEET/SEC.) =  1.80   DEPTH*VELOCITY(FT*FT/SEC.) =   0.56
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     685.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   15.53
  RAINFALL INTENSITY(INCH/HR) =   1.18
  AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.29
  AREA-AVERAGED Ap =  0.67
  EFFECTIVE STREAM AREA(ACRES) =       2.01
  TOTAL STREAM AREA(ACRES) =       2.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.78

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    300.70  DOWNSTREAM(FEET) =    297.50

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.615
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.555
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  RESIDENTIAL
  "8-10 DWELLINGS/ACRE"      C        0.83      0.25     0.400    50    9.62
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.400
  SUBAREA RUNOFF(CFS) =      1.09
  TOTAL AREA(ACRES) =      0.83   PEAK FLOW RATE(CFS) =      1.09

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    297.50  DOWNSTREAM(FEET) =    295.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   186.00   CHANNEL SLOPE =  0.0108
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  24.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.434
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  APARTMENTS                 C        0.58      0.25     0.200    50
  RESIDENTIAL
  "8-10 DWELLINGS/ACRE"      C        0.58      0.25     0.400    50
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.300
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.80
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.12
  AVERAGE FLOW DEPTH(FEET) =   0.19   TRAVEL TIME(MIN.) =   1.46
  Tc(MIN.) =   11.08
  SUBAREA AREA(ACRES) =     1.16       SUBAREA RUNOFF(CFS) =    1.42
  EFFECTIVE AREA(ACRES) =      1.99     AREA-AVERAGED Fm(INCH/HR) =   0.09
  AREA-AVERAGED Fp(INCH/HR) =   0.25  AREA-AVERAGED Ap =   0.34
  TOTAL AREA(ACRES) =        2.0         PEAK FLOW RATE(CFS) =       2.42

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.21   FLOW VELOCITY(FEET/SEC.) =   2.27
  LONGEST FLOWPATH FROM NODE    105.00 TO NODE    107.00 =     516.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   11.08
  RAINFALL INTENSITY(INCH/HR) =   1.43
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.34
  EFFECTIVE STREAM AREA(ACRES) =       1.99
  TOTAL STREAM AREA(ACRES) =       1.99
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.42

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
```

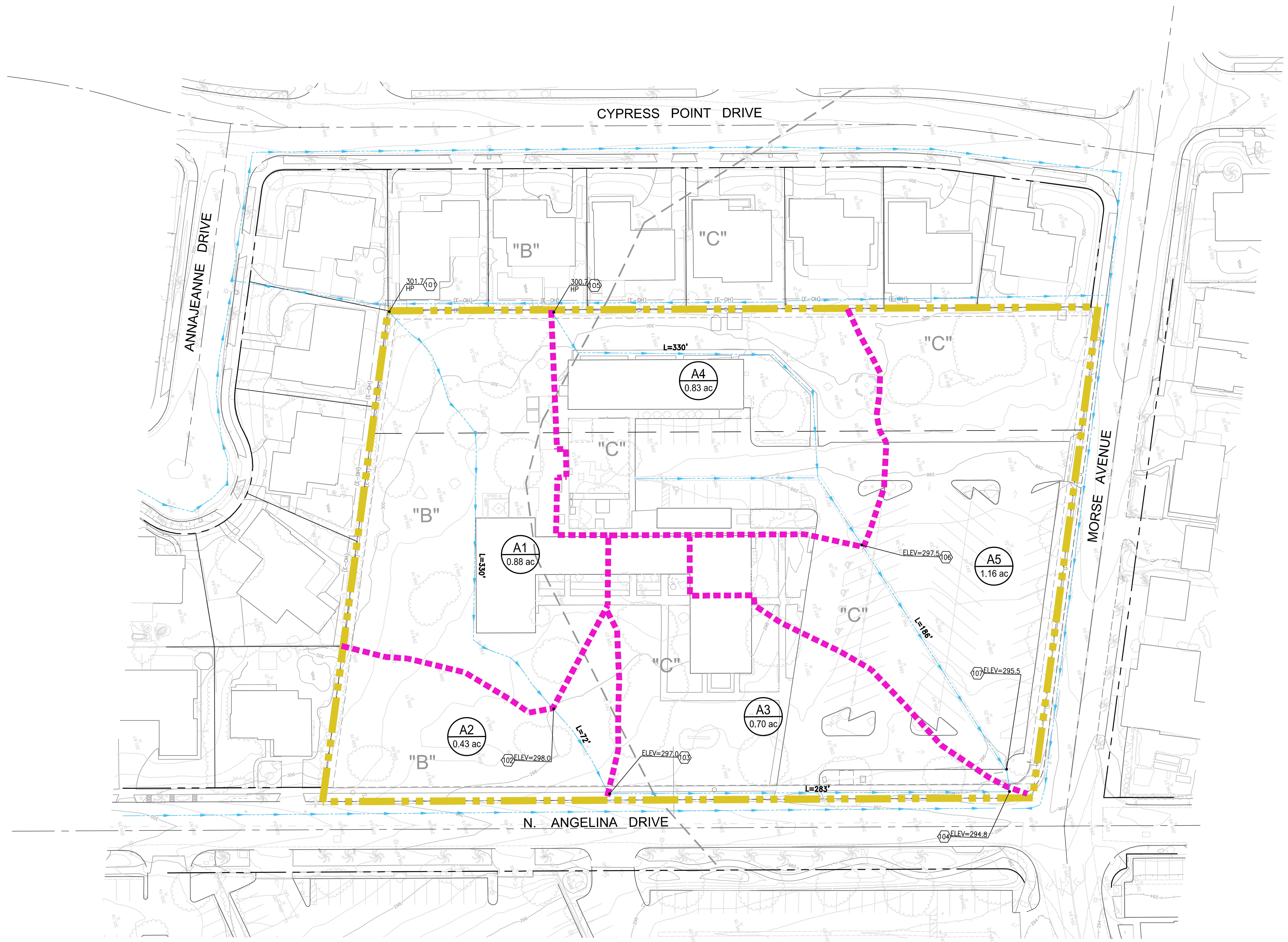
```
    1        1.78   15.53    1.181  0.29( 0.20) 0.67       2.0     101.00
    2        2.42   11.08    1.434  0.25( 0.09) 0.34       2.0     105.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        4.01   11.08    1.434  0.27( 0.13) 0.48       3.4     105.00
      2        3.74   15.53    1.181  0.28( 0.14) 0.51       4.0     101.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       4.01    Tc(MIN.) =    11.08
  EFFECTIVE AREA(ACRES) =       3.42   AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.48
  TOTAL AREA(ACRES) =       4.0
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     685.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        4.0  TC(MIN.) =     11.08
  EFFECTIVE AREA(ACRES) =      3.42  AREA-AVERAGED Fm(INCH/HR)=  0.13
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap = 0.479
  PEAK FLOW RATE(CFS)   =      4.01

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        4.01   11.08    1.434  0.27( 0.13) 0.48       3.4     105.00
      2        3.74   15.53    1.181  0.28( 0.14) 0.51       4.0     101.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                   AND LOW LOSS FRACTION ESTIMATIONS
============================================================================
         (C) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                         Analysis prepared by:

                           fuscoe engineering
                            16795 Von Karman
                               Suite 100
                               Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina, Placentia
  Existing Condition  2-year/24-hour hydrograph
============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC I:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     2.05 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
         1          0.88        80.00       56.(AMC II)     0.300       0.178
         2          0.43       100.00       61.(AMC II)     0.300       0.000
         3          0.70        30.00       69.(AMC II)     0.250       0.623
         4          0.83        40.00       69.(AMC II)     0.250       0.534
         5          1.16        30.00       69.(AMC II)     0.250       0.623

    TOTAL AREA (Acres) =      4.00
                              _
    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.141
                                    _
    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.560
============================================================================

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina, Placentia
  Existing Condition  2-year/24-hour hydrograph  (calib coef: 0.777)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.78
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.141
    LOW LOSS FRACTION = 0.560
    TIME OF CONCENTRATION(MIN.) = 11.08
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =   2
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.19
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.53
```

```
     3-HOUR   POINT RAINFALL VALUE(INCHES) =  0.89
     6-HOUR   POINT RAINFALL VALUE(INCHES) =  1.22
    24-HOUR   POINT RAINFALL VALUE(INCHES) =  2.05

----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.27
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.41

****************************************************************************
  TIME     VOLUME       Q    0.         2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.12      0.0000      0.00  Q         .         .         .         .
  0.30      0.0003      0.04  Q         .         .         .         .
  0.49      0.0010      0.04  Q         .         .         .         .
  0.67      0.0017      0.04  Q         .         .         .         .
  0.86      0.0024      0.04  Q         .         .         .         .
  1.04      0.0031      0.05  Q         .         .         .         .
  1.23      0.0038      0.05  Q         .         .         .         .
  1.41      0.0045      0.05  Q         .         .         .         .
  1.60      0.0052      0.05  Q         .         .         .         .
  1.78      0.0059      0.05  Q         .         .         .         .
  1.97      0.0066      0.05  Q         .         .         .         .
  2.15      0.0073      0.05  Q         .         .         .         .
  2.33      0.0080      0.05  Q         .         .         .         .
  2.52      0.0088      0.05  Q         .         .         .         .
  2.70      0.0095      0.05  Q         .         .         .         .
  2.89      0.0103      0.05  Q         .         .         .         .
  3.07      0.0110      0.05  Q         .         .         .         .
  3.26      0.0118      0.05  Q         .         .         .         .
  3.44      0.0125      0.05  Q         .         .         .         .
  3.63      0.0133      0.05  Q         .         .         .         .
  3.81      0.0141      0.05  Q         .         .         .         .
  4.00      0.0149      0.05  Q         .         .         .         .
  4.18      0.0157      0.05  Q         .         .         .         .
  4.37      0.0165      0.05  Q         .         .         .         .
  4.55      0.0173      0.05  Q         .         .         .         .
  4.74      0.0181      0.05  Q         .         .         .         .
  4.92      0.0189      0.05  Q         .         .         .         .
  5.10      0.0198      0.06  Q         .         .         .         .
  5.29      0.0206      0.06  Q         .         .         .         .
  5.47      0.0215      0.06  Q         .         .         .         .
  5.66      0.0224      0.06  Q         .         .         .         .
  5.84      0.0232      0.06  Q         .         .         .         .
  6.03      0.0241      0.06  Q         .         .         .         .
  6.21      0.0250      0.06  Q         .         .         .         .
  6.40      0.0259      0.06  Q         .         .         .         .
  6.58      0.0268      0.06  Q         .         .         .         .
  6.77      0.0277      0.06  Q         .         .         .         .
  6.95      0.0287      0.06  Q         .         .         .         .
  7.14      0.0296      0.06  Q         .         .         .         .
  7.32      0.0306      0.06  Q         .         .         .         .
  7.51      0.0316      0.06  Q         .         .         .         .
  7.69      0.0326      0.07  Q         .         .         .         .
  7.87      0.0336      0.07  Q         .         .         .         .
  8.06      0.0346      0.07  Q         .         .         .         .
  8.24      0.0356      0.07  Q         .         .         .         .
  8.43      0.0366      0.07  Q         .         .         .         .
  8.61      0.0377      0.07  Q         .         .         .         .
  8.80      0.0388      0.07  Q         .         .         .         .
```

```
 8.98       0.0399      0.07  Q         .         .         .         .
 9.17       0.0410      0.07  Q         .         .         .         .
 9.35       0.0421      0.07  Q         .         .         .         .
 9.54       0.0433      0.08  Q         .         .         .         .
 9.72       0.0444      0.08  Q         .         .         .         .
 9.91       0.0456      0.08  Q         .         .         .         .
10.09       0.0468      0.08  Q         .         .         .         .
10.28       0.0481      0.08  Q         .         .         .         .
10.46       0.0493      0.08  Q         .         .         .         .
10.64       0.0506      0.09  Q         .         .         .         .
10.83       0.0519      0.09  Q         .         .         .         .
11.01       0.0533      0.09  Q         .         .         .         .
11.20       0.0547      0.09  Q         .         .         .         .
11.38       0.0561      0.09  Q         .         .         .         .
11.57       0.0575      0.10  Q         .         .         .         .
11.75       0.0590      0.10  Q         .         .         .         .
11.94       0.0605      0.10  Q         .         .         .         .
12.12       0.0621      0.12  Q         .         .         .         .
12.31       0.0640      0.13  Q         .         .         .         .
12.49       0.0660      0.13  Q         .         .         .         .
12.68       0.0681      0.14  Q         .         .         .         .
12.86       0.0702      0.14  Q         .         .         .         .
13.05       0.0724      0.14  Q         .         .         .         .
13.23       0.0746      0.15  Q         .         .         .         .
13.41       0.0769      0.15  Q         .         .         .         .
13.60       0.0794      0.16  Q         .         .         .         .
13.78       0.0819      0.17  Q         .         .         .         .
13.97       0.0845      0.18  Q         .         .         .         .
14.15       0.0873      0.18  Q         .         .         .         .
14.34       0.0902      0.20  Q         .         .         .         .
14.52       0.0934      0.21  Q         .         .         .         .
14.71       0.0968      0.23  Q         .         .         .         .
14.89       0.1004      0.24  Q         .         .         .         .
15.08       0.1042      0.27  .Q        .         .         .         .
15.26       0.1085      0.29  .Q        .         .         .         .
15.45       0.1131      0.32  .Q        .         .         .         .
15.63       0.1181      0.33  .Q        .         .         .         .
15.82       0.1255      0.64  . Q       .         .         .         .
16.00       0.1384      1.05  .   Q     .         .         .         .
16.18       0.1770      4.01  .         .     Q   .         .         .
16.37       0.2109      0.43  .Q        .         .         .         .
16.55       0.2166      0.31  .Q        .         .         .         .
16.74       0.2209      0.25  .Q        .         .         .         .
16.92       0.2245      0.22  Q         .         .         .         .
17.11       0.2277      0.20  Q         .         .         .         .
17.29       0.2305      0.17  Q         .         .         .         .
17.48       0.2330      0.16  Q         .         .         .         .
17.66       0.2354      0.15  Q         .         .         .         .
17.85       0.2376      0.14  Q         .         .         .         .
18.03       0.2396      0.13  Q         .         .         .         .
18.22       0.2414      0.10  Q         .         .         .         .
18.40       0.2429      0.10  Q         .         .         .         .
18.59       0.2444      0.09  Q         .         .         .         .
18.77       0.2457      0.09  Q         .         .         .         .
18.95       0.2470      0.08  Q         .         .         .         .
19.14       0.2483      0.08  Q         .         .         .         .
19.32       0.2495      0.08  Q         .         .         .         .
19.51       0.2507      0.08  Q         .         .         .         .
19.69       0.2518      0.07  Q         .         .         .         .
19.88       0.2529      0.07  Q         .         .         .         .
20.06       0.2540      0.07  Q         .         .         .         .
```

```
 20.25      0.2550      0.07  Q         .         .         .         .
 20.43      0.2560      0.06  Q         .         .         .         .
 20.62      0.2570      0.06  Q         .         .         .         .
 20.80      0.2579      0.06  Q         .         .         .         .
 20.99      0.2589      0.06  Q         .         .         .         .
 21.17      0.2598      0.06  Q         .         .         .         .
 21.36      0.2606      0.06  Q         .         .         .         .
 21.54      0.2615      0.06  Q         .         .         .         .
 21.72      0.2624      0.05  Q         .         .         .         .
 21.91      0.2632      0.05  Q         .         .         .         .
 22.09      0.2640      0.05  Q         .         .         .         .
 22.28      0.2648      0.05  Q         .         .         .         .
 22.46      0.2656      0.05  Q         .         .         .         .
 22.65      0.2663      0.05  Q         .         .         .         .
 22.83      0.2671      0.05  Q         .         .         .         .
 23.02      0.2678      0.05  Q         .         .         .         .
 23.20      0.2686      0.05  Q         .         .         .         .
 23.39      0.2693      0.05  Q         .         .         .         .
 23.57      0.2700      0.05  Q         .         .         .         .
 23.76      0.2707      0.05  Q         .         .         .         .
 23.94      0.2714      0.04  Q         .         .         .         .
 24.13      0.2720      0.04  Q         .         .         .         .
 24.31      0.2724      0.00  Q         .         .         .         .
----------------------------------------------------------------------------
-------------------------------------------------------------------------------
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                Duration
        Peak Flow Rate                     (minutes)
    =======================                =========
               0%                           1440.4
              10%                             44.3
              20%                             22.2
              30%                             11.1
              40%                             11.1
              50%                             11.1
              60%                             11.1
              70%                             11.1
              80%                             11.1
              90%                             11.1
```



SITE EXISTING CONDITION			
STORM EVENT	Q (CFS)	T_c (MIN)	VOLUME (AC–FT)
2–Year	4.01	11.08	0.27
10–Year	7.67	10.90	0.62
25–Year	9.30	10.82	0.80
100–Year	12.06	10.74	1.20

ASSESSOR PARCEL NO.

340–273–25

SITE ADDRESS

1314 N. ANGELINA DRIVE
PLACENTIA, CALIFORNIA 92870

APPLICANT/OWNER

NATIONAL COMMUNITY RENAISSANCE OF CALIFORNIA
9421 HAVEN AVENUE
RANCHO CUCAMONGA, CA 91730
TEL: (949) 394–7996

CIVIL ENGINEER

FUSCOE ENGINEERING
16795 VON KARMAN, SUITE 100
IRVINE, CA 92606
TEL: 949.474.1960
FAX: 949.474.5315

ABBREVATIONS

AC	ACRE
AC–FT	ACRE–FOOT
CFS	CUBIC FEET PER SECOND
ELEV	ELEVATION
HP	HIGH POINT
L	LENGTH
MIN	MINUTES
Q_2	FLOW RATE – 2–YEAR STORM
S	SLOPE
T_c	TIME OF CONCENTRATION

LEGEND

DRAINAGE BOUNDARY
DRAINAGE SUB–BOUNDARY
XX NODE
TIME OF CONCENTRATION FLOW PATH
L=XXX' FLOW PATH LENGTH
XX X.XXac DRAINAGE BOUNDARY DESIGNATION AND AREA
SOIL TYPE DELINEATION

40' 0' 20' 40'
SCALE: 1" = 40'

PREPARED BY:
FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ∘ fax 949.474.5315
www.fuscoe.com

HYDROLOGY MAP
EXISTING CONDITION

PLACENTIA SENIOR HOUSING 1314 N. ANGELINA DRIVE
CITY OF PLACENTIA, CALIFORNIA

PROJECT NO. 1653-010
SHEET 1 OF 1

PLAN SET: X
CITY OF PLACENTIA – 1314 N. ANGELINA DRIVE
EXISTING HYDROLOGY MAP
2020–07–08

Plotted by: Susan Williams

```
****************************************************************************
              RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
             (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
          (c) Copyright 1983-2016 Advanced Engineering Software (aes)
              Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                            Analysis prepared by:

                              fuscoe engineering
                               16795 Von Karman
                                  Suite 100
                                  Irvine, CA

 ************************** DESCRIPTION OF STUDY **************************
* Placentia Senior Housing                                                 *
* 1314 N. Angelina Drive                                                   *
* Proposed Condition - 2-year storm event                                  *
 **************************************************************************

  FILE NAME: PRANG2.DAT
  TIME/DATE OF STUDY: 16:31 04/15/2020
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    301.70  DOWNSTREAM(FEET) =    298.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.677
```

```
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.770
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 B       0.98      0.30     0.100    36    7.68
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      1.53
  TOTAL AREA(ACRES) =      0.98   PEAK FLOW RATE(CFS) =      1.53

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   293.20  DOWNSTREAM(FEET) =   292.60
  FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.32
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.53
  PIPE TRAVEL TIME(MIN.) =   0.56    Tc(MIN.) =    8.24
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    103.00 =     442.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    8.24
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.699
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 C       1.03      0.25     0.100    50
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    1.03      SUBAREA RUNOFF(CFS) =    1.55
  EFFECTIVE AREA(ACRES) =      2.01   AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.10
  TOTAL AREA(ACRES) =        2.0       PEAK FLOW RATE(CFS) =       3.02

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   292.60  DOWNSTREAM(FEET) =   291.60
  FLOW LENGTH(FEET) =   184.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   9.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.95
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.02
  PIPE TRAVEL TIME(MIN.) =   0.78    Tc(MIN.) =    9.02
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     626.00 FEET.

****************************************************************************
```

```
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.02
  RAINFALL INTENSITY(INCH/HR) =   1.61
  AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.27
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       2.01
  TOTAL STREAM AREA(ACRES) =       2.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.02

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    299.10  DOWNSTREAM(FEET) =    297.60

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.094
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.606
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 C       0.72      0.25     0.100    50    9.09
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      1.02
  TOTAL AREA(ACRES) =      0.72   PEAK FLOW RATE(CFS) =      1.02

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    297.60  DOWNSTREAM(FEET) =    297.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    71.00   CHANNEL SLOPE =  0.0085
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  24.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.541
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 C       0.18      0.25     0.100    50
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.15
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.76
  AVERAGE FLOW DEPTH(FEET) =   0.16   TRAVEL TIME(MIN.) =   0.67
  Tc(MIN.) =    9.77
  SUBAREA AREA(ACRES) =     0.18       SUBAREA RUNOFF(CFS) =    0.25
  EFFECTIVE AREA(ACRES) =      0.90     AREA-AVERAGED Fm(INCH/HR) =   0.03
```

```
  AREA-AVERAGED Fp(INCH/HR) =   0.25  AREA-AVERAGED Ap =   0.10
  TOTAL AREA(ACRES) =        0.9         PEAK FLOW RATE(CFS) =       1.23

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.17   FLOW VELOCITY(FEET/SEC.) =   1.76
  LONGEST FLOWPATH FROM NODE    105.00 TO NODE    107.00 =     401.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    9.77
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.541
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 C       0.38      0.25     0.100    50
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.38      SUBAREA RUNOFF(CFS) =    0.52
  EFFECTIVE AREA(ACRES) =      1.28   AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.10
  TOTAL AREA(ACRES) =        1.3       PEAK FLOW RATE(CFS) =       1.75

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   292.10  DOWNSTREAM(FEET) =   291.60
  FLOW LENGTH(FEET) =    89.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.47
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.75
  PIPE TRAVEL TIME(MIN.) =   0.43    Tc(MIN.) =   10.20
  LONGEST FLOWPATH FROM NODE    105.00 TO NODE    104.00 =     490.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.20
  RAINFALL INTENSITY(INCH/HR) =   1.50
  AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       1.28
  TOTAL STREAM AREA(ACRES) =       1.28
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.75

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
```

```
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        3.02    9.02    1.614  0.27( 0.03) 0.10       2.0     101.00
    2        1.75   10.20    1.504  0.25( 0.03) 0.10       1.3     105.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR  2 STREAMS.

** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        4.68    9.02    1.614  0.27( 0.03) 0.10       3.1     101.00
    2        4.56   10.20    1.504  0.26( 0.03) 0.10       3.3     105.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =       4.68    Tc(MIN.) =     9.02
EFFECTIVE AREA(ACRES) =       3.14   AREA-AVERAGED Fm(INCH/HR) =  0.03
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.10
TOTAL AREA(ACRES) =        3.3
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     626.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    104.00 TO NODE    108.00 IS CODE =  31
----------------------------------------------------------------------------
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   291.60  DOWNSTREAM(FEET) =   291.00
FLOW LENGTH(FEET) =   118.00   MANNING'S N =  0.013
DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.7 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) =   4.30
ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
PIPE-FLOW(CFS) =       4.68
PIPE TRAVEL TIME(MIN.) =   0.46    Tc(MIN.) =    9.47
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    108.00 =     744.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    108.00 TO NODE    108.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN.) =    9.47
*   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.569
SUBAREA LOSS RATE DATA(AMC  I ):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
COMMERCIAL                 C       0.71      0.25     0.100    50
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
SUBAREA AREA(ACRES) =    0.71      SUBAREA RUNOFF(CFS) =    0.99
EFFECTIVE AREA(ACRES) =      3.85   AREA-AVERAGED Fm(INCH/HR) =  0.03
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.10
TOTAL AREA(ACRES) =        4.0       PEAK FLOW RATE(CFS) =       5.35

****************************************************************************
FLOW PROCESS FROM NODE    108.00 TO NODE    109.00 IS CODE =  31
----------------------------------------------------------------------------
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

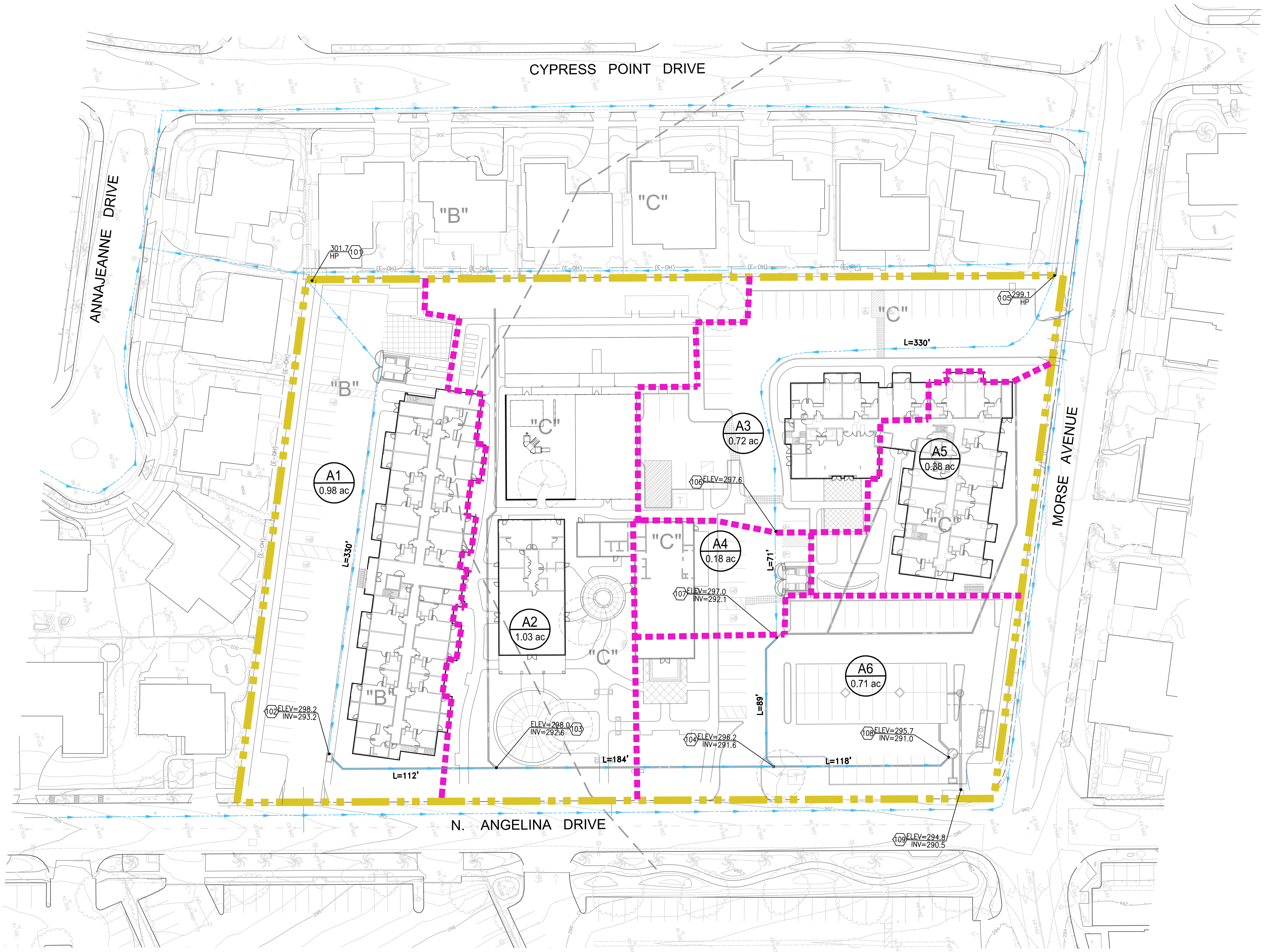
```
 ELEVATION DATA: UPSTREAM(FEET) =   291.00  DOWNSTREAM(FEET) =   290.50
 FLOW LENGTH(FEET) =    20.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  15.0 INCH PIPE IS   8.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   8.09
 ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       5.35
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    9.52
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    109.00 =     764.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        4.0  TC(MIN.) =      9.52
 EFFECTIVE AREA(ACRES) =      3.85  AREA-AVERAGED Fm(INCH/HR)=  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap = 0.100
 PEAK FLOW RATE(CFS)   =       5.35

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1        5.35    9.52    1.565  0.26( 0.03) 0.10       3.9     101.00
     2        5.18   10.70    1.463  0.26( 0.03) 0.10       4.0     105.00
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
           NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                     AND LOW LOSS FRACTION ESTIMATIONS
============================================================================
         (C) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                           Analysis prepared by:

                             fuscoe engineering
                              16795 Von Karman
                                 Suite 100
                                 Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina, Placentia
  Proposed Condition  2-year/24-hour hydrograph
============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC I:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     2.05 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
         1          0.98       10.00       56.(AMC II)     0.300       0.801
         2          3.02       10.00       69.(AMC II)     0.250       0.801

    TOTAL AREA (Acres) =      4.00
                                   _
    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.026
                                           _
    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.199
============================================================================

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina, Placentia
  Proposed Condition  2-year/24-hour hydrograph  (calib. coef: 0.869)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.87
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.026
    LOW LOSS FRACTION = 0.199
    TIME OF CONCENTRATION(MIN.) =  9.52
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =   2
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.19
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.53
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  0.89
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  1.22
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  2.05
```

```
----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.50
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.18

****************************************************************************
  TIME     VOLUME       Q    0.        2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.13      0.0006      0.09  Q         .         .         .         .
  0.29      0.0018      0.09  Q         .         .         .         .
  0.45      0.0029      0.09  Q         .         .         .         .
  0.61      0.0041      0.09  Q         .         .         .         .
  0.77      0.0053      0.09  Q         .         .         .         .
  0.93      0.0065      0.09  Q         .         .         .         .
  1.09      0.0077      0.09  Q         .         .         .         .
  1.24      0.0089      0.09  Q         .         .         .         .
  1.40      0.0102      0.09  Q         .         .         .         .
  1.56      0.0114      0.09  Q         .         .         .         .
  1.72      0.0126      0.09  Q         .         .         .         .
  1.88      0.0139      0.10  Q         .         .         .         .
  2.04      0.0152      0.10  Q         .         .         .         .
  2.20      0.0164      0.10  Q         .         .         .         .
  2.35      0.0177      0.10  Q         .         .         .         .
  2.51      0.0190      0.10  Q         .         .         .         .
  2.67      0.0203      0.10  Q         .         .         .         .
  2.83      0.0216      0.10  Q         .         .         .         .
  2.99      0.0229      0.10  Q         .         .         .         .
  3.15      0.0242      0.10  Q         .         .         .         .
  3.31      0.0256      0.10  Q         .         .         .         .
  3.47      0.0269      0.10  Q         .         .         .         .
  3.62      0.0283      0.10  Q         .         .         .         .
  3.78      0.0296      0.10  Q         .         .         .         .
  3.94      0.0310      0.11  Q         .         .         .         .
  4.10      0.0324      0.11  Q         .         .         .         .
  4.26      0.0338      0.11  Q         .         .         .         .
  4.42      0.0352      0.11  Q         .         .         .         .
  4.58      0.0366      0.11  Q         .         .         .         .
  4.73      0.0381      0.11  Q         .         .         .         .
  4.89      0.0395      0.11  Q         .         .         .         .
  5.05      0.0410      0.11  Q         .         .         .         .
  5.21      0.0425      0.11  Q         .         .         .         .
  5.37      0.0440      0.11  Q         .         .         .         .
  5.53      0.0455      0.11  Q         .         .         .         .
  5.69      0.0470      0.12  Q         .         .         .         .
  5.85      0.0485      0.12  Q         .         .         .         .
  6.00      0.0501      0.12  Q         .         .         .         .
  6.16      0.0516      0.12  Q         .         .         .         .
  6.32      0.0532      0.12  Q         .         .         .         .
  6.48      0.0548      0.12  Q         .         .         .         .
  6.64      0.0564      0.12  Q         .         .         .         .
  6.80      0.0580      0.12  Q         .         .         .         .
  6.96      0.0597      0.13  Q         .         .         .         .
  7.11      0.0613      0.13  Q         .         .         .         .
  7.27      0.0630      0.13  Q         .         .         .         .
  7.43      0.0647      0.13  Q         .         .         .         .
  7.59      0.0664      0.13  Q         .         .         .         .
  7.75      0.0682      0.13  Q         .         .         .         .
  7.91      0.0699      0.14  Q         .         .         .         .
  8.07      0.0717      0.14  Q         .         .         .         .
```

```
 8.23      0.0735      0.14  Q         .         .         .         .
 8.38      0.0753      0.14  Q         .         .         .         .
 8.54      0.0772      0.14  Q         .         .         .         .
 8.70      0.0791      0.14  Q         .         .         .         .
 8.86      0.0810      0.15  Q         .         .         .         .
 9.02      0.0829      0.15  Q         .         .         .         .
 9.18      0.0848      0.15  Q         .         .         .         .
 9.34      0.0868      0.15  Q         .         .         .         .
 9.49      0.0888      0.15  Q         .         .         .         .
 9.65      0.0909      0.16  Q         .         .         .         .
 9.81      0.0929      0.16  Q         .         .         .         .
 9.97      0.0950      0.16  Q         .         .         .         .
10.13      0.0972      0.16  Q         .         .         .         .
10.29      0.0994      0.17  Q         .         .         .         .
10.45      0.1016      0.17  Q         .         .         .         .
10.61      0.1038      0.17  Q         .         .         .         .
10.76      0.1061      0.18  Q         .         .         .         .
10.92      0.1084      0.18  Q         .         .         .         .
11.08      0.1108      0.18  Q         .         .         .         .
11.24      0.1133      0.19  Q         .         .         .         .
11.40      0.1157      0.19  Q         .         .         .         .
11.56      0.1183      0.19  Q         .         .         .         .
11.72      0.1208      0.20  Q         .         .         .         .
11.87      0.1235      0.20  Q         .         .         .         .
12.03      0.1262      0.21  Q         .         .         .         .
12.19      0.1292      0.25  .Q        .         .         .         .
12.35      0.1326      0.27  .Q        .         .         .         .
12.51      0.1361      0.27  .Q        .         .         .         .
12.67      0.1397      0.28  .Q        .         .         .         .
12.83      0.1434      0.28  .Q        .         .         .         .
12.99      0.1472      0.29  .Q        .         .         .         .
13.14      0.1511      0.30  .Q        .         .         .         .
13.30      0.1552      0.31  .Q        .         .         .         .
13.46      0.1593      0.32  .Q        .         .         .         .
13.62      0.1636      0.33  .Q        .         .         .         .
13.78      0.1680      0.34  .Q        .         .         .         .
13.94      0.1726      0.36  .Q        .         .         .         .
14.10      0.1774      0.37  .Q        .         .         .         .
14.25      0.1826      0.42  .Q        .         .         .         .
14.41      0.1881      0.43  .Q        .         .         .         .
14.57      0.1940      0.47  .Q        .         .         .         .
14.73      0.2003      0.49  .Q        .         .         .         .
14.89      0.2071      0.54  . Q       .         .         .         .
15.05      0.2144      0.57  . Q       .         .         .         .
15.21      0.2225      0.65  . Q       .         .         .         .
15.37      0.2314      0.70  . Q       .         .         .         .
15.52      0.2407      0.72  . Q       .         .         .         .
15.68      0.2508      0.83  .  Q      .         .         .         .
15.84      0.2644      1.24  .   Q     .         .         .         .
16.00      0.2838      1.72  .     Q   .         .         .         .
16.16      0.3302      5.35  .         .         .Q        .         .
16.32      0.3717      0.98  .  Q      .         .         .         .
16.48      0.3829      0.73  . Q       .         .         .         .
16.63      0.3917      0.61  . Q       .         .         .         .
16.79      0.3990      0.52  . Q       .         .         .         .
16.95      0.4054      0.45  .Q        .         .         .         .
17.11      0.4109      0.40  .Q        .         .         .         .
17.27      0.4159      0.35  .Q        .         .         .         .
17.43      0.4203      0.33  .Q        .         .         .         .
17.59      0.4244      0.31  .Q        .         .         .         .
17.75      0.4283      0.29  .Q        .         .         .         .
```

```
 17.90      0.4321      0.28  .Q        .         .         .         .
 18.06      0.4356      0.26  .Q        .         .         .         .
 18.22      0.4387      0.21  Q         .         .         .         .
 18.38      0.4413      0.20  Q         .         .         .         .
 18.54      0.4438      0.19  Q         .         .         .         .
 18.70      0.4463      0.18  Q         .         .         .         .
 18.86      0.4486      0.17  Q         .         .         .         .
 19.01      0.4508      0.17  Q         .         .         .         .
 19.17      0.4530      0.16  Q         .         .         .         .
 19.33      0.4551      0.16  Q         .         .         .         .
 19.49      0.4572      0.15  Q         .         .         .         .
 19.65      0.4591      0.15  Q         .         .         .         .
 19.81      0.4611      0.14  Q         .         .         .         .
 19.97      0.4629      0.14  Q         .         .         .         .
 20.13      0.4648      0.14  Q         .         .         .         .
 20.28      0.4665      0.13  Q         .         .         .         .
 20.44      0.4683      0.13  Q         .         .         .         .
 20.60      0.4700      0.13  Q         .         .         .         .
 20.76      0.4716      0.13  Q         .         .         .         .
 20.92      0.4733      0.12  Q         .         .         .         .
 21.08      0.4749      0.12  Q         .         .         .         .
 21.24      0.4764      0.12  Q         .         .         .         .
 21.39      0.4780      0.12  Q         .         .         .         .
 21.55      0.4795      0.11  Q         .         .         .         .
 21.71      0.4809      0.11  Q         .         .         .         .
 21.87      0.4824      0.11  Q         .         .         .         .
 22.03      0.4838      0.11  Q         .         .         .         .
 22.19      0.4852      0.11  Q         .         .         .         .
 22.35      0.4866      0.10  Q         .         .         .         .
 22.51      0.4880      0.10  Q         .         .         .         .
 22.66      0.4893      0.10  Q         .         .         .         .
 22.82      0.4906      0.10  Q         .         .         .         .
 22.98      0.4919      0.10  Q         .         .         .         .
 23.14      0.4932      0.10  Q         .         .         .         .
 23.30      0.4944      0.10  Q         .         .         .         .
 23.46      0.4957      0.09  Q         .         .         .         .
 23.62      0.4969      0.09  Q         .         .         .         .
 23.77      0.4981      0.09  Q         .         .         .         .
 23.93      0.4993      0.09  Q         .         .         .         .
 24.09      0.5005      0.09  Q         .         .         .         .
 24.25      0.5011      0.00  Q         .         .         .         .
----------------------------------------------------------------------------
-------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated                Duration
       Peak Flow Rate                     (minutes)
   =======================                =========
             0%                            1447.0
            10%                             114.2
            20%                              28.6
            30%                              19.0
            40%                               9.5
            50%                               9.5
            60%                               9.5
            70%                               9.5
            80%                               9.5
            90%                               9.5
```



SITE PROPOSED CONDITION				
STORM EVENT	Q (un-mitigated) (CFS)	Q (mitigated) (CFS)	T_C (MIN)	VOLUME (AC-FT)
2-Year	5.35	4.0	9.52	0.50
10-Year	9.79	7.2	9.27	0.96
25-Year	11.74	8.6	9.22	1.19
100-Year	15.11	10.6	9.12	1.53

ASSESSOR PARCEL NO.

340-273-25

SITE ADDRESS

1314 N. ANGELINA DRIVE
PLACENTIA, CALIFORNIA 92870

APPLICANT/OWNER

NATIONAL COMMUNITY RENAISSANCE OF CALIFORNIA
9421 HAVEN AVENUE
RANCHO CUCAMONGA, CA 91730
TEL: (949) 394-7996

CIVIL ENGINEER

FUSCOE ENGINEERING
16795 VON KARMAN, SUITE 100
IRVINE, CA 92606
TEL: 949.474.1960
FAX: 949.474.5315

ABBREVATIONS

AC	ACRE
AC-FT	ACRE-FOOT
CFS	CUBIC FEET PER SECOND
ELEV	ELEVATION
HP	HIGH POINT
L	LENGTH
MIN	MINUTES
Q_2	FLOW RATE - 2-YEAR STORM
S	SLOPE
T_C	TIME OF CONCENTRATION

LEGEND

DRAINAGE BOUNDARY
DRAINAGE SUB-BOUNDARY
XX NODE
TIME OF CONCENTRATION FLOW PATH
L=XXX' FLOW PATH LENGTH
XX X.XXac DRAINAGE BOUNDARY DESIGNATION AND AREA
SOIL TYPE DELINEATION

N

40' 0' 20' 40'
SCALE: 1" = 40'

PREPARED BY:

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ◦ fax 949.474.5315
www.fuscoe.com

HYDROLOGY MAP
PROPOSED CONDITION

PLACENTIA SENIOR HOUSING 1314 N. ANGELINA DRIVE
CITY OF PLACENTIA, CALIFORNIA

PROJECT NO. 1653-010

SHEET 1 OF 1

PLAN SET: X

CITY OF PLACENTIA - 1314 N. ANGELINA DRIVE
PROPOSED HYDROLOGY MAP

2020-07-08

Plotted by: Susan Williams

1314 N. Angelina Drive Detention & Outflow Summary				
diameter (in)	area (ft2)	length (ft)		Q (cfs) 18" sd orifice
48	12.57	325		
depth in 48" pipe (ft)	area (ft2)	volume (cf)	volume (ac-ft)	
0.25	0.79	255	0.006	1.0
0.50	1.57	511	0.012	2.0
0.75	2.36	766	0.018	3.0
1.00	3.14	1021	0.023	4.4
1.25	3.93	1276	0.029	6.2
1.50	4.71	1532	0.035	7.5
1.75	5.50	1787	0.041	8.7
2.00	6.28	2042	0.047	9.7
2.25	7.07	2297	0.053	10.7
2.50	7.85	2553	0.059	11.5
2.75	8.64	2808	0.064	12.3
3.00	9.42	3063	0.070	13.1
3.25	10.21	3318	0.076	13.8
3.50	11.00	3574	0.082	14.5
3.75	11.78	3829	0.088	15.1
4.00	12.57	4084	0.094	15.7

```
****************************************************************************
                     SMALL AREA UNIT HYDROGRAPH MODEL
============================================================================
         (C) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                           Analysis prepared by:

                             fuscoe engineering
                              16795 Von Karman
                                 Suite 100
                                 Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Proposed 2-year/24-hour storm event (calib coef: 0.869)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.87
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.026
    LOW LOSS FRACTION = 0.199
    TIME OF CONCENTRATION(MIN.) =  9.52
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =   2
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.19
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.53
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  0.89
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  1.22
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  2.05

----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.50
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.18

****************************************************************************
  TIME     VOLUME       Q    0.        2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.13      0.0006      0.09  Q         .         .         .         .
  0.29      0.0018      0.09  Q         .         .         .         .
  0.45      0.0029      0.09  Q         .         .         .         .
  0.61      0.0041      0.09  Q         .         .         .         .
  0.77      0.0053      0.09  Q         .         .         .         .
  0.93      0.0065      0.09  Q         .         .         .         .
  1.09      0.0077      0.09  Q         .         .         .         .
  1.24      0.0089      0.09  Q         .         .         .         .
  1.40      0.0102      0.09  Q         .         .         .         .
  1.56      0.0114      0.09  Q         .         .         .         .
  1.72      0.0126      0.09  Q         .         .         .         .
  1.88      0.0139      0.10  Q         .         .         .         .
  2.04      0.0152      0.10  Q         .         .         .         .
```

2.20	0.0164	0.10	Q	.	.	.	.
2.35	0.0177	0.10	Q	.	.	.	.
2.51	0.0190	0.10	Q	.	.	.	.
2.67	0.0203	0.10	Q	.	.	.	.
2.83	0.0216	0.10	Q	.	.	.	.
2.99	0.0229	0.10	Q	.	.	.	.
3.15	0.0242	0.10	Q	.	.	.	.
3.31	0.0256	0.10	Q	.	.	.	.
3.47	0.0269	0.10	Q	.	.	.	.
3.62	0.0283	0.10	Q	.	.	.	.
3.78	0.0296	0.10	Q	.	.	.	.
3.94	0.0310	0.11	Q	.	.	.	.
4.10	0.0324	0.11	Q	.	.	.	.
4.26	0.0338	0.11	Q	.	.	.	.
4.42	0.0352	0.11	Q	.	.	.	.
4.58	0.0366	0.11	Q	.	.	.	.
4.73	0.0381	0.11	Q	.	.	.	.
4.89	0.0395	0.11	Q	.	.	.	.
5.05	0.0410	0.11	Q	.	.	.	.
5.21	0.0425	0.11	Q	.	.	.	.
5.37	0.0440	0.11	Q	.	.	.	.
5.53	0.0455	0.11	Q	.	.	.	.
5.69	0.0470	0.12	Q	.	.	.	.
5.85	0.0485	0.12	Q	.	.	.	.
6.00	0.0501	0.12	Q	.	.	.	.
6.16	0.0516	0.12	Q	.	.	.	.
6.32	0.0532	0.12	Q	.	.	.	.
6.48	0.0548	0.12	Q	.	.	.	.
6.64	0.0564	0.12	Q	.	.	.	.
6.80	0.0580	0.12	Q	.	.	.	.
6.96	0.0597	0.13	Q	.	.	.	.
7.11	0.0613	0.13	Q	.	.	.	.
7.27	0.0630	0.13	Q	.	.	.	.
7.43	0.0647	0.13	Q	.	.	.	.
7.59	0.0664	0.13	Q	.	.	.	.
7.75	0.0682	0.13	Q	.	.	.	.
7.91	0.0699	0.14	Q	.	.	.	.
8.07	0.0717	0.14	Q	.	.	.	.
8.23	0.0735	0.14	Q	.	.	.	.
8.38	0.0753	0.14	Q	.	.	.	.
8.54	0.0772	0.14	Q	.	.	.	.
8.70	0.0791	0.14	Q	.	.	.	.
8.86	0.0810	0.15	Q	.	.	.	.
9.02	0.0829	0.15	Q	.	.	.	.
9.18	0.0848	0.15	Q	.	.	.	.
9.34	0.0868	0.15	Q	.	.	.	.
9.49	0.0888	0.15	Q	.	.	.	.
9.65	0.0909	0.16	Q	.	.	.	.
9.81	0.0929	0.16	Q	.	.	.	.
9.97	0.0950	0.16	Q	.	.	.	.
10.13	0.0972	0.16	Q	.	.	.	.
10.29	0.0994	0.17	Q	.	.	.	.
10.45	0.1016	0.17	Q	.	.	.	.
10.61	0.1038	0.17	Q	.	.	.	.
10.76	0.1061	0.18	Q	.	.	.	.
10.92	0.1084	0.18	Q	.	.	.	.
11.08	0.1108	0.18	Q	.	.	.	.
11.24	0.1133	0.19	Q	.	.	.	.
11.40	0.1157	0.19	Q	.	.	.	.
11.56	0.1183	0.19	Q	.	.	.	.
11.72	0.1208	0.20	Q	.	.	.	.

```
11.87      0.1235      0.20  Q         .         .         .         .
12.03      0.1262      0.21  Q         .         .         .         .
12.19      0.1292      0.25  .Q        .         .         .         .
12.35      0.1326      0.27  .Q        .         .         .         .
12.51      0.1361      0.27  .Q        .         .         .         .
12.67      0.1397      0.28  .Q        .         .         .         .
12.83      0.1434      0.28  .Q        .         .         .         .
12.99      0.1472      0.29  .Q        .         .         .         .
13.14      0.1511      0.30  .Q        .         .         .         .
13.30      0.1552      0.31  .Q        .         .         .         .
13.46      0.1593      0.32  .Q        .         .         .         .
13.62      0.1636      0.33  .Q        .         .         .         .
13.78      0.1680      0.34  .Q        .         .         .         .
13.94      0.1726      0.36  .Q        .         .         .         .
14.10      0.1774      0.37  .Q        .         .         .         .
14.25      0.1826      0.42  .Q        .         .         .         .
14.41      0.1881      0.43  .Q        .         .         .         .
14.57      0.1940      0.47  .Q        .         .         .         .
14.73      0.2003      0.49  .Q        .         .         .         .
14.89      0.2071      0.54  . Q       .         .         .         .
15.05      0.2144      0.57  . Q       .         .         .         .
15.21      0.2225      0.65  . Q       .         .         .         .
15.37      0.2314      0.70  . Q       .         .         .         .
15.52      0.2407      0.72  . Q       .         .         .         .
15.68      0.2508      0.83  .  Q      .         .         .         .
15.84      0.2644      1.24  .   Q     .         .         .         .
16.00      0.2838      1.72  .     Q   .         .         .         .
16.16      0.3302      5.35  .         .         .Q        .         .
16.32      0.3717      0.98  .  Q      .         .         .         .
16.48      0.3829      0.73  . Q       .         .         .         .
16.63      0.3917      0.61  . Q       .         .         .         .
16.79      0.3990      0.52  . Q       .         .         .         .
16.95      0.4054      0.45  .Q        .         .         .         .
17.11      0.4109      0.40  .Q        .         .         .         .
17.27      0.4159      0.35  .Q        .         .         .         .
17.43      0.4203      0.33  .Q        .         .         .         .
17.59      0.4244      0.31  .Q        .         .         .         .
17.75      0.4283      0.29  .Q        .         .         .         .
17.90      0.4321      0.28  .Q        .         .         .         .
18.06      0.4356      0.26  .Q        .         .         .         .
18.22      0.4387      0.21  Q         .         .         .         .
18.38      0.4413      0.20  Q         .         .         .         .
18.54      0.4438      0.19  Q         .         .         .         .
18.70      0.4463      0.18  Q         .         .         .         .
18.86      0.4486      0.17  Q         .         .         .         .
19.01      0.4508      0.17  Q         .         .         .         .
19.17      0.4530      0.16  Q         .         .         .         .
19.33      0.4551      0.16  Q         .         .         .         .
19.49      0.4572      0.15  Q         .         .         .         .
19.65      0.4591      0.15  Q         .         .         .         .
19.81      0.4611      0.14  Q         .         .         .         .
19.97      0.4629      0.14  Q         .         .         .         .
20.13      0.4648      0.14  Q         .         .         .         .
20.28      0.4665      0.13  Q         .         .         .         .
20.44      0.4683      0.13  Q         .         .         .         .
20.60      0.4700      0.13  Q         .         .         .         .
20.76      0.4716      0.13  Q         .         .         .         .
20.92      0.4733      0.12  Q         .         .         .         .
21.08      0.4749      0.12  Q         .         .         .         .
21.24      0.4764      0.12  Q         .         .         .         .
21.39      0.4780      0.12  Q         .         .         .         .
```

```
  21.55      0.4795      0.11  Q         .         .         .         .
  21.71      0.4809      0.11  Q         .         .         .         .
  21.87      0.4824      0.11  Q         .         .         .         .
  22.03      0.4838      0.11  Q         .         .         .         .
  22.19      0.4852      0.11  Q         .         .         .         .
  22.35      0.4866      0.10  Q         .         .         .         .
  22.51      0.4880      0.10  Q         .         .         .         .
  22.66      0.4893      0.10  Q         .         .         .         .
  22.82      0.4906      0.10  Q         .         .         .         .
  22.98      0.4919      0.10  Q         .         .         .         .
  23.14      0.4932      0.10  Q         .         .         .         .
  23.30      0.4944      0.10  Q         .         .         .         .
  23.46      0.4957      0.09  Q         .         .         .         .
  23.62      0.4969      0.09  Q         .         .         .         .
  23.77      0.4981      0.09  Q         .         .         .         .
  23.93      0.4993      0.09  Q         .         .         .         .
  24.09      0.5005      0.09  Q         .         .         .         .
  24.25      0.5011      0.00  Q         .         .         .         .
 ----------------------------------------------------------------------------
-------------------------------------------------------------------------------
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                 Duration
        Peak Flow Rate                      (minutes)
    =======================                 =========
               0%                            1447.0
              10%                             114.2
              20%                              28.6
              30%                              19.0
              40%                               9.5
              50%                               9.5
              60%                               9.5
              70%                               9.5
              80%                               9.5
              90%                               9.5

  Problem Descriptions:
   Placentia Senior Housing
   1314 N. Angelina Drive
   Proposed 2-year/24-hour storm event (calib coef: 0.869)



****************************************************************************
     FLOW-THROUGH DETENTION BASIN MODEL

     SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
     CONSTANT HYDROGRAPH TIME UNIT(MINUTES) =    9.520
     DEAD STORAGE(AF) =       0.00
     SPECIFIED DEAD STORAGE(AF) FILLED =       0.00
     ASSUMED INITIAL DEPTH(FEET) IN STORAGE BASIN =    0.00


                    INFLOW
                      |
                      |
                      |
                      V                __effective depth
                ------------           |   (and volume)
```

```
           |            |     |     |
           | detention  |     |....V.............
           |   basin    |<-->|           outflow
           |            |     |.........__________
           -------------      |         |   \
                 |            | storage |     basin outlet
                 V            -----------
              OUTFLOW
```

DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:
TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES = 17

BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)
0.000	0.000	0.000	0.250	0.006	1.000
0.500	0.012	2.000	0.750	0.018	3.000
1.000	0.023	4.400	1.250	0.029	6.200
1.500	0.035	7.500	1.750	0.041	8.700
2.000	0.047	9.700	2.250	0.053	10.700
2.500	0.059	11.500	2.750	0.064	12.300
3.000	0.070	13.100	3.250	0.076	13.800
3.500	0.082	14.500	3.750	0.088	15.100
4.000	0.094	15.700			

BASIN STORAGE, OUTFLOW AND DEPTH ROUTING VALUES:

INTERVAL NUMBER	DEPTH (FEET)	{S-O*DT/2} (ACRE-FEET)	{S+O*DT/2} (ACRE-FEET)
1	0.00	0.00000	0.00000
2	0.25	-0.00056	0.01256
3	0.50	-0.00111	0.02511
4	0.75	-0.00167	0.03767
5	1.00	-0.00585	0.05185
6	1.25	-0.01165	0.06965
7	1.50	-0.01417	0.08417
8	1.75	-0.01604	0.09804
9	2.00	-0.01660	0.11060
10	2.25	-0.01715	0.12315
11	2.50	-0.01640	0.13440
12	2.75	-0.01664	0.14464
13	3.00	-0.01589	0.15589
14	3.25	-0.01448	0.16648
15	3.50	-0.01307	0.17707
16	3.75	-0.01100	0.18700
17	4.00	-0.00894	0.19694

WHERE S=STORAGE(AF);O=OUTFLOW(AF/MIN.);DT=UNIT INTERVAL(MIN.)

DETENTION BASIN ROUTING RESULTS:
NOTE: COMPUTED BASIN DEPTH, OUTFLOW, AND STORAGE QUANTITIES OCCUR AT THE GIVEN TIME. BASIN INFLOW VALUES REPRESENT THE AVERAGE INFLOW DURING THE RECENT HYDROGRAPH UNIT INTERVAL.

TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
0.133	0.000	0.09	0.02	0.05	0.001
0.292	0.000	0.09	0.02	0.09	0.001
0.451	0.000	0.09	0.02	0.09	0.001
0.609	0.000	0.09	0.02	0.09	0.001
0.768	0.000	0.09	0.02	0.10	0.001
0.927	0.000	0.09	0.02	0.10	0.001
1.085	0.000	0.09	0.02	0.10	0.001

1.244	0.000	0.09	0.02	0.10	0.001
1.403	0.000	0.09	0.02	0.10	0.001
1.561	0.000	0.09	0.02	0.10	0.001
1.720	0.000	0.09	0.02	0.10	0.001
1.879	0.000	0.10	0.03	0.10	0.001
2.037	0.000	0.10	0.03	0.10	0.001
2.196	0.000	0.10	0.03	0.10	0.001
2.355	0.000	0.10	0.03	0.10	0.001
2.513	0.000	0.10	0.03	0.10	0.001
2.672	0.000	0.10	0.03	0.10	0.001
2.831	0.000	0.10	0.03	0.10	0.001
2.989	0.000	0.10	0.03	0.10	0.001
3.148	0.000	0.10	0.03	0.11	0.001
3.307	0.000	0.10	0.03	0.11	0.001
3.465	0.000	0.10	0.03	0.11	0.001
3.624	0.000	0.10	0.03	0.11	0.001
3.783	0.000	0.10	0.03	0.11	0.001
3.941	0.000	0.11	0.03	0.11	0.001
4.100	0.000	0.11	0.03	0.11	0.001
4.259	0.000	0.11	0.03	0.11	0.001
4.417	0.000	0.11	0.03	0.11	0.001
4.576	0.000	0.11	0.03	0.11	0.001
4.735	0.000	0.11	0.03	0.11	0.001
4.893	0.000	0.11	0.03	0.12	0.001
5.052	0.000	0.11	0.03	0.12	0.001
5.211	0.000	0.11	0.03	0.12	0.001
5.369	0.000	0.11	0.03	0.12	0.001
5.528	0.000	0.11	0.03	0.12	0.001
5.687	0.000	0.12	0.03	0.12	0.001
5.845	0.000	0.12	0.03	0.12	0.001
6.004	0.000	0.12	0.03	0.12	0.001
6.163	0.000	0.12	0.03	0.12	0.001
6.321	0.000	0.12	0.03	0.13	0.001
6.480	0.000	0.12	0.03	0.13	0.001
6.639	0.000	0.12	0.03	0.13	0.001
6.797	0.000	0.12	0.03	0.13	0.001
6.956	0.000	0.13	0.03	0.13	0.001
7.115	0.000	0.13	0.03	0.13	0.001
7.273	0.000	0.13	0.03	0.13	0.001
7.432	0.000	0.13	0.03	0.14	0.001
7.591	0.000	0.13	0.03	0.14	0.001
7.749	0.000	0.13	0.03	0.14	0.001
7.908	0.000	0.14	0.04	0.14	0.001
8.067	0.000	0.14	0.04	0.14	0.001
8.225	0.000	0.14	0.04	0.14	0.001
8.384	0.000	0.14	0.04	0.15	0.001
8.543	0.000	0.14	0.04	0.15	0.001
8.701	0.000	0.14	0.04	0.15	0.001
8.860	0.000	0.15	0.04	0.15	0.001
9.019	0.000	0.15	0.04	0.15	0.001
9.177	0.000	0.15	0.04	0.16	0.001
9.336	0.000	0.15	0.04	0.16	0.001
9.495	0.000	0.15	0.04	0.16	0.001
9.653	0.000	0.16	0.04	0.16	0.001
9.812	0.000	0.16	0.04	0.16	0.001
9.971	0.000	0.16	0.04	0.17	0.001
10.129	0.000	0.16	0.04	0.17	0.001
10.288	0.000	0.17	0.04	0.17	0.001
10.447	0.000	0.17	0.04	0.18	0.001
10.605	0.000	0.17	0.05	0.18	0.001
10.764	0.000	0.18	0.05	0.18	0.001

10.923	0.000	0.18	0.05	0.19	0.001
11.081	0.000	0.18	0.05	0.19	0.001
11.240	0.000	0.19	0.05	0.19	0.001
11.399	0.000	0.19	0.05	0.20	0.001
11.557	0.000	0.19	0.05	0.20	0.001
11.716	0.000	0.20	0.05	0.21	0.001
11.875	0.000	0.20	0.05	0.21	0.001
12.033	0.000	0.21	0.05	0.22	0.001
12.192	0.000	0.25	0.07	0.24	0.002
12.351	0.000	0.27	0.07	0.27	0.002
12.509	0.000	0.27	0.07	0.28	0.002
12.668	0.000	0.28	0.07	0.29	0.002
12.827	0.000	0.28	0.07	0.29	0.002
12.985	0.000	0.29	0.08	0.30	0.002
13.144	0.000	0.30	0.08	0.31	0.002
13.303	0.000	0.31	0.08	0.32	0.002
13.461	0.000	0.32	0.08	0.33	0.002
13.620	0.000	0.33	0.09	0.34	0.002
13.779	0.000	0.34	0.09	0.35	0.002
13.937	0.000	0.36	0.09	0.37	0.002
14.096	0.000	0.37	0.10	0.38	0.002
14.255	0.000	0.42	0.11	0.41	0.003
14.413	0.000	0.43	0.11	0.44	0.003
14.572	0.000	0.47	0.12	0.47	0.003
14.731	0.000	0.49	0.13	0.50	0.003
14.889	0.000	0.54	0.14	0.54	0.003
15.048	0.000	0.57	0.15	0.58	0.004
15.207	0.000	0.65	0.17	0.64	0.004
15.365	0.000	0.70	0.18	0.71	0.004
15.524	0.000	0.72	0.19	0.74	0.005
15.683	0.000	0.83	0.22	0.81	0.005
15.841	0.000	1.24	0.32	1.08	0.008
16.000	0.000	1.72	0.45	1.55	0.011
16.159	0.000	5.35	1.26	4.02	0.029
16.317	0.000	0.98	0.26	3.63	0.006
16.476	0.000	0.73	0.19	0.89	0.005
16.635	0.000	0.61	0.16	0.70	0.004
16.793	0.000	0.52	0.13	0.59	0.003
16.952	0.000	0.45	0.12	0.50	0.003
17.111	0.000	0.40	0.10	0.44	0.003
17.269	0.000	0.35	0.09	0.39	0.002
17.428	0.000	0.33	0.09	0.35	0.002
17.587	0.000	0.31	0.08	0.33	0.002
17.745	0.000	0.29	0.08	0.31	0.002
17.904	0.000	0.28	0.07	0.29	0.002
18.063	0.000	0.26	0.07	0.28	0.002
18.221	0.000	0.21	0.05	0.24	0.001
18.380	0.000	0.20	0.05	0.21	0.001
18.539	0.000	0.19	0.05	0.20	0.001
18.697	0.000	0.18	0.05	0.19	0.001
18.856	0.000	0.17	0.05	0.19	0.001
19.015	0.000	0.17	0.04	0.18	0.001
19.173	0.000	0.16	0.04	0.17	0.001
19.332	0.000	0.16	0.04	0.17	0.001
19.491	0.000	0.15	0.04	0.16	0.001
19.649	0.000	0.15	0.04	0.16	0.001
19.808	0.000	0.14	0.04	0.15	0.001
19.967	0.000	0.14	0.04	0.15	0.001
20.125	0.000	0.14	0.04	0.15	0.001
20.284	0.000	0.13	0.04	0.14	0.001
20.443	0.000	0.13	0.03	0.14	0.001

20.601	0.000	0.13	0.03	0.14	0.001
20.760	0.000	0.13	0.03	0.13	0.001
20.919	0.000	0.12	0.03	0.13	0.001
21.077	0.000	0.12	0.03	0.13	0.001
21.236	0.000	0.12	0.03	0.12	0.001
21.395	0.000	0.12	0.03	0.12	0.001
21.553	0.000	0.11	0.03	0.12	0.001
21.712	0.000	0.11	0.03	0.12	0.001
21.871	0.000	0.11	0.03	0.12	0.001
22.029	0.000	0.11	0.03	0.11	0.001
22.188	0.000	0.11	0.03	0.11	0.001
22.347	0.000	0.10	0.03	0.11	0.001
22.505	0.000	0.10	0.03	0.11	0.001
22.664	0.000	0.10	0.03	0.11	0.001
22.823	0.000	0.10	0.03	0.10	0.001
22.981	0.000	0.10	0.03	0.10	0.001
23.140	0.000	0.10	0.03	0.10	0.001
23.299	0.000	0.10	0.02	0.10	0.001
23.457	0.000	0.09	0.02	0.10	0.001
23.616	0.000	0.09	0.02	0.10	0.001
23.775	0.000	0.09	0.02	0.10	0.001
23.933	0.000	0.09	0.02	0.10	0.001
24.092	0.000	0.09	0.02	0.09	0.001
24.251	0.000	0.00	0.00	0.05	0.000
24.409	0.000	0.00	0.00	0.00	0.000

APPENDIX H

GRADING PLANS

NOTES

1. ANY PROPOSED DRIVEWAY, CURB, GUTTER, CURB RAMP AND/OR SIDEWALK TO BE CONSTRUCTED PER ORANGE COUNTY PUBLIC WORKS AND CITY OF PLACENTIA DEPARTMENT OF PUBLIC WORKS STANDARDS.
2. ALL DRIVEWAYS AND SIDEWALKS SHALL BE ADA COMPLIANT.
3. THE SITE WILL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SANTA ANA REGION ORDER NO. R8-2009-0030 DISCHARGE REQUIREMENTS (MS4 PERMIT).

ABBREVATIONS

AC	ASPHALT CONCRETE	OHW	OVERHEAD WIRE
ACRE	AC	MWS	MODULAR WETLAND SYSTEM
APPROX.	APPROXIMATE		
BLDG.	BUILDING	NAP	NOT A PART
BW	BACK OF WALK	PL	PROPERTY LINE
CB	CATCH BASIN	PROP.	PROPOSED
C&G	CURB & GUTTER	R/W	RIGHT-OF-WAY
CLR.	CLEARANCE	SD	STORM DRAIN
DWY	DRIVEWAY	SF	SQUARE FEET
ESMT.	EASEMENT	SS	SANITARY SEWER
EXIST.	EXISTING	ST.	STREET
FF	FINISHED FLOOR	SW	SIDEWALK
FL	FLOW LINE	TC	TOP OF CURB
FS	FINISHED SURFACE	TYP.	TYPICAL
HYD	HYDRANT		

LEGEND

EXISTING PROPERTY LINE
EXISTING CENTERLINE
EXISTING EASEMENT LINE
(XX.XX) (XX.XX) EXISTING ELEVATION
PROPOSED BUILDING OUTLINE
XX.XX XX.XX PROPOSED ELEVATION
PROPOSED 2-IN GRIND AND AC OVERLAY

RRM Design Group

10 E. Figueroa St., Suite 1
Santa Barbara, CA 93101

Tel: 805.963.8283
Fax: 805.963.8184
www.rrmdesign.com

NATIONAL COMMUNITY CORE RENAISSANCE
9421 Haven Avenue
Rancho Cucamonga, CA 91730
Tel: 949.394.7996 Fax: 909.483.652

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ° fax 949.474.5315
www.fuscoe.com

Placentia Senior Housing
A.P.N. 340-273-25
1314 N. Angelina Drive, Placentia CA 92870

SITE PLAN - IMPROVEMENTS

20' 0' 10' 20'
SCALE: 1" = 20'

C2
07/10/2020

APPENDIX F – PRELIMINARY HYDROLOGY REPORT

PRELIMINARY HYDROLOGY REPORT

PLACENTIA SENIOR HOUSING

1314 N. Angelina Drive
Placentia, California
92870

prepared for:
National Community Renaissance of California

9421 Haven Avenue
Rancho Cucamonga, CA
91730
949.394.7996

Fuscoe Engineering
16795 Von Karman
Suite 100
Irvine, California 92606
949.474.1960

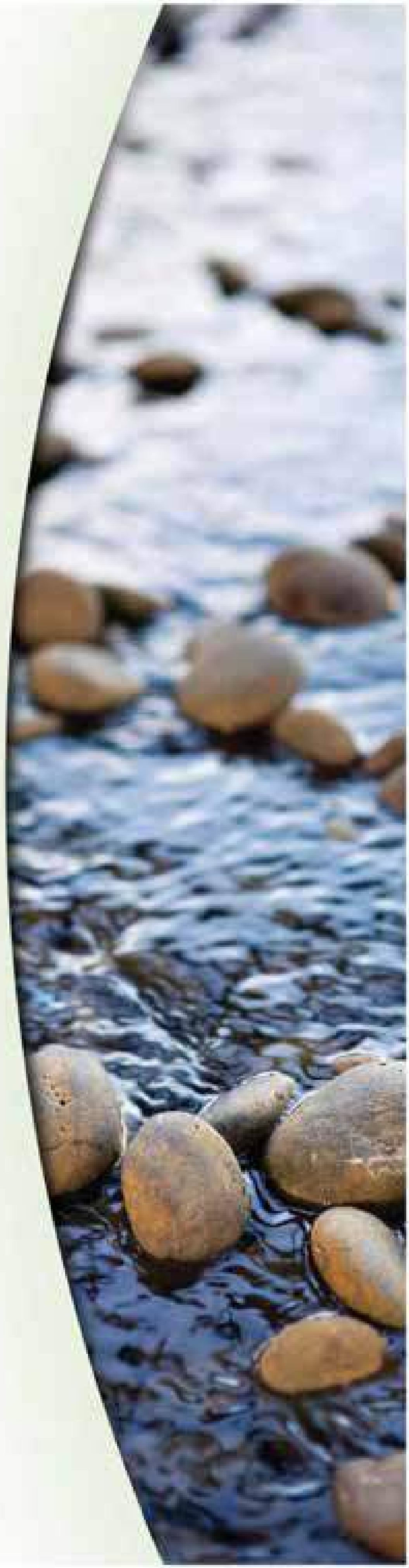
www.fuscoe.com

Project Manager:
Josh Ruiz, P.E.

July 2020

Job Number: 1653.010.01

full circle thinking®



PRELIMINARY HYDROLOGY REPORT

Placentia Senior Housing
1314 N. Angelina Drive

Placentia, California
92870

PREPARED BY:

Fuscoe Engineering
16795 Von Karman, Suite 100
Irvine, CA 92130
(949) 474-1960

Project Number:

1653-010-01

Project Manager:

Josh Ruiz, P.E.

Date Prepared:

July 2020

Table of Contents

1.0 INTRODUCTION

1.1 Geographic Setting

The project site is located at 1314 North Angelina Drive within the City of Placentia, CA. The property is bordered by North Angelina Drive to the west, single-family residences to the north and east, and Morse Avenue to the south. A Vicinity Map is included as Figure 1, below.

FIGURE 1 – VICINITY MAP

1.2 Project Description

The project site consists of a rectangular-shaped property on approximately 4 acres of land. The site is relatively flat, with the topography sloping in a westerly and southwesterly direction toward the corner of N. Angelina Drive and Morse Avenue, where there is an existing City of Placentia catch basin (located on N. Angelina Drive).

The site is currently occupied by "Blessed Sacrament Episcopal Church". There are currently two buildings on the property; the westerly structure serves to accommodate church gatherings, while the easterly building serves as a school facility. The property includes associated surface parking and landscape (grass and trees).

The proposed development will include the construction of two residential buildings, to accommodate 65 units. Building 1, to be located at the northerly end of the site, will be a linear two-story structure. Building 2, to be located near the southeasterly corner of the site, will be an L-shaped building, with a three-story component at the westerly end of the building, transitioning to two-stories toward the single-family neighborhood along the easterly property line. The existing church and school facility are anticipated to remain in-place. Associated parking to accommodate the proposed development will also be provided.

1.3 Purpose of this Report

The purpose of this report is to provide a conceptual description of the proposed drainage approach, as well as calculations and exhibits to estimate the values for the existing and proposed condition stormwater flows. The information presented in this report demonstrates that the proposed stormwater design would not adversely impact the existing drainage conditions.

1.4 References

- Orange County Hydrology Manual & Local Drainage Manuals
- AES Hydrologic Software
- Bentley Flowmaster Hydraulic Software
- USDA NRCS Web soil Survey
- City of Placentia Record Drawings (as-built plans)

2.0 HYDROLOGY

2.1 Existing Condition

As mentioned previously in this report, the existing site includes a church building, along with a building used as a school facility. The northerly portion of the site is vegetated with grass and trees. The southerly portion of the site is an asphalt-concrete parking lot.

Based on our review of the existing topography, the drainage pattern is westerly and southwesterly, toward the intersection of N. Angelina Drive and Morse Avenue, via surface flow, including a ribbon gutter within the at-grading parking lot, which conveys stormwater flows toward the southwest corner.

The existing condition hydrology calculations have been prepared, and are included in this report as Appendix 1. The existing condition hydrology map is included in Appendix 6.

2.2 Proposed Condition

The proposed condition will include a detention system to ensure that storm water discharges will not exceed the existing condition 2-year,10-year, 25-year, and 100-year storm events at the site's discharge location at the southwest corner of the property. (In addition, the initial 2-year stormwater runoff will be directed to a hydromodification storage system for retention and infiltration of the required hydromodification volume, which will include a series of drywells that will be connected to the hydromodification storage system. Please see WQMP for 2-year hydromodification analyses.)

The proposed condition hydrology calculations are included in this report as Appendix 2. The proposed condition hydrology map included in Appendix 6.

2.3 Soil Type

The project is within Soil Types "B" and "C", as shown on the Web Soil Survey report, which is included herein as Appendix 3.

3.0 DETENTION ANALYSES

The proposed condition will increase the imperviousness of the site, and therefore the proposed stormwater runoff would be increased. Therefore, detention mitigation will be required. (The 2-year runoff will be directed to a hydromodification tank with Drywell infiltration systems connected, for infiltration purposes; see WQMP.) The peak storm events will be directed to a peak detention system, which will include an outlet to reduce the storm water flows to not exceed those of the existing condition.

The proposed peak storm detention system will consist of the following (conceptual) elements:

- Diversion Structure to allow the 2-year storm event to be directed to the hydromodification and infiltration system (See WQMP for further information);
- Detention Pipe System (approximately 325 lineal feet of 48"-diameter pipe);
- Outlet System (18"-diameter) to be directed to City of Placentia catch basin at N. Angelina Drive.

The detention analyses are included in Appendix 4.

4.0 FEMA

The project is within FEMA Map 06059C0063J (12/3/2009). The site is entirely within Zone X, which depicts area of minimal flood hazard. A CLOMR or LOMR will not be required. A FEMA Map (Firmette) is included in this report as Appendix 5.

5.0 PRE- AND POST- Q SUMMARY

Based on the hydrologic and detention analyses for the project site, the mitigated (detention) post-developed runoff (Qs) will be reduced, as compared to the pre-developed (existing condition) for the various storm events.

The following table summarizes the results for the pre- and post-developed runoff.

Table 1 – Runoff Summary

	Q2 (cfs)	Q10 (cfs)	Q25 (cfs)	Q100 (cfs)
Existing Condition	4.0	7.7	9.3	12.1
Unmitigated Proposed Condition	5.3	9.8	11.7	15.1
Mitigated (Detention) Proposed Condition	4.0	7.2	8.6	10.6

6.0 RESULTS AND CONCLUSIONS

Based on the hydrologic and detention analyses included in this preliminary hydrology report, the proposed project will not adversely impact the existing storm drain system or adjacent offsite areas. The proposed condition storm runoff flow rates (2-, 10-, 25, 100-year storm events) will not exceed the existing condition storm runoff rates, due to the implementation of the proposed detention system. The back-up calculations and exhibits are included in the appendices of this report.

7.0 APPENDICES

Appendix 1	Existing Condition Hydrology
Appendix 2	Proposed Condition Hydrology
Appendix 3	Web Soil Survey
Appendix 4	Detention Analyses
Appendix 5	FEMA Map
Appendix 6	Hydrology Maps

APPENDIX 1

Existing Condition Hydrology

```
****************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                           Analysis prepared by:

                             fuscoe engineering
                              16795 Von Karman
                                 Suite 100
                                 Irvine, CA

 ************************** DESCRIPTION OF STUDY **************************
* Placentia Senior Housing                                                 *
* 1314 N. Angelina, Placentia                                              *
* Existing Condition - 2-year storm event                                  *
 **************************************************************************

  FILE NAME: EXANG2.DAT
  TIME/DATE OF STUDY: 10:48 04/14/2020
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    301.70  DOWNSTREAM(FEET) =    298.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.712
```

```
*   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.389
SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
RESIDENTIAL
"1 DWELLING/ACRE"          B       0.88      0.30     0.800    36   11.71
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.800
SUBAREA RUNOFF(CFS) =      0.91
TOTAL AREA(ACRES) =      0.88   PEAK FLOW RATE(CFS) =      0.91

****************************************************************************
FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =    298.00  DOWNSTREAM(FEET) =    297.00
CHANNEL LENGTH THRU SUBAREA(FEET) =    72.00   CHANNEL SLOPE =  0.0139
CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  20.000
MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   2.00
*   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.317
SUBAREA LOSS RATE DATA(AMC  I ):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL GOOD COVER
"GRASS"                    B       0.43      0.30     1.000    41
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      1.11
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.06
AVERAGE FLOW DEPTH(FEET) =   0.09   TRAVEL TIME(MIN.) =   1.13
Tc(MIN.) =   12.84
SUBAREA AREA(ACRES) =     0.43       SUBAREA RUNOFF(CFS) =    0.39
EFFECTIVE AREA(ACRES) =      1.31     AREA-AVERAGED Fm(INCH/HR) =   0.26
AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   0.87
TOTAL AREA(ACRES) =        1.3         PEAK FLOW RATE(CFS) =      1.25

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) =  0.09   FLOW VELOCITY(FEET/SEC.) =   1.11
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    103.00 =     402.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  61
----------------------------------------------------------------------------
>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
UPSTREAM ELEVATION(FEET) =  297.00  DOWNSTREAM ELEVATION(FEET) =  294.80
STREET LENGTH(FEET) =   283.00   CURB HEIGHT(INCHES) =  6.0
STREET HALFWIDTH(FEET) = 24.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  19.00
INSIDE STREET CROSSFALL(DECIMAL) =  0.020
OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0160
```

```
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.59
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.30
    HALFSTREET FLOOD WIDTH(FEET) =    8.90
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.75
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.53
  STREET FLOW TRAVEL TIME(MIN.) =   2.69   Tc(MIN.) =   15.53
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.181
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  APARTMENTS                 C        0.35      0.25     0.200    50
  RESIDENTIAL
  "8-10 DWELLINGS/ACRE"      C        0.35      0.25     0.400    50
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.300
  SUBAREA AREA(ACRES) =    0.70      SUBAREA RUNOFF(CFS) =    0.70
  EFFECTIVE AREA(ACRES) =      2.01    AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  0.67
  TOTAL AREA(ACRES) =        2.0       PEAK FLOW RATE(CFS) =       1.78

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.31   HALFSTREET FLOOD WIDTH(FEET) =   9.34
  FLOW VELOCITY(FEET/SEC.) =  1.80   DEPTH*VELOCITY(FT*FT/SEC.) =   0.56
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     685.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   15.53
  RAINFALL INTENSITY(INCH/HR) =   1.18
  AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.29
  AREA-AVERAGED Ap =  0.67
  EFFECTIVE STREAM AREA(ACRES) =       2.01
  TOTAL STREAM AREA(ACRES) =       2.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.78

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    300.70  DOWNSTREAM(FEET) =    297.50

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.615
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.555
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE"      C       0.83      0.25     0.400    50    9.62
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.400
 SUBAREA RUNOFF(CFS) =      1.09
 TOTAL AREA(ACRES) =      0.83   PEAK FLOW RATE(CFS) =      1.09

****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    297.50  DOWNSTREAM(FEET) =    295.50
 CHANNEL LENGTH THRU SUBAREA(FEET) =   186.00   CHANNEL SLOPE =  0.0108
 CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  24.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.434
 SUBAREA LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 APARTMENTS                 C       0.58      0.25     0.200    50
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE"      C       0.58      0.25     0.400    50
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.300
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.80
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.12
 AVERAGE FLOW DEPTH(FEET) =   0.19   TRAVEL TIME(MIN.) =   1.46
 Tc(MIN.) =   11.08
 SUBAREA AREA(ACRES) =     1.16       SUBAREA RUNOFF(CFS) =    1.42
 EFFECTIVE AREA(ACRES) =      1.99     AREA-AVERAGED Fm(INCH/HR) =   0.09
 AREA-AVERAGED Fp(INCH/HR) =   0.25  AREA-AVERAGED Ap =   0.34
 TOTAL AREA(ACRES) =        2.0         PEAK FLOW RATE(CFS) =       2.42

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.21   FLOW VELOCITY(FEET/SEC.) =   2.27
 LONGEST FLOWPATH FROM NODE    105.00 TO NODE    107.00 =     516.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    107.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   11.08
 RAINFALL INTENSITY(INCH/HR) =   1.43
 AREA-AVERAGED Fm(INCH/HR) =  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.25
 AREA-AVERAGED Ap =  0.34
 EFFECTIVE STREAM AREA(ACRES) =       1.99
 TOTAL STREAM AREA(ACRES) =       1.99
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.42

 ** CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
```

```
    1        1.78   15.53    1.181  0.29( 0.20) 0.67       2.0     101.00
    2        2.42   11.08    1.434  0.25( 0.09) 0.34       2.0     105.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        4.01   11.08    1.434  0.27( 0.13) 0.48       3.4     105.00
    2        3.74   15.53    1.181  0.28( 0.14) 0.51       4.0     101.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =       4.01    Tc(MIN.) =    11.08
 EFFECTIVE AREA(ACRES) =       3.42   AREA-AVERAGED Fm(INCH/HR) =  0.13
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.48
 TOTAL AREA(ACRES) =       4.0
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     685.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        4.0  TC(MIN.) =     11.08
 EFFECTIVE AREA(ACRES) =      3.42  AREA-AVERAGED Fm(INCH/HR)=  0.13
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap = 0.479
 PEAK FLOW RATE(CFS)   =      4.01

 ** PEAK FLOW RATE TABLE **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        4.01   11.08    1.434  0.27( 0.13) 0.48       3.4     105.00
    2        3.74   15.53    1.181  0.28( 0.14) 0.51       4.0     101.00
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                            fuscoe engineering
                             16795 Von Karman
                                Suite 100
                                Irvine, CA

 ************************** DESCRIPTION OF STUDY **************************
* Placentia Senior Housing                                                 *
* 1314 N. Angelina, Placentia                                              *
* Existing Condition - 10-year storm event                                 *
 **************************************************************************

  FILE NAME: EXANG10.DAT
  TIME/DATE OF STUDY: 10:13 04/14/2020
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    301.70  DOWNSTREAM(FEET) =    298.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.712
```

```
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.493
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 RESIDENTIAL
 "1 DWELLING/ACRE"          B        0.88      0.30     0.800    56   11.71
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.800
 SUBAREA RUNOFF(CFS) =      1.78
 TOTAL AREA(ACRES) =      0.88   PEAK FLOW RATE(CFS) =      1.78

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    298.00  DOWNSTREAM(FEET) =    297.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =    72.00   CHANNEL SLOPE =  0.0139
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  20.000
 MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   2.00
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.387
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL GOOD COVER
 "GRASS"                    B        0.43      0.30     1.000    61
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.19
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.30
 AVERAGE FLOW DEPTH(FEET) =   0.13   TRAVEL TIME(MIN.) =   0.92
 Tc(MIN.) =   12.63
 SUBAREA AREA(ACRES) =     0.43       SUBAREA RUNOFF(CFS) =    0.81
 EFFECTIVE AREA(ACRES) =      1.31     AREA-AVERAGED Fm(INCH/HR) =   0.26
 AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   0.87
 TOTAL AREA(ACRES) =        1.3         PEAK FLOW RATE(CFS) =       2.51

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.14   FLOW VELOCITY(FEET/SEC.) =   1.37
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    103.00 =     402.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  61
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  297.00  DOWNSTREAM ELEVATION(FEET) =  294.80
 STREET LENGTH(FEET) =   283.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 24.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  19.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0160
```

```
Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.17
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.37
  HALFSTREET FLOOD WIDTH(FEET) =   11.94
  AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.05
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.75
STREET FLOW TRAVEL TIME(MIN.) =   2.30   Tc(MIN.) =   14.93
*  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.169
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
APARTMENTS                 C        0.35      0.25     0.200    69
RESIDENTIAL
"8-10 DWELLINGS/ACRE"      C        0.35      0.25     0.400    69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.300
SUBAREA AREA(ACRES) =    0.70      SUBAREA RUNOFF(CFS) =    1.32
EFFECTIVE AREA(ACRES) =      2.01    AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  0.67
TOTAL AREA(ACRES) =        2.0        PEAK FLOW RATE(CFS) =       3.57

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.38   HALFSTREET FLOOD WIDTH(FEET) =  12.53
FLOW VELOCITY(FEET/SEC.) =  2.11   DEPTH*VELOCITY(FT*FT/SEC.) =   0.80
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     685.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   14.93
  RAINFALL INTENSITY(INCH/HR) =   2.17
  AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.29
  AREA-AVERAGED Ap =  0.67
  EFFECTIVE STREAM AREA(ACRES) =       2.01
  TOTAL STREAM AREA(ACRES) =       2.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.57

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    300.70  DOWNSTREAM(FEET) =    297.50

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.615
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.791
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE"      C        0.83      0.25     0.400    69    9.62
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.400
 SUBAREA RUNOFF(CFS) =      2.01
 TOTAL AREA(ACRES) =      0.83   PEAK FLOW RATE(CFS) =      2.01

****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    297.50  DOWNSTREAM(FEET) =    295.50
 CHANNEL LENGTH THRU SUBAREA(FEET) =   186.00   CHANNEL SLOPE =  0.0108
 CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  24.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.598
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 APARTMENTS                 C        0.58      0.25     0.200    69
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE"      C        0.58      0.25     0.400    69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.300
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.33
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.42
 AVERAGE FLOW DEPTH(FEET) =   0.24   TRAVEL TIME(MIN.) =   1.28
 Tc(MIN.) =   10.90
 SUBAREA AREA(ACRES) =     1.16       SUBAREA RUNOFF(CFS) =    2.63
 EFFECTIVE AREA(ACRES) =      1.99     AREA-AVERAGED Fm(INCH/HR) =   0.09
 AREA-AVERAGED Fp(INCH/HR) =   0.25  AREA-AVERAGED Ap =   0.34
 TOTAL AREA(ACRES) =        2.0         PEAK FLOW RATE(CFS) =       4.50

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.26   FLOW VELOCITY(FEET/SEC.) =   2.69
 LONGEST FLOWPATH FROM NODE    105.00 TO NODE    107.00 =     516.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    107.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   10.90
 RAINFALL INTENSITY(INCH/HR) =   2.60
 AREA-AVERAGED Fm(INCH/HR) =  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.25
 AREA-AVERAGED Ap =  0.34
 EFFECTIVE STREAM AREA(ACRES) =       1.99
 TOTAL STREAM AREA(ACRES) =       1.99
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       4.50

 ** CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
```

```
    1        3.57   14.93    2.169  0.29( 0.20) 0.67       2.0     101.00
    2        4.50   10.90    2.598  0.25( 0.09) 0.34       2.0     105.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        7.67   10.90    2.598  0.27( 0.13) 0.48       3.5     105.00
      2        7.30   14.93    2.169  0.28( 0.14) 0.51       4.0     101.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       7.67    Tc(MIN.) =    10.90
  EFFECTIVE AREA(ACRES) =       3.46   AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.48
  TOTAL AREA(ACRES) =       4.0
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     685.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        4.0  TC(MIN.) =     10.90
  EFFECTIVE AREA(ACRES) =      3.46  AREA-AVERAGED Fm(INCH/HR)=  0.13
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap = 0.480
  PEAK FLOW RATE(CFS)   =      7.67

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        7.67   10.90    2.598  0.27( 0.13) 0.48       3.5     105.00
      2        7.30   14.93    2.169  0.28( 0.14) 0.51       4.0     101.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
            Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                            fuscoe engineering
                             16795 Von Karman
                                Suite 100
                                Irvine, CA

 ************************** DESCRIPTION OF STUDY **************************
* Placentia Senior Housing                                                 *
* 1314 N. Angelina, Placentia                                              *
* Existing Condition - 25-year storm event                                 *
 **************************************************************************

  FILE NAME: EXANG25.DAT
  TIME/DATE OF STUDY: 12:46 04/14/2020
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    301.70  DOWNSTREAM(FEET) =    298.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.712
```

```
* 25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.980
SUBAREA Tc AND LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
RESIDENTIAL
"1 DWELLING/ACRE"          B        0.88      0.30     0.800    56   11.71
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.800
SUBAREA RUNOFF(CFS) =      2.17
TOTAL AREA(ACRES) =      0.88   PEAK FLOW RATE(CFS) =      2.17

****************************************************************************
FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  51
----------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =    298.00  DOWNSTREAM(FEET) =    297.00
CHANNEL LENGTH THRU SUBAREA(FEET) =    72.00   CHANNEL SLOPE =  0.0139
CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  20.000
MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   2.00
* 25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.862
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
NATURAL GOOD COVER
"GRASS"                    B        0.43      0.30     1.000    61
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.67
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.39
AVERAGE FLOW DEPTH(FEET) =   0.15   TRAVEL TIME(MIN.) =   0.86
Tc(MIN.) =   12.57
SUBAREA AREA(ACRES) =     0.43       SUBAREA RUNOFF(CFS) =    0.99
EFFECTIVE AREA(ACRES) =      1.31     AREA-AVERAGED Fm(INCH/HR) =   0.26
AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   0.87
TOTAL AREA(ACRES) =       1.3         PEAK FLOW RATE(CFS) =       3.07

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) =  0.16   FLOW VELOCITY(FEET/SEC.) =   1.48
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    103.00 =     402.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  61
----------------------------------------------------------------------------
>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
UPSTREAM ELEVATION(FEET) =  297.00  DOWNSTREAM ELEVATION(FEET) =  294.80
STREET LENGTH(FEET) =   283.00   CURB HEIGHT(INCHES) =  6.0
STREET HALFWIDTH(FEET) = 24.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  19.00
INSIDE STREET CROSSFALL(DECIMAL) =  0.020
OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0160
```

```
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.87
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.39
   HALFSTREET FLOOD WIDTH(FEET) =   12.98
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.15
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.83
 STREET FLOW TRAVEL TIME(MIN.) =   2.20   Tc(MIN.) =   14.77
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.613
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 APARTMENTS                 C        0.35      0.25     0.200    69
 RESIDENTIAL
 "8-10 DWELLINGS/ACRE"      C        0.35      0.25     0.400    69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.300
 SUBAREA AREA(ACRES) =    0.70      SUBAREA RUNOFF(CFS) =    1.60
 EFFECTIVE AREA(ACRES) =      2.01    AREA-AVERAGED Fm(INCH/HR) =  0.20
 AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  0.67
 TOTAL AREA(ACRES) =        2.0       PEAK FLOW RATE(CFS) =       4.37

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  13.65
 FLOW VELOCITY(FEET/SEC.) =  2.21   DEPTH*VELOCITY(FT*FT/SEC.) =   0.88
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     685.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   14.77
 RAINFALL INTENSITY(INCH/HR) =   2.61
 AREA-AVERAGED Fm(INCH/HR) =  0.20
 AREA-AVERAGED Fp(INCH/HR) =  0.29
 AREA-AVERAGED Ap =  0.67
 EFFECTIVE STREAM AREA(ACRES) =       2.01
 TOTAL STREAM AREA(ACRES) =       2.01
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       4.37

****************************************************************************
 FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
 ELEVATION DATA: UPSTREAM(FEET) =    300.70  DOWNSTREAM(FEET) =    297.50

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.615
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.332
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  RESIDENTIAL
  "8-10 DWELLINGS/ACRE"      C       0.83      0.25     0.400    69    9.62
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.400
  SUBAREA RUNOFF(CFS) =      2.41
  TOTAL AREA(ACRES) =      0.83   PEAK FLOW RATE(CFS) =      2.41

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    297.50  DOWNSTREAM(FEET) =    295.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   186.00   CHANNEL SLOPE =  0.0108
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  24.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.116
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  APARTMENTS                 C       0.58      0.25     0.200    69
  RESIDENTIAL
  "8-10 DWELLINGS/ACRE"      C       0.58      0.25     0.400    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.300
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.00
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.57
  AVERAGE FLOW DEPTH(FEET) =   0.25   TRAVEL TIME(MIN.) =   1.21
  Tc(MIN.) =   10.82
  SUBAREA AREA(ACRES) =     1.16       SUBAREA RUNOFF(CFS) =    3.17
  EFFECTIVE AREA(ACRES) =      1.99     AREA-AVERAGED Fm(INCH/HR) =   0.09
  AREA-AVERAGED Fp(INCH/HR) =   0.25  AREA-AVERAGED Ap =   0.34
  TOTAL AREA(ACRES) =        2.0         PEAK FLOW RATE(CFS) =      5.43

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.29   FLOW VELOCITY(FEET/SEC.) =   2.78
  LONGEST FLOWPATH FROM NODE    105.00 TO NODE    107.00 =     516.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.82
  RAINFALL INTENSITY(INCH/HR) =   3.12
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.34
  EFFECTIVE STREAM AREA(ACRES) =       1.99
  TOTAL STREAM AREA(ACRES) =       1.99
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       5.43

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
```

1	4.37	14.77	2.613	0.29(0.20)	0.67	2.0	101.00
2	5.43	10.82	3.116	0.25(0.09)	0.34	2.0	105.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	9.30	10.82	3.116	0.27(0.13)	0.48	3.5	105.00
2	8.90	14.77	2.613	0.28(0.14)	0.51	4.0	101.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 9.30 Tc(MIN.) = 10.82
EFFECTIVE AREA(ACRES) = 3.46 AREA-AVERAGED Fm(INCH/HR) = 0.13
AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.48
TOTAL AREA(ACRES) = 4.0
LONGEST FLOWPATH FROM NODE 101.00 TO NODE 104.00 = 685.00 FEET.

==

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 4.0 TC(MIN.) = 10.82
EFFECTIVE AREA(ACRES) = 3.46 AREA-AVERAGED Fm(INCH/HR)= 0.13
AREA-AVERAGED Fp(INCH/HR) = 0.27 AREA-AVERAGED Ap = 0.481
PEAK FLOW RATE(CFS) = 9.30

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	9.30	10.82	3.116	0.27(0.13)	0.48	3.5	105.00
2	8.90	14.77	2.613	0.28(0.14)	0.51	4.0	101.00

==
==

END OF RATIONAL METHOD ANALYSIS

```
****************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                           Analysis prepared by:

                             fuscoe engineering
                              16795 Von Karman
                                 Suite 100
                                 Irvine, CA

 ************************** DESCRIPTION OF STUDY **************************
* Placentia Senior Housing                                                 *
* 1314 N. Angelina, Placentia                                              *
* Existing Condition - 100-year storm event                                *
 **************************************************************************

  FILE NAME: EXANG100.DAT
  TIME/DATE OF STUDY: 14:12 04/14/2020
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    301.70  DOWNSTREAM(FEET) =    298.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.712
```

```
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.799
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "1 DWELLING/ACRE"          B        0.88      0.30     0.800    76   11.71
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.800
  SUBAREA RUNOFF(CFS) =      2.82
  TOTAL AREA(ACRES) =      0.88   PEAK FLOW RATE(CFS) =      2.82

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    298.00  DOWNSTREAM(FEET) =    297.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    72.00   CHANNEL SLOPE =  0.0139
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  20.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   2.00
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.659
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL GOOD COVER
  "GRASS"                    B        0.43      0.30     1.000    80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.47
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.51
  AVERAGE FLOW DEPTH(FEET) =   0.17   TRAVEL TIME(MIN.) =   0.79
  Tc(MIN.) =   12.50
  SUBAREA AREA(ACRES) =     0.43       SUBAREA RUNOFF(CFS) =    1.30
  EFFECTIVE AREA(ACRES) =      1.31     AREA-AVERAGED Fm(INCH/HR) =   0.26
  AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   0.87
  TOTAL AREA(ACRES) =        1.3         PEAK FLOW RATE(CFS) =       4.01

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.18   FLOW VELOCITY(FEET/SEC.) =   1.63
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    103.00 =     402.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  297.00  DOWNSTREAM ELEVATION(FEET) =  294.80
  STREET LENGTH(FEET) =   283.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 24.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  19.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0160
```

```
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.04
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.42
    HALFSTREET FLOOD WIDTH(FEET) =   14.46
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.28
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.95
  STREET FLOW TRAVEL TIME(MIN.) =   2.07   Tc(MIN.) =   14.57
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.352
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  APARTMENTS                 C       0.35      0.25     0.200    86
  RESIDENTIAL
  "8-10 DWELLINGS/ACRE"      C       0.35      0.25     0.400    86
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.300
  SUBAREA AREA(ACRES) =    0.70      SUBAREA RUNOFF(CFS) =    2.06
  EFFECTIVE AREA(ACRES) =      2.01    AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.29  AREA-AVERAGED Ap =  0.67
  TOTAL AREA(ACRES) =        2.0        PEAK FLOW RATE(CFS) =       5.71

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.43   HALFSTREET FLOOD WIDTH(FEET) =  15.21
  FLOW VELOCITY(FEET/SEC.) =  2.35   DEPTH*VELOCITY(FT*FT/SEC.) =   1.01
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     685.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   14.57
  RAINFALL INTENSITY(INCH/HR) =   3.35
  AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.29
  AREA-AVERAGED Ap =  0.67
  EFFECTIVE STREAM AREA(ACRES) =       2.01
  TOTAL STREAM AREA(ACRES) =       2.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       5.71

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    300.70  DOWNSTREAM(FEET) =    297.50

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.615
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.254
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  RESIDENTIAL
  "8-10 DWELLINGS/ACRE"      C        0.83      0.25     0.400    86    9.62
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.400
  SUBAREA RUNOFF(CFS) =      3.10
  TOTAL AREA(ACRES) =      0.83   PEAK FLOW RATE(CFS) =      3.10

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    297.50  DOWNSTREAM(FEET) =    295.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   186.00   CHANNEL SLOPE =  0.0108
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  24.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.992
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  APARTMENTS                 C        0.58      0.25     0.200    86
  RESIDENTIAL
  "8-10 DWELLINGS/ACRE"      C        0.58      0.25     0.400    86
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.300
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.15
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.75
  AVERAGE FLOW DEPTH(FEET) =   0.28   TRAVEL TIME(MIN.) =   1.13
  Tc(MIN.) =   10.74
  SUBAREA AREA(ACRES) =     1.16       SUBAREA RUNOFF(CFS) =    4.09
  EFFECTIVE AREA(ACRES) =      1.99     AREA-AVERAGED Fm(INCH/HR) =   0.09
  AREA-AVERAGED Fp(INCH/HR) =   0.25  AREA-AVERAGED Ap =   0.34
  TOTAL AREA(ACRES) =        2.0        PEAK FLOW RATE(CFS) =       7.00

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.31   FLOW VELOCITY(FEET/SEC.) =   3.03
  LONGEST FLOWPATH FROM NODE    105.00 TO NODE    107.00 =     516.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.74
  RAINFALL INTENSITY(INCH/HR) =   3.99
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.34
  EFFECTIVE STREAM AREA(ACRES) =       1.99
  TOTAL STREAM AREA(ACRES) =       1.99
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       7.00

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
```

```
    1        5.71   14.57    3.352  0.29( 0.20) 0.67       2.0     101.00
    2        7.00   10.74    3.992  0.25( 0.09) 0.34       2.0     105.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR  2 STREAMS.

** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1       12.06   10.74    3.992  0.28( 0.13) 0.48       3.5     105.00
    2       11.56   14.57    3.352  0.28( 0.14) 0.51       4.0     101.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =      12.06    Tc(MIN.) =    10.74
EFFECTIVE AREA(ACRES) =       3.47   AREA-AVERAGED Fm(INCH/HR) =  0.13
AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap =  0.48
TOTAL AREA(ACRES) =       4.0
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     685.00 FEET.
============================================================================
END OF STUDY SUMMARY:
TOTAL AREA(ACRES)     =        4.0  TC(MIN.) =     10.74
EFFECTIVE AREA(ACRES) =      3.47  AREA-AVERAGED Fm(INCH/HR)=  0.13
AREA-AVERAGED Fp(INCH/HR) =  0.28  AREA-AVERAGED Ap = 0.481
PEAK FLOW RATE(CFS)   =      12.06

** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1       12.06   10.74    3.992  0.28( 0.13) 0.48       3.5     105.00
    2       11.56   14.57    3.352  0.28( 0.14) 0.51       4.0     101.00
============================================================================
============================================================================
END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                    AND LOW LOSS FRACTION ESTIMATIONS
============================================================================
         (C) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                            fuscoe engineering
                             16795 Von Karman
                                Suite 100
                                Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina, Placentia
  Existing Condition  2-year/24-hour hydrograph
============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC I:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     2.05 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
         1          0.88       80.00       56.(AMC II)     0.300       0.178
         2          0.43      100.00       61.(AMC II)     0.300       0.000
         3          0.70       30.00       69.(AMC II)     0.250       0.623
         4          0.83       40.00       69.(AMC II)     0.250       0.534
         5          1.16       30.00       69.(AMC II)     0.250       0.623

    TOTAL AREA (Acres) =      4.00
                                   _
    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.141
                                           _
    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.560
============================================================================

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina, Placentia
  Existing Condition  2-year/24-hour hydrograph  (calib coef: 0.777)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.78
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.141
    LOW LOSS FRACTION = 0.560
    TIME OF CONCENTRATION(MIN.) = 11.08
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =   2
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.19
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.53
```

```
      3-HOUR   POINT RAINFALL VALUE(INCHES) =  0.89
      6-HOUR   POINT RAINFALL VALUE(INCHES) =  1.22
     24-HOUR   POINT RAINFALL VALUE(INCHES) =  2.05

----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.27
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.41

****************************************************************************
  TIME     VOLUME       Q    0.        2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.12      0.0000      0.00  Q         .         .         .         .
  0.30      0.0003      0.04  Q         .         .         .         .
  0.49      0.0010      0.04  Q         .         .         .         .
  0.67      0.0017      0.04  Q         .         .         .         .
  0.86      0.0024      0.04  Q         .         .         .         .
  1.04      0.0031      0.05  Q         .         .         .         .
  1.23      0.0038      0.05  Q         .         .         .         .
  1.41      0.0045      0.05  Q         .         .         .         .
  1.60      0.0052      0.05  Q         .         .         .         .
  1.78      0.0059      0.05  Q         .         .         .         .
  1.97      0.0066      0.05  Q         .         .         .         .
  2.15      0.0073      0.05  Q         .         .         .         .
  2.33      0.0080      0.05  Q         .         .         .         .
  2.52      0.0088      0.05  Q         .         .         .         .
  2.70      0.0095      0.05  Q         .         .         .         .
  2.89      0.0103      0.05  Q         .         .         .         .
  3.07      0.0110      0.05  Q         .         .         .         .
  3.26      0.0118      0.05  Q         .         .         .         .
  3.44      0.0125      0.05  Q         .         .         .         .
  3.63      0.0133      0.05  Q         .         .         .         .
  3.81      0.0141      0.05  Q         .         .         .         .
  4.00      0.0149      0.05  Q         .         .         .         .
  4.18      0.0157      0.05  Q         .         .         .         .
  4.37      0.0165      0.05  Q         .         .         .         .
  4.55      0.0173      0.05  Q         .         .         .         .
  4.74      0.0181      0.05  Q         .         .         .         .
  4.92      0.0189      0.05  Q         .         .         .         .
  5.10      0.0198      0.06  Q         .         .         .         .
  5.29      0.0206      0.06  Q         .         .         .         .
  5.47      0.0215      0.06  Q         .         .         .         .
  5.66      0.0224      0.06  Q         .         .         .         .
  5.84      0.0232      0.06  Q         .         .         .         .
  6.03      0.0241      0.06  Q         .         .         .         .
  6.21      0.0250      0.06  Q         .         .         .         .
  6.40      0.0259      0.06  Q         .         .         .         .
  6.58      0.0268      0.06  Q         .         .         .         .
  6.77      0.0277      0.06  Q         .         .         .         .
  6.95      0.0287      0.06  Q         .         .         .         .
  7.14      0.0296      0.06  Q         .         .         .         .
  7.32      0.0306      0.06  Q         .         .         .         .
  7.51      0.0316      0.06  Q         .         .         .         .
  7.69      0.0326      0.07  Q         .         .         .         .
  7.87      0.0336      0.07  Q         .         .         .         .
  8.06      0.0346      0.07  Q         .         .         .         .
  8.24      0.0356      0.07  Q         .         .         .         .
  8.43      0.0366      0.07  Q         .         .         .         .
  8.61      0.0377      0.07  Q         .         .         .         .
  8.80      0.0388      0.07  Q         .         .         .         .
```

```
  8.98     0.0399      0.07  Q         .         .         .         .
  9.17     0.0410      0.07  Q         .         .         .         .
  9.35     0.0421      0.07  Q         .         .         .         .
  9.54     0.0433      0.08  Q         .         .         .         .
  9.72     0.0444      0.08  Q         .         .         .         .
  9.91     0.0456      0.08  Q         .         .         .         .
 10.09     0.0468      0.08  Q         .         .         .         .
 10.28     0.0481      0.08  Q         .         .         .         .
 10.46     0.0493      0.08  Q         .         .         .         .
 10.64     0.0506      0.09  Q         .         .         .         .
 10.83     0.0519      0.09  Q         .         .         .         .
 11.01     0.0533      0.09  Q         .         .         .         .
 11.20     0.0547      0.09  Q         .         .         .         .
 11.38     0.0561      0.09  Q         .         .         .         .
 11.57     0.0575      0.10  Q         .         .         .         .
 11.75     0.0590      0.10  Q         .         .         .         .
 11.94     0.0605      0.10  Q         .         .         .         .
 12.12     0.0621      0.12  Q         .         .         .         .
 12.31     0.0640      0.13  Q         .         .         .         .
 12.49     0.0660      0.13  Q         .         .         .         .
 12.68     0.0681      0.14  Q         .         .         .         .
 12.86     0.0702      0.14  Q         .         .         .         .
 13.05     0.0724      0.14  Q         .         .         .         .
 13.23     0.0746      0.15  Q         .         .         .         .
 13.41     0.0769      0.15  Q         .         .         .         .
 13.60     0.0794      0.16  Q         .         .         .         .
 13.78     0.0819      0.17  Q         .         .         .         .
 13.97     0.0845      0.18  Q         .         .         .         .
 14.15     0.0873      0.18  Q         .         .         .         .
 14.34     0.0902      0.20  Q         .         .         .         .
 14.52     0.0934      0.21  Q         .         .         .         .
 14.71     0.0968      0.23  Q         .         .         .         .
 14.89     0.1004      0.24  Q         .         .         .         .
 15.08     0.1042      0.27  .Q        .         .         .         .
 15.26     0.1085      0.29  .Q        .         .         .         .
 15.45     0.1131      0.32  .Q        .         .         .         .
 15.63     0.1181      0.33  .Q        .         .         .         .
 15.82     0.1255      0.64  . Q       .         .         .         .
 16.00     0.1384      1.05  .   Q     .         .         .         .
 16.18     0.1770      4.01  .         .     Q   .         .         .
 16.37     0.2109      0.43  .Q        .         .         .         .
 16.55     0.2166      0.31  .Q        .         .         .         .
 16.74     0.2209      0.25  .Q        .         .         .         .
 16.92     0.2245      0.22  Q         .         .         .         .
 17.11     0.2277      0.20  Q         .         .         .         .
 17.29     0.2305      0.17  Q         .         .         .         .
 17.48     0.2330      0.16  Q         .         .         .         .
 17.66     0.2354      0.15  Q         .         .         .         .
 17.85     0.2376      0.14  Q         .         .         .         .
 18.03     0.2396      0.13  Q         .         .         .         .
 18.22     0.2414      0.10  Q         .         .         .         .
 18.40     0.2429      0.10  Q         .         .         .         .
 18.59     0.2444      0.09  Q         .         .         .         .
 18.77     0.2457      0.09  Q         .         .         .         .
 18.95     0.2470      0.08  Q         .         .         .         .
 19.14     0.2483      0.08  Q         .         .         .         .
 19.32     0.2495      0.08  Q         .         .         .         .
 19.51     0.2507      0.08  Q         .         .         .         .
 19.69     0.2518      0.07  Q         .         .         .         .
 19.88     0.2529      0.07  Q         .         .         .         .
 20.06     0.2540      0.07  Q         .         .         .         .
```

```
   20.25      0.2550      0.07  Q         .         .         .         .
   20.43      0.2560      0.06  Q         .         .         .         .
   20.62      0.2570      0.06  Q         .         .         .         .
   20.80      0.2579      0.06  Q         .         .         .         .
   20.99      0.2589      0.06  Q         .         .         .         .
   21.17      0.2598      0.06  Q         .         .         .         .
   21.36      0.2606      0.06  Q         .         .         .         .
   21.54      0.2615      0.06  Q         .         .         .         .
   21.72      0.2624      0.05  Q         .         .         .         .
   21.91      0.2632      0.05  Q         .         .         .         .
   22.09      0.2640      0.05  Q         .         .         .         .
   22.28      0.2648      0.05  Q         .         .         .         .
   22.46      0.2656      0.05  Q         .         .         .         .
   22.65      0.2663      0.05  Q         .         .         .         .
   22.83      0.2671      0.05  Q         .         .         .         .
   23.02      0.2678      0.05  Q         .         .         .         .
   23.20      0.2686      0.05  Q         .         .         .         .
   23.39      0.2693      0.05  Q         .         .         .         .
   23.57      0.2700      0.05  Q         .         .         .         .
   23.76      0.2707      0.05  Q         .         .         .         .
   23.94      0.2714      0.04  Q         .         .         .         .
   24.13      0.2720      0.04  Q         .         .         .         .
   24.31      0.2724      0.00  Q         .         .         .         .
 ----------------------------------------------------------------------------
--------------------------------------------------------------------------------
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                 Duration
        Peak Flow Rate                      (minutes)
    =======================                 =========
               0%                            1440.4
              10%                              44.3
              20%                              22.2
              30%                              11.1
              40%                              11.1
              50%                              11.1
              60%                              11.1
              70%                              11.1
              80%                              11.1
              90%                              11.1
```

```
****************************************************************************
          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                    AND LOW LOSS FRACTION ESTIMATIONS
============================================================================
        (C) Copyright 1989-2016 Advanced Engineering Software (aes)
            Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                            fuscoe engineering
                             16795 Von Karman
                                Suite 100
                                Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Existing Condition - 10-year/24-hour hydrograph
============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     3.68 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
         1          0.88       80.00            56.       0.300       0.284
         2          0.43      100.00            61.       0.300       0.178
         3          0.70       30.00            69.       0.250       0.742
         4          0.83       40.00            69.       0.250       0.677
         5          1.16       30.00            69.       0.250       0.742

    TOTAL AREA (Acres) =      4.00

    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.141

    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.433
============================================================================

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Existing Condition - 10-year/24-hour hydrograph  (calib coef: 0.782)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.78
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.141
    LOW LOSS FRACTION = 0.433
    TIME OF CONCENTRATION(MIN.) = 10.90
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =  10
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.34
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.72
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.95
```

```
      3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.59
      6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.20
     24-HOUR   POINT RAINFALL VALUE(INCHES) =  3.68

----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.62
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.61

****************************************************************************
  TIME     VOLUME       Q    0.         2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.01      0.0000      0.00  Q         .         .         .         .
  0.20      0.0008      0.10  Q         .         .         .         .
  0.38      0.0023      0.10  Q         .         .         .         .
  0.56      0.0038      0.10  Q         .         .         .         .
  0.74      0.0054      0.10  Q         .         .         .         .
  0.92      0.0069      0.10  Q         .         .         .         .
  1.10      0.0085      0.10  Q         .         .         .         .
  1.29      0.0101      0.11  Q         .         .         .         .
  1.47      0.0117      0.11  Q         .         .         .         .
  1.65      0.0133      0.11  Q         .         .         .         .
  1.83      0.0149      0.11  Q         .         .         .         .
  2.01      0.0165      0.11  Q         .         .         .         .
  2.19      0.0182      0.11  Q         .         .         .         .
  2.38      0.0198      0.11  Q         .         .         .         .
  2.56      0.0215      0.11  Q         .         .         .         .
  2.74      0.0232      0.11  Q         .         .         .         .
  2.92      0.0249      0.11  Q         .         .         .         .
  3.10      0.0266      0.11  Q         .         .         .         .
  3.28      0.0283      0.12  Q         .         .         .         .
  3.47      0.0301      0.12  Q         .         .         .         .
  3.65      0.0318      0.12  Q         .         .         .         .
  3.83      0.0336      0.12  Q         .         .         .         .
  4.01      0.0354      0.12  Q         .         .         .         .
  4.19      0.0372      0.12  Q         .         .         .         .
  4.37      0.0390      0.12  Q         .         .         .         .
  4.56      0.0409      0.12  Q         .         .         .         .
  4.74      0.0428      0.12  Q         .         .         .         .
  4.92      0.0446      0.13  Q         .         .         .         .
  5.10      0.0465      0.13  Q         .         .         .         .
  5.28      0.0485      0.13  Q         .         .         .         .
  5.46      0.0504      0.13  Q         .         .         .         .
  5.64      0.0524      0.13  Q         .         .         .         .
  5.83      0.0544      0.13  Q         .         .         .         .
  6.01      0.0564      0.13  Q         .         .         .         .
  6.19      0.0584      0.14  Q         .         .         .         .
  6.37      0.0604      0.14  Q         .         .         .         .
  6.55      0.0625      0.14  Q         .         .         .         .
  6.74      0.0646      0.14  Q         .         .         .         .
  6.92      0.0667      0.14  Q         .         .         .         .
  7.10      0.0689      0.14  Q         .         .         .         .
  7.28      0.0711      0.15  Q         .         .         .         .
  7.46      0.0733      0.15  Q         .         .         .         .
  7.64      0.0755      0.15  Q         .         .         .         .
  7.83      0.0778      0.15  Q         .         .         .         .
  8.01      0.0801      0.15  Q         .         .         .         .
  8.19      0.0824      0.16  Q         .         .         .         .
  8.37      0.0848      0.16  Q         .         .         .         .
  8.55      0.0872      0.16  Q         .         .         .         .
```

```
 8.73      0.0896      0.16  Q         .         .         .         .
 8.91      0.0921      0.17  Q         .         .         .         .
 9.10      0.0946      0.17  Q         .         .         .         .
 9.28      0.0972      0.17  Q         .         .         .         .
 9.46      0.0998      0.17  Q         .         .         .         .
 9.64      0.1024      0.18  Q         .         .         .         .
 9.82      0.1051      0.18  Q         .         .         .         .
10.01      0.1079      0.18  Q         .         .         .         .
10.19      0.1107      0.19  Q         .         .         .         .
10.37      0.1135      0.19  Q         .         .         .         .
10.55      0.1164      0.19  Q         .         .         .         .
10.73      0.1194      0.20  Q         .         .         .         .
10.91      0.1224      0.20  Q         .         .         .         .
11.10      0.1255      0.21  Q         .         .         .         .
11.28      0.1287      0.21  Q         .         .         .         .
11.46      0.1319      0.22  Q         .         .         .         .
11.64      0.1352      0.22  Q         .         .         .         .
11.82      0.1386      0.23  Q         .         .         .         .
12.00      0.1421      0.23  Q         .         .         .         .
12.19      0.1462      0.31  .Q        .         .         .         .
12.37      0.1508      0.31  .Q        .         .         .         .
12.55      0.1556      0.32  .Q        .         .         .         .
12.73      0.1605      0.33  .Q        .         .         .         .
12.91      0.1656      0.34  .Q        .         .         .         .
13.09      0.1707      0.35  .Q        .         .         .         .
13.27      0.1761      0.37  .Q        .         .         .         .
13.46      0.1817      0.37  .Q        .         .         .         .
13.64      0.1874      0.39  .Q        .         .         .         .
13.82      0.1934      0.40  .Q        .         .         .         .
14.00      0.1996      0.43  .Q        .         .         .         .
14.18      0.2061      0.44  .Q        .         .         .         .
14.37      0.2130      0.47  .Q        .         .         .         .
14.55      0.2202      0.49  .Q        .         .         .         .
14.73      0.2279      0.53  . Q       .         .         .         .
14.91      0.2361      0.56  . Q       .         .         .         .
15.09      0.2453      0.67  . Q       .         .         .         .
15.27      0.2559      0.74  . Q       .         .         .         .
15.45      0.2678      0.85  .  Q      .         .         .         .
15.64      0.2810      0.90  .  Q      .         .         .         .
15.82      0.2994      1.55  .     Q   .         .         .         .
16.00      0.3282      2.29  .        Q.         .         .         .
16.18      0.4030      7.67  .         .         .         Q         .
16.36      0.4690      1.12  .   Q     .         .         .         .
16.55      0.4837      0.84  .  Q      .         .         .         .
16.73      0.4945      0.60  . Q       .         .         .         .
16.91      0.5029      0.51  . Q       .         .         .         .
17.09      0.5101      0.46  .Q        .         .         .         .
17.27      0.5166      0.41  .Q        .         .         .         .
17.45      0.5226      0.38  .Q        .         .         .         .
17.64      0.5282      0.36  .Q        .         .         .         .
17.82      0.5334      0.34  .Q        .         .         .         .
18.00      0.5383      0.32  .Q        .         .         .         .
18.18      0.5425      0.24  Q         .         .         .         .
18.36      0.5460      0.23  Q         .         .         .         .
18.54      0.5493      0.22  Q         .         .         .         .
18.73      0.5525      0.21  Q         .         .         .         .
18.91      0.5555      0.20  Q         .         .         .         .
19.09      0.5584      0.19  Q         .         .         .         .
19.27      0.5612      0.18  Q         .         .         .         .
19.45      0.5639      0.18  Q         .         .         .         .
19.63      0.5665      0.17  Q         .         .         .         .
```

```
 19.82       0.5690      0.16  Q         .         .         .         .
 20.00       0.5715      0.16  Q         .         .         .         .
 20.18       0.5738      0.16  Q         .         .         .         .
 20.36       0.5761      0.15  Q         .         .         .         .
 20.54       0.5784      0.15  Q         .         .         .         .
 20.72       0.5805      0.14  Q         .         .         .         .
 20.91       0.5827      0.14  Q         .         .         .         .
 21.09       0.5848      0.14  Q         .         .         .         .
 21.27       0.5868      0.13  Q         .         .         .         .
 21.45       0.5888      0.13  Q         .         .         .         .
 21.63       0.5907      0.13  Q         .         .         .         .
 21.81       0.5926      0.13  Q         .         .         .         .
 21.99       0.5945      0.12  Q         .         .         .         .
 22.18       0.5963      0.12  Q         .         .         .         .
 22.36       0.5981      0.12  Q         .         .         .         .
 22.54       0.5999      0.12  Q         .         .         .         .
 22.72       0.6016      0.11  Q         .         .         .         .
 22.90       0.6033      0.11  Q         .         .         .         .
 23.08       0.6050      0.11  Q         .         .         .         .
 23.27       0.6066      0.11  Q         .         .         .         .
 23.45       0.6082      0.11  Q         .         .         .         .
 23.63       0.6098      0.11  Q         .         .         .         .
 23.81       0.6114      0.10  Q         .         .         .         .
 23.99       0.6129      0.10  Q         .         .         .         .
 24.17       0.6145      0.10  Q         .         .         .         .
 24.36       0.6152      0.00  Q         .         .         .         .
----------------------------------------------------------------------------
-------------------------------------------------------------------------------
  TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
  (Note: 100% of Peak Flow Rate estimate assumed to have
  an instantaneous time duration)

  Percentile of Estimated                Duration
      Peak Flow Rate                     (minutes)
  =======================                =========
             0%                           1449.7
            10%                             76.3
            20%                             32.7
            30%                             10.9
            40%                             10.9
            50%                             10.9
            60%                             10.9
            70%                             10.9
            80%                             10.9
            90%                             10.9
```

```
****************************************************************************
          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                   AND LOW LOSS FRACTION ESTIMATIONS
============================================================================
```



```
           Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                        Analysis prepared by:

                          fuscoe engineering
                           16795 Von Karman
                              Suite 100
                              Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angeina Drive
  Existing Condition - 25-yr/24-hour hydrograph
============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     4.49 (inches)
```

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	0.88	80.00	56.	0.300	0.330
2	0.43	100.00	61.	0.300	0.239
3	0.70	30.00	69.	0.250	0.770
4	0.83	40.00	69.	0.250	0.711
5	1.16	30.00	69.	0.250	0.770

```
    TOTAL AREA (Acres) =      4.00

    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.141

    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.396
============================================================================

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angeina Drive
  Existing Condition - 25-yr/24-hour hydrograph (calib coef: 0.786)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.79
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.141
    LOW LOSS FRACTION = 0.396
    TIME OF CONCENTRATION(MIN.) = 10.82
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =  25
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.87
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.15
```

```
      3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.94
      6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.71
     24-HOUR   POINT RAINFALL VALUE(INCHES) =  4.49

----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.80
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.70

****************************************************************************
  TIME     VOLUME       Q    0.        2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.13      0.0010      0.13  Q         .         .         .         .
  0.31      0.0029      0.13  Q         .         .         .         .
  0.49      0.0048      0.13  Q         .         .         .         .
  0.67      0.0068      0.13  Q         .         .         .         .
  0.85      0.0088      0.13  Q         .         .         .         .
  1.03      0.0108      0.13  Q         .         .         .         .
  1.21      0.0128      0.13  Q         .         .         .         .
  1.39      0.0148      0.14  Q         .         .         .         .
  1.57      0.0168      0.14  Q         .         .         .         .
  1.75      0.0189      0.14  Q         .         .         .         .
  1.93      0.0210      0.14  Q         .         .         .         .
  2.11      0.0231      0.14  Q         .         .         .         .
  2.29      0.0252      0.14  Q         .         .         .         .
  2.48      0.0273      0.14  Q         .         .         .         .
  2.66      0.0294      0.14  Q         .         .         .         .
  2.84      0.0316      0.15  Q         .         .         .         .
  3.02      0.0338      0.15  Q         .         .         .         .
  3.20      0.0360      0.15  Q         .         .         .         .
  3.38      0.0382      0.15  Q         .         .         .         .
  3.56      0.0404      0.15  Q         .         .         .         .
  3.74      0.0427      0.15  Q         .         .         .         .
  3.92      0.0449      0.15  Q         .         .         .         .
  4.10      0.0472      0.15  Q         .         .         .         .
  4.28      0.0496      0.16  Q         .         .         .         .
  4.46      0.0519      0.16  Q         .         .         .         .
  4.64      0.0543      0.16  Q         .         .         .         .
  4.82      0.0567      0.16  Q         .         .         .         .
  5.00      0.0591      0.16  Q         .         .         .         .
  5.18      0.0615      0.16  Q         .         .         .         .
  5.36      0.0640      0.17  Q         .         .         .         .
  5.54      0.0665      0.17  Q         .         .         .         .
  5.72      0.0690      0.17  Q         .         .         .         .
  5.90      0.0715      0.17  Q         .         .         .         .
  6.08      0.0741      0.17  Q         .         .         .         .
  6.26      0.0767      0.18  Q         .         .         .         .
  6.44      0.0793      0.18  Q         .         .         .         .
  6.62      0.0820      0.18  Q         .         .         .         .
  6.80      0.0847      0.18  Q         .         .         .         .
  6.98      0.0874      0.18  Q         .         .         .         .
  7.16      0.0902      0.19  Q         .         .         .         .
  7.34      0.0930      0.19  Q         .         .         .         .
  7.52      0.0958      0.19  Q         .         .         .         .
  7.70      0.0987      0.19  Q         .         .         .         .
  7.89      0.1016      0.20  Q         .         .         .         .
  8.07      0.1046      0.20  Q         .         .         .         .
  8.25      0.1076      0.20  Q         .         .         .         .
  8.43      0.1106      0.21  Q         .         .         .         .
  8.61      0.1137      0.21  Q         .         .         .         .
```

```
 8.79      0.1168      0.21  Q         .         .         .         .
 8.97      0.1200      0.22  Q         .         .         .         .
 9.15      0.1233      0.22  Q         .         .         .         .
 9.33      0.1266      0.22  Q         .         .         .         .
 9.51      0.1299      0.23  Q         .         .         .         .
 9.69      0.1333      0.23  Q         .         .         .         .
 9.87      0.1368      0.23  Q         .         .         .         .
10.05      0.1403      0.24  Q         .         .         .         .
10.23      0.1439      0.24  Q         .         .         .         .
10.41      0.1475      0.25  Q         .         .         .         .
10.59      0.1513      0.25  .Q        .         .         .         .
10.77      0.1551      0.26  .Q        .         .         .         .
10.95      0.1590      0.26  .Q        .         .         .         .
11.13      0.1630      0.27  .Q        .         .         .         .
11.31      0.1671      0.28  .Q        .         .         .         .
11.49      0.1712      0.28  .Q        .         .         .         .
11.67      0.1755      0.29  .Q        .         .         .         .
11.85      0.1799      0.30  .Q        .         .         .         .
12.03      0.1844      0.31  .Q        .         .         .         .
12.21      0.1898      0.42  .Q        .         .         .         .
12.39      0.1961      0.43  .Q        .         .         .         .
12.57      0.2026      0.44  .Q        .         .         .         .
12.75      0.2092      0.45  .Q        .         .         .         .
12.93      0.2160      0.47  .Q        .         .         .         .
13.11      0.2230      0.47  .Q        .         .         .         .
13.30      0.2302      0.50  .Q        .         .         .         .
13.48      0.2377      0.51  . Q       .         .         .         .
13.66      0.2454      0.53  . Q       .         .         .         .
13.84      0.2534      0.55  . Q       .         .         .         .
14.02      0.2618      0.58  . Q       .         .         .         .
14.20      0.2705      0.59  . Q       .         .         .         .
14.38      0.2796      0.63  . Q       .         .         .         .
14.56      0.2891      0.65  . Q       .         .         .         .
14.74      0.2994      0.73  . Q       .         .         .         .
14.92      0.3108      0.79  .  Q      .         .         .         .
15.10      0.3236      0.93  .  Q      .         .         .         .
15.28      0.3382      1.03  .   Q     .         .         .         .
15.46      0.3543      1.14  .   Q     .         .         .         .
15.64      0.3719      1.21  .   Q     .         .         .         .
15.82      0.3961      2.05  .       Q .         .         .         .
16.00      0.4336      2.97  .         .Q        .         .         .
16.18      0.5251      9.30  .         .         .         .      Q  .
16.36      0.6054      1.48  .    Q    .         .         .         .
16.54      0.6249      1.14  .   Q     .         .         .         .
16.72      0.6398      0.86  .  Q      .         .         .         .
16.90      0.6513      0.68  . Q       .         .         .         .
17.08      0.6609      0.61  . Q       .         .         .         .
17.26      0.6696      0.56  . Q       .         .         .         .
17.44      0.6776      0.52  . Q       .         .         .         .
17.62      0.6851      0.48  .Q        .         .         .         .
17.80      0.6921      0.46  .Q        .         .         .         .
17.98      0.6987      0.43  .Q        .         .         .         .
18.16      0.7045      0.34  .Q        .         .         .         .
18.34      0.7092      0.29  .Q        .         .         .         .
18.52      0.7135      0.28  .Q        .         .         .         .
18.70      0.7175      0.27  .Q        .         .         .         .
18.89      0.7214      0.26  .Q        .         .         .         .
19.07      0.7252      0.25  Q         .         .         .         .
19.25      0.7288      0.24  Q         .         .         .         .
19.43      0.7322      0.23  Q         .         .         .         .
19.61      0.7356      0.22  Q         .         .         .         .
```

```
 19.79      0.7388      0.21  Q         .         .         .         .
 19.97      0.7420      0.21  Q         .         .         .         .
 20.15      0.7450      0.20  Q         .         .         .         .
 20.33      0.7480      0.20  Q         .         .         .         .
 20.51      0.7508      0.19  Q         .         .         .         .
 20.69      0.7536      0.19  Q         .         .         .         .
 20.87      0.7564      0.18  Q         .         .         .         .
 21.05      0.7590      0.18  Q         .         .         .         .
 21.23      0.7616      0.17  Q         .         .         .         .
 21.41      0.7642      0.17  Q         .         .         .         .
 21.59      0.7667      0.17  Q         .         .         .         .
 21.77      0.7691      0.16  Q         .         .         .         .
 21.95      0.7715      0.16  Q         .         .         .         .
 22.13      0.7738      0.16  Q         .         .         .         .
 22.31      0.7761      0.15  Q         .         .         .         .
 22.49      0.7784      0.15  Q         .         .         .         .
 22.67      0.7806      0.15  Q         .         .         .         .
 22.85      0.7828      0.14  Q         .         .         .         .
 23.03      0.7849      0.14  Q         .         .         .         .
 23.21      0.7870      0.14  Q         .         .         .         .
 23.39      0.7891      0.14  Q         .         .         .         .
 23.57      0.7911      0.14  Q         .         .         .         .
 23.75      0.7931      0.13  Q         .         .         .         .
 23.93      0.7951      0.13  Q         .         .         .         .
 24.11      0.7971      0.13  Q         .         .         .         .
 24.30      0.7980      0.00  Q         .         .         .         .
-----------------------------------------------------------------------------
--------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated              Duration
       Peak Flow Rate                   (minutes)
   =======================              =========
             0%                          1449.9
            10%                            97.4
            20%                            32.5
            30%                            21.6
            40%                            10.8
            50%                            10.8
            60%                            10.8
            70%                            10.8
            80%                            10.8
            90%                            10.8
```

```
****************************************************************************
          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                    AND LOW LOSS FRACTION ESTIMATIONS
============================================================================
        (C) Copyright 1989-2016 Advanced Engineering Software (aes)
            Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                            fuscoe engineering
                             16795 Von Karman
                                Suite 100
                                Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Existing Condition  100-yr/24-hour storm event
============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     5.63 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
         1          0.88        80.00       56.(AMC II)     0.300       0.627
         2          0.43       100.00       61.(AMC II)     0.300       0.613
         3          0.70        30.00       69.(AMC II)     0.250       0.887
         4          0.83        40.00       69.(AMC II)     0.250       0.863
         5          1.16        30.00       69.(AMC II)     0.250       0.887

    TOTAL AREA (Acres) =      4.00
                              _
    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.141
                                      _
    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.205
============================================================================

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Existing Condition  100-yr/24-hour storm event  (calib coef: 0.7848)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.78
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.141
    LOW LOSS FRACTION = 0.205
    TIME OF CONCENTRATION(MIN.) = 10.74
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) = 100
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.52
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  1.09
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.45
```

```
      3-HOUR   POINT RAINFALL VALUE(INCHES) =  2.43
      6-HOUR   POINT RAINFALL VALUE(INCHES) =  3.36
     24-HOUR   POINT RAINFALL VALUE(INCHES) =  5.63

----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     1.20
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.67

****************************************************************************
  TIME     VOLUME       Q    0.         5.0      10.0      15.0      20.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.07      0.0006      0.22  Q         .         .         .         .
  0.25      0.0039      0.22  Q         .         .         .         .
  0.43      0.0071      0.22  Q         .         .         .         .
  0.61      0.0104      0.22  Q         .         .         .         .
  0.79      0.0137      0.22  Q         .         .         .         .
  0.96      0.0170      0.22  Q         .         .         .         .
  1.14      0.0203      0.23  Q         .         .         .         .
  1.32      0.0237      0.23  Q         .         .         .         .
  1.50      0.0271      0.23  Q         .         .         .         .
  1.68      0.0305      0.23  Q         .         .         .         .
  1.86      0.0340      0.23  Q         .         .         .         .
  2.04      0.0374      0.24  Q         .         .         .         .
  2.22      0.0409      0.24  Q         .         .         .         .
  2.40      0.0445      0.24  Q         .         .         .         .
  2.58      0.0480      0.24  Q         .         .         .         .
  2.75      0.0516      0.24  Q         .         .         .         .
  2.93      0.0552      0.25  Q         .         .         .         .
  3.11      0.0589      0.25  Q         .         .         .         .
  3.29      0.0626      0.25  Q         .         .         .         .
  3.47      0.0663      0.25  Q         .         .         .         .
  3.65      0.0700      0.25  Q         .         .         .         .
  3.83      0.0738      0.26  Q         .         .         .         .
  4.01      0.0776      0.26  Q         .         .         .         .
  4.19      0.0815      0.26  Q         .         .         .         .
  4.37      0.0854      0.26  Q         .         .         .         .
  4.54      0.0893      0.27  Q         .         .         .         .
  4.72      0.0933      0.27  Q         .         .         .         .
  4.90      0.0973      0.27  Q         .         .         .         .
  5.08      0.1013      0.28  Q         .         .         .         .
  5.26      0.1054      0.28  Q         .         .         .         .
  5.44      0.1095      0.28  Q         .         .         .         .
  5.62      0.1137      0.28  Q         .         .         .         .
  5.80      0.1179      0.29  Q         .         .         .         .
  5.98      0.1222      0.29  Q         .         .         .         .
  6.16      0.1265      0.29  Q         .         .         .         .
  6.33      0.1309      0.30  Q         .         .         .         .
  6.51      0.1353      0.30  Q         .         .         .         .
  6.69      0.1397      0.30  Q         .         .         .         .
  6.87      0.1442      0.31  Q         .         .         .         .
  7.05      0.1488      0.31  Q         .         .         .         .
  7.23      0.1534      0.32  Q         .         .         .         .
  7.41      0.1581      0.32  Q         .         .         .         .
  7.59      0.1628      0.32  Q         .         .         .         .
  7.77      0.1677      0.33  Q         .         .         .         .
  7.95      0.1725      0.33  Q         .         .         .         .
  8.12      0.1775      0.34  Q         .         .         .         .
  8.30      0.1825      0.34  Q         .         .         .         .
  8.48      0.1876      0.35  Q         .         .         .         .
```

```
 8.66      0.1927       0.35 Q         .         .         .         .
 8.84      0.1979       0.36 Q         .         .         .         .
 9.02      0.2033       0.36 Q         .         .         .         .
 9.20      0.2087       0.37 Q         .         .         .         .
 9.38      0.2141       0.37 Q         .         .         .         .
 9.56      0.2197       0.38 Q         .         .         .         .
 9.74      0.2254       0.39 Q         .         .         .         .
 9.91      0.2312       0.39 Q         .         .         .         .
10.09      0.2371       0.40 Q         .         .         .         .
10.27      0.2430       0.41 Q         .         .         .         .
10.45      0.2491       0.42 Q         .         .         .         .
10.63      0.2554       0.42 Q         .         .         .         .
10.81      0.2617       0.44 Q         .         .         .         .
10.99      0.2682       0.44 Q         .         .         .         .
11.17      0.2749       0.46 Q         .         .         .         .
11.35      0.2816       0.46 Q         .         .         .         .
11.52      0.2886       0.48 Q         .         .         .         .
11.70      0.2957       0.48 Q         .         .         .         .
11.88      0.3030       0.50 .Q        .         .         .         .
12.06      0.3105       0.51 .Q        .         .         .         .
12.24      0.3192       0.66 .Q        .         .         .         .
12.42      0.3291       0.68 .Q        .         .         .         .
12.60      0.3393       0.70 .Q        .         .         .         .
12.78      0.3497       0.71 .Q        .         .         .         .
12.96      0.3605       0.74 .Q        .         .         .         .
13.14      0.3715       0.76 .Q        .         .         .         .
13.32      0.3830       0.79 .Q        .         .         .         .
13.49      0.3948       0.81 .Q        .         .         .         .
13.67      0.4070       0.85 .Q        .         .         .         .
13.85      0.4198       0.87 .Q        .         .         .         .
14.03      0.4330       0.92 .Q        .         .         .         .
14.21      0.4469       0.96 .Q        .         .         .         .
14.39      0.4616       1.03 . Q       .         .         .         .
14.57      0.4771       1.07 . Q       .         .         .         .
14.75      0.4935       1.16 . Q       .         .         .         .
14.93      0.5111       1.22 . Q       .         .         .         .
15.10      0.5302       1.36 . Q       .         .         .         .
15.28      0.5511       1.46 . Q       .         .         .         .
15.46      0.5736       1.59 .  Q      .         .         .         .
15.64      0.5979       1.70 .  Q      .         .         .         .
15.82      0.6296       2.59 .    Q    .         .         .         .
16.00      0.6762       3.70 .      Q  .         .         .         .
16.18      0.7928      12.06 .         .         .   Q     .         .
16.36      0.8971       2.03 .   Q     .         .         .         .
16.54      0.9237       1.57 .  Q      .         .         .         .
16.72      0.9449       1.28 . Q       .         .         .         .
16.90      0.9626       1.11 . Q       .         .         .         .
17.07      0.9781       0.99 .Q        .         .         .         .
17.25      0.9921       0.90 .Q        .         .         .         .
17.43      1.0048       0.83 .Q        .         .         .         .
17.61      1.0166       0.77 .Q        .         .         .         .
17.79      1.0277       0.73 .Q        .         .         .         .
17.97      1.0382       0.69 .Q        .         .         .         .
18.15      1.0476       0.59 .Q        .         .         .         .
18.33      1.0556       0.49 Q         .         .         .         .
18.51      1.0628       0.47 Q         .         .         .         .
18.68      1.0695       0.45 Q         .         .         .         .
18.86      1.0760       0.43 Q         .         .         .         .
19.04      1.0823       0.41 Q         .         .         .         .
19.22      1.0883       0.40 Q         .         .         .         .
19.40      1.0940       0.38 Q         .         .         .         .
```

```
 19.58      1.0996      0.37  Q         .         .         .         .
 19.76      1.1050      0.36  Q         .         .         .         .
 19.94      1.1102      0.35  Q         .         .         .         .
 20.12      1.1153      0.34  Q         .         .         .         .
 20.30      1.1203      0.33  Q         .         .         .         .
 20.48      1.1251      0.32  Q         .         .         .         .
 20.65      1.1298      0.31  Q         .         .         .         .
 20.83      1.1343      0.31  Q         .         .         .         .
 21.01      1.1388      0.30  Q         .         .         .         .
 21.19      1.1431      0.29  Q         .         .         .         .
 21.37      1.1474      0.28  Q         .         .         .         .
 21.55      1.1516      0.28  Q         .         .         .         .
 21.73      1.1557      0.27  Q         .         .         .         .
 21.91      1.1597      0.27  Q         .         .         .         .
 22.09      1.1636      0.26  Q         .         .         .         .
 22.27      1.1674      0.26  Q         .         .         .         .
 22.44      1.1712      0.25  Q         .         .         .         .
 22.62      1.1749      0.25  Q         .         .         .         .
 22.80      1.1786      0.24  Q         .         .         .         .
 22.98      1.1822      0.24  Q         .         .         .         .
 23.16      1.1857      0.24  Q         .         .         .         .
 23.34      1.1892      0.23  Q         .         .         .         .
 23.52      1.1926      0.23  Q         .         .         .         .
 23.70      1.1960      0.23  Q         .         .         .         .
 23.88      1.1993      0.22  Q         .         .         .         .
 24.06      1.2026      0.22  Q         .         .         .         .
 24.23      1.2042      0.00  Q         .         .         .         .
----------------------------------------------------------------------------
--------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated                 Duration
       Peak Flow Rate                      (minutes)
   =======================                 =========
              0%                             1449.9
             10%                              118.1
             20%                               32.2
             30%                               21.5
             40%                               10.7
             50%                               10.7
             60%                               10.7
             70%                               10.7
             80%                               10.7
             90%                               10.7
```

APPENDIX 2

Proposed Condition Hydrology

```
****************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                           Analysis prepared by:

                             fuscoe engineering
                              16795 Von Karman
                                 Suite 100
                                 Irvine, CA

 ************************** DESCRIPTION OF STUDY **************************
 * Placentia Senior Housing                                                 *
 * 1314 N. Angelina Drive                                                   *
 * Proposed Condition - 2-year storm event                                  *
 **************************************************************************

  FILE NAME: PRANG2.DAT
  TIME/DATE OF STUDY: 16:31 04/15/2020
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    301.70  DOWNSTREAM(FEET) =    298.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.677
```

```
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.770
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 B       0.98      0.30     0.100    36    7.68
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      1.53
  TOTAL AREA(ACRES) =      0.98   PEAK FLOW RATE(CFS) =      1.53

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   293.20  DOWNSTREAM(FEET) =   292.60
  FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.32
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.53
  PIPE TRAVEL TIME(MIN.) =   0.56    Tc(MIN.) =    8.24
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    103.00 =     442.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    8.24
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.699
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 C       1.03      0.25     0.100    50
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    1.03      SUBAREA RUNOFF(CFS) =    1.55
  EFFECTIVE AREA(ACRES) =      2.01   AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.10
  TOTAL AREA(ACRES) =        2.0      PEAK FLOW RATE(CFS) =      3.02

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   292.60  DOWNSTREAM(FEET) =   291.60
  FLOW LENGTH(FEET) =   184.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   9.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.95
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.02
  PIPE TRAVEL TIME(MIN.) =   0.78    Tc(MIN.) =    9.02
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     626.00 FEET.

****************************************************************************
```

```
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.02
  RAINFALL INTENSITY(INCH/HR) =   1.61
  AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.27
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       2.01
  TOTAL STREAM AREA(ACRES) =       2.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.02

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    299.10  DOWNSTREAM(FEET) =    297.60

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.094
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.606
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 C       0.72      0.25     0.100    50    9.09
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      1.02
  TOTAL AREA(ACRES) =      0.72   PEAK FLOW RATE(CFS) =      1.02

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    297.60  DOWNSTREAM(FEET) =    297.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    71.00   CHANNEL SLOPE =  0.0085
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  24.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.541
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 C       0.18      0.25     0.100    50
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.15
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.76
  AVERAGE FLOW DEPTH(FEET) =   0.16   TRAVEL TIME(MIN.) =   0.67
  Tc(MIN.) =    9.77
  SUBAREA AREA(ACRES) =     0.18       SUBAREA RUNOFF(CFS) =    0.25
  EFFECTIVE AREA(ACRES) =      0.90     AREA-AVERAGED Fm(INCH/HR) =   0.03
```

```
 AREA-AVERAGED Fp(INCH/HR) =   0.25  AREA-AVERAGED Ap =   0.10
 TOTAL AREA(ACRES) =       0.9        PEAK FLOW RATE(CFS) =      1.23

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.17   FLOW VELOCITY(FEET/SEC.) =   1.76
 LONGEST FLOWPATH FROM NODE    105.00 TO NODE    107.00 =    401.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    9.77
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.541
 SUBAREA LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                 C       0.38      0.25     0.100    50
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA AREA(ACRES) =    0.38      SUBAREA RUNOFF(CFS) =    0.52
 EFFECTIVE AREA(ACRES) =      1.28   AREA-AVERAGED Fm(INCH/HR) =  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.10
 TOTAL AREA(ACRES) =       1.3      PEAK FLOW RATE(CFS) =      1.75

****************************************************************************
 FLOW PROCESS FROM NODE    107.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   292.10  DOWNSTREAM(FEET) =   291.60
 FLOW LENGTH(FEET) =    89.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   3.47
 ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.75
 PIPE TRAVEL TIME(MIN.) =   0.43    Tc(MIN.) =   10.20
 LONGEST FLOWPATH FROM NODE    105.00 TO NODE    104.00 =    490.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   10.20
 RAINFALL INTENSITY(INCH/HR) =   1.50
 AREA-AVERAGED Fm(INCH/HR) =  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.25
 AREA-AVERAGED Ap =  0.10
 EFFECTIVE STREAM AREA(ACRES) =       1.28
 TOTAL STREAM AREA(ACRES) =       1.28
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.75

 ** CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
```

```
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        3.02    9.02    1.614  0.27( 0.03) 0.10       2.0     101.00
    2        1.75   10.20    1.504  0.25( 0.03) 0.10       1.3     105.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR  2 STREAMS.

** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        4.68    9.02    1.614  0.27( 0.03) 0.10       3.1     101.00
    2        4.56   10.20    1.504  0.26( 0.03) 0.10       3.3     105.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =       4.68    Tc(MIN.) =     9.02
EFFECTIVE AREA(ACRES) =       3.14   AREA-AVERAGED Fm(INCH/HR) =  0.03
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.10
TOTAL AREA(ACRES) =        3.3
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     626.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    104.00 TO NODE    108.00 IS CODE =  31
----------------------------------------------------------------------------
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   291.60  DOWNSTREAM(FEET) =   291.00
FLOW LENGTH(FEET) =   118.00   MANNING'S N =  0.013
DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.7 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) =   4.30
ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
PIPE-FLOW(CFS) =       4.68
PIPE TRAVEL TIME(MIN.) =   0.46    Tc(MIN.) =    9.47
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    108.00 =     744.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    108.00 TO NODE    108.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN.) =    9.47
*   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.569
SUBAREA LOSS RATE DATA(AMC  I ):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
COMMERCIAL                 C       0.71      0.25     0.100    50
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
SUBAREA AREA(ACRES) =    0.71      SUBAREA RUNOFF(CFS) =    0.99
EFFECTIVE AREA(ACRES) =      3.85   AREA-AVERAGED Fm(INCH/HR) =  0.03
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.10
TOTAL AREA(ACRES) =        4.0       PEAK FLOW RATE(CFS) =       5.35

****************************************************************************
FLOW PROCESS FROM NODE    108.00 TO NODE    109.00 IS CODE =  31
----------------------------------------------------------------------------
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   291.00  DOWNSTREAM(FEET) =   290.50
 FLOW LENGTH(FEET) =    20.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  15.0 INCH PIPE IS   8.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   8.09
 ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       5.35
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    9.52
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    109.00 =     764.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        4.0  TC(MIN.) =      9.52
 EFFECTIVE AREA(ACRES) =      3.85  AREA-AVERAGED Fm(INCH/HR)=  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap = 0.100
 PEAK FLOW RATE(CFS)   =       5.35

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1       5.35    9.52    1.565  0.26( 0.03) 0.10       3.9     101.00
     2       5.18   10.70    1.463  0.26( 0.03) 0.10       4.0     105.00
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                           Analysis prepared by:

                             fuscoe engineering
                              16795 Von Karman
                                 Suite 100
                                 Irvine, CA

 ************************** DESCRIPTION OF STUDY **************************
* Placentia Senior Housing                                                 *
* 1314 N. Angelina Drive                                                   *
* Proposed Condition - 10-year storm event                                 *
 **************************************************************************

  FILE NAME: PRANG10.DAT
  TIME/DATE OF STUDY: 10:25 04/16/2020
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    301.70  DOWNSTREAM(FEET) =    298.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.677
```

```
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.175
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 COMMERCIAL                 B       0.98      0.30     0.100    56    7.68
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA RUNOFF(CFS) =      2.77
 TOTAL AREA(ACRES) =      0.98   PEAK FLOW RATE(CFS) =      2.77

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   293.20  DOWNSTREAM(FEET) =   292.60
 FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  15.0 INCH PIPE IS   8.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   3.85
 ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       2.77
 PIPE TRAVEL TIME(MIN.) =   0.49    Tc(MIN.) =    8.16
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    103.00 =     442.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    8.16
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.066
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                 C       1.03      0.25     0.100    69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA AREA(ACRES) =    1.03      SUBAREA RUNOFF(CFS) =    2.82
 EFFECTIVE AREA(ACRES) =      2.01   AREA-AVERAGED Fm(INCH/HR) =  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.10
 TOTAL AREA(ACRES) =        2.0       PEAK FLOW RATE(CFS) =      5.50

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   292.60  DOWNSTREAM(FEET) =   291.60
 FLOW LENGTH(FEET) =   184.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.56
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       5.50
 PIPE TRAVEL TIME(MIN.) =   0.67    Tc(MIN.) =    8.83
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     626.00 FEET.

****************************************************************************
```

```
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.83
  RAINFALL INTENSITY(INCH/HR) =   2.93
  AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.27
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       2.01
  TOTAL STREAM AREA(ACRES) =       2.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       5.50

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    299.10  DOWNSTREAM(FEET) =    297.60

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.094
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.881
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 C       0.72      0.25     0.100    69    9.09
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      1.85
  TOTAL AREA(ACRES) =      0.72   PEAK FLOW RATE(CFS) =      1.85

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    297.60  DOWNSTREAM(FEET) =    297.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    71.00   CHANNEL SLOPE =  0.0085
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  24.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.778
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 C       0.18      0.25     0.100    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.07
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.98
  AVERAGE FLOW DEPTH(FEET) =   0.21   TRAVEL TIME(MIN.) =   0.60
  Tc(MIN.) =    9.69
  SUBAREA AREA(ACRES) =     0.18       SUBAREA RUNOFF(CFS) =    0.45
  EFFECTIVE AREA(ACRES) =      0.90     AREA-AVERAGED Fm(INCH/HR) =   0.03
```

```
  AREA-AVERAGED Fp(INCH/HR) =   0.25  AREA-AVERAGED Ap =   0.10
  TOTAL AREA(ACRES) =        0.9         PEAK FLOW RATE(CFS) =       2.23

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.21   FLOW VELOCITY(FEET/SEC.) =   2.09
  LONGEST FLOWPATH FROM NODE    105.00 TO NODE    107.00 =     401.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    9.69
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.778
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 C       0.38      0.25     0.100    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.38      SUBAREA RUNOFF(CFS) =    0.94
  EFFECTIVE AREA(ACRES) =      1.28   AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.10
  TOTAL AREA(ACRES) =        1.3       PEAK FLOW RATE(CFS) =       3.17

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   292.10  DOWNSTREAM(FEET) =   291.60
  FLOW LENGTH(FEET) =    89.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   9.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.03
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.17
  PIPE TRAVEL TIME(MIN.) =   0.37    Tc(MIN.) =   10.06
  LONGEST FLOWPATH FROM NODE    105.00 TO NODE    104.00 =     490.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.06
  RAINFALL INTENSITY(INCH/HR) =   2.72
  AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       1.28
  TOTAL STREAM AREA(ACRES) =       1.28
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.17

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
```

```
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        5.50    8.83    2.930  0.27( 0.03) 0.10       2.0     101.00
    2        3.17   10.06    2.720  0.25( 0.03) 0.10       1.3     105.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR  2 STREAMS.

** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        8.50    8.83    2.930  0.27( 0.03) 0.10       3.1     101.00
    2        8.27   10.06    2.720  0.26( 0.03) 0.10       3.3     105.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =       8.50    Tc(MIN.) =     8.83
EFFECTIVE AREA(ACRES) =       3.13   AREA-AVERAGED Fm(INCH/HR) =  0.03
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.10
TOTAL AREA(ACRES) =        3.3
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     626.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    104.00 TO NODE    108.00 IS CODE =  31
----------------------------------------------------------------------------
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
ELEVATION DATA: UPSTREAM(FEET) =   291.60  DOWNSTREAM(FEET) =   291.00
FLOW LENGTH(FEET) =   118.00   MANNING'S N =  0.013
DEPTH OF FLOW IN  21.0 INCH PIPE IS  14.1 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) =   4.94
ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
PIPE-FLOW(CFS) =       8.50
PIPE TRAVEL TIME(MIN.) =   0.40    Tc(MIN.) =    9.23
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    108.00 =     744.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE    108.00 TO NODE    108.00 IS CODE =  81
----------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
MAINLINE Tc(MIN.) =    9.23
*  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.857
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
COMMERCIAL                 C       0.71      0.25     0.100    69
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
SUBAREA AREA(ACRES) =    0.71      SUBAREA RUNOFF(CFS) =    1.81
EFFECTIVE AREA(ACRES) =      3.84   AREA-AVERAGED Fm(INCH/HR) =  0.03
AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.10
TOTAL AREA(ACRES) =        4.0       PEAK FLOW RATE(CFS) =       9.79

****************************************************************************
FLOW PROCESS FROM NODE    108.00 TO NODE    109.00 IS CODE =  31
----------------------------------------------------------------------------
>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   291.00  DOWNSTREAM(FEET) =   290.50
 FLOW LENGTH(FEET) =    20.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   9.40
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       9.79
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    9.27
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    109.00 =     764.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        4.0  TC(MIN.) =      9.27
 EFFECTIVE AREA(ACRES) =      3.84  AREA-AVERAGED Fm(INCH/HR)=  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap = 0.100
 PEAK FLOW RATE(CFS)   =       9.79

 ** PEAK FLOW RATE TABLE **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1       9.79    9.27    2.850  0.26( 0.03) 0.10       3.8     101.00
     2       9.48   10.50    2.654  0.26( 0.03) 0.10       4.0     105.00
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                           Analysis prepared by:

                             fuscoe engineering
                              16795 Von Karman
                                 Suite 100
                                 Irvine, CA

 ************************** DESCRIPTION OF STUDY **************************
* Placentia Senior Housing                                                 *
* 1314 N. Angelina Drive                                                   *
* Proposed Condition - 25-year storm event                                 *
 **************************************************************************

  FILE NAME: PRANG25.DAT
  TIME/DATE OF STUDY: 09:50 04/17/2020
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
                  --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    301.70  DOWNSTREAM(FEET) =    298.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.677
```

```
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.784
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 COMMERCIAL               B        0.98      0.30     0.100    56    7.68
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA RUNOFF(CFS) =      3.31
 TOTAL AREA(ACRES) =      0.98   PEAK FLOW RATE(CFS) =      3.31

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   293.20  DOWNSTREAM(FEET) =   292.60
 FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  15.0 INCH PIPE IS   9.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.00
 ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       3.31
 PIPE TRAVEL TIME(MIN.) =   0.47    Tc(MIN.) =    8.14
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    103.00 =     442.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    8.14
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.660
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL               C        1.03      0.25     0.100    69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA AREA(ACRES) =    1.03      SUBAREA RUNOFF(CFS) =    3.37
 EFFECTIVE AREA(ACRES) =      2.01   AREA-AVERAGED Fm(INCH/HR) =  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.10
 TOTAL AREA(ACRES) =        2.0      PEAK FLOW RATE(CFS) =      6.57

****************************************************************************
 FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   292.60  DOWNSTREAM(FEET) =   291.60
 FLOW LENGTH(FEET) =   184.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  13.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.70
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       6.57
 PIPE TRAVEL TIME(MIN.) =   0.65    Tc(MIN.) =    8.80
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     626.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =    8.80
 RAINFALL INTENSITY(INCH/HR) =   3.50
 AREA-AVERAGED Fm(INCH/HR) =  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.27
 AREA-AVERAGED Ap =  0.10
 EFFECTIVE STREAM AREA(ACRES) =       2.01
 TOTAL STREAM AREA(ACRES) =       2.01
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       6.57

****************************************************************************
 FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
 ELEVATION DATA: UPSTREAM(FEET) =    299.10  DOWNSTREAM(FEET) =    297.60

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.094
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.438
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 COMMERCIAL                 C       0.72      0.25     0.100    69    9.09
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA RUNOFF(CFS) =      2.21
 TOTAL AREA(ACRES) =      0.72   PEAK FLOW RATE(CFS) =      2.21

****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    297.60  DOWNSTREAM(FEET) =    297.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =    71.00   CHANNEL SLOPE =  0.0085
 CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  24.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.321
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                 C       0.18      0.25     0.100    69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.48
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.06
 AVERAGE FLOW DEPTH(FEET) =   0.22   TRAVEL TIME(MIN.) =   0.58
 Tc(MIN.) =    9.67
 SUBAREA AREA(ACRES) =     0.18       SUBAREA RUNOFF(CFS) =    0.53
 EFFECTIVE AREA(ACRES) =      0.90     AREA-AVERAGED Fm(INCH/HR) =   0.03
```

```
  AREA-AVERAGED Fp(INCH/HR) =   0.25  AREA-AVERAGED Ap =   0.10
  TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       2.67

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.23   FLOW VELOCITY(FEET/SEC.) =   2.18
  LONGEST FLOWPATH FROM NODE    105.00 TO NODE    107.00 =    401.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    9.67
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.321
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 C       0.38      0.25     0.100    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.38      SUBAREA RUNOFF(CFS) =    1.13
  EFFECTIVE AREA(ACRES) =      1.28   AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.10
  TOTAL AREA(ACRES) =        1.3       PEAK FLOW RATE(CFS) =       3.80

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   292.10  DOWNSTREAM(FEET) =   291.60
  FLOW LENGTH(FEET) =    89.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  10.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.18
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.80
  PIPE TRAVEL TIME(MIN.) =   0.35    Tc(MIN.) =   10.02
  LONGEST FLOWPATH FROM NODE    105.00 TO NODE    104.00 =    490.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.02
  RAINFALL INTENSITY(INCH/HR) =   3.25
  AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       1.28
  TOTAL STREAM AREA(ACRES) =       1.28
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.80

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
```

```
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        6.57    8.80    3.504  0.27( 0.03) 0.10       2.0     101.00
    2        3.80   10.02    3.254  0.25( 0.03) 0.10       1.3     105.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1       10.16    8.80    3.504  0.27( 0.03) 0.10       3.1     101.00
    2        9.90   10.02    3.254  0.26( 0.03) 0.10       3.3     105.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      10.16    Tc(MIN.) =     8.80
 EFFECTIVE AREA(ACRES) =       3.13   AREA-AVERAGED Fm(INCH/HR) =  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.10
 TOTAL AREA(ACRES) =        3.3
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     626.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    108.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   291.60  DOWNSTREAM(FEET) =   291.00
 FLOW LENGTH(FEET) =   118.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  21.0 INCH PIPE IS  16.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   5.07
 ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      10.16
 PIPE TRAVEL TIME(MIN.) =   0.39    Tc(MIN.) =    9.18
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    108.00 =     744.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    108.00 TO NODE    108.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    9.18
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.419
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                 C       0.71      0.25     0.100    69
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA AREA(ACRES) =    0.71      SUBAREA RUNOFF(CFS) =    2.17
 EFFECTIVE AREA(ACRES) =      3.84   AREA-AVERAGED Fm(INCH/HR) =  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.10
 TOTAL AREA(ACRES) =        4.0       PEAK FLOW RATE(CFS) =      11.74

****************************************************************************
 FLOW PROCESS FROM NODE    108.00 TO NODE    109.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   291.00  DOWNSTREAM(FEET) =   290.50
 FLOW LENGTH(FEET) =    20.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   9.77
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      11.74
 PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =    9.22
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    109.00 =     764.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        4.0  TC(MIN.) =      9.22
 EFFECTIVE AREA(ACRES) =      3.84  AREA-AVERAGED Fm(INCH/HR)=  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap = 0.100
 PEAK FLOW RATE(CFS)   =      11.74

 ** PEAK FLOW RATE TABLE **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1      11.74    9.22    3.412  0.26( 0.03) 0.10       3.8     101.00
     2      11.37   10.45    3.179  0.26( 0.03) 0.10       4.0     105.00
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
              RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
             (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
          (c) Copyright 1983-2016 Advanced Engineering Software (aes)
              Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                           Analysis prepared by:

                             fuscoe engineering
                              16795 Von Karman
                                 Suite 100
                                 Irvine, CA

 ************************** DESCRIPTION OF STUDY **************************
* Placentia Senior Housing                                                 *
* 1314 N. Angelina Drive                                                   *
* Proposed Condition - 100-year storm event                                *
 **************************************************************************

  FILE NAME: PRANG100.DAT
  TIME/DATE OF STUDY: 09:55 04/17/2020
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    301.70  DOWNSTREAM(FEET) =    298.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.677
```

```
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.840
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 B        0.98      0.30     0.100    76    7.68
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      4.24
  TOTAL AREA(ACRES) =      0.98   PEAK FLOW RATE(CFS) =      4.24

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   293.20  DOWNSTREAM(FEET) =   292.60
  FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  11.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.16
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.24
  PIPE TRAVEL TIME(MIN.) =   0.45    Tc(MIN.) =    8.13
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    103.00 =     442.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    8.13
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.684
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 C        1.03      0.25     0.100    86
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    1.03      SUBAREA RUNOFF(CFS) =    4.32
  EFFECTIVE AREA(ACRES) =      2.01   AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.10
  TOTAL AREA(ACRES) =        2.0      PEAK FLOW RATE(CFS) =      8.42

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   292.60  DOWNSTREAM(FEET) =   291.60
  FLOW LENGTH(FEET) =   184.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  13.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.07
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.42
  PIPE TRAVEL TIME(MIN.) =   0.61    Tc(MIN.) =    8.73
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     626.00 FEET.

****************************************************************************
```

```
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.73
  RAINFALL INTENSITY(INCH/HR) =   4.50
  AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.27
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       2.01
  TOTAL STREAM AREA(ACRES) =       2.01
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       8.42

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    299.10  DOWNSTREAM(FEET) =    297.60

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.094
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.392
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 C       0.72      0.25     0.100    86    9.09
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      2.83
  TOTAL AREA(ACRES) =      0.72   PEAK FLOW RATE(CFS) =      2.83

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    297.60  DOWNSTREAM(FEET) =    297.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    71.00   CHANNEL SLOPE =  0.0085
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  24.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   2.00
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.254
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 C       0.18      0.25     0.100    86
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.17
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.27
  AVERAGE FLOW DEPTH(FEET) =   0.24   TRAVEL TIME(MIN.) =   0.52
  Tc(MIN.) =    9.62
  SUBAREA AREA(ACRES) =     0.18       SUBAREA RUNOFF(CFS) =    0.69
  EFFECTIVE AREA(ACRES) =      0.90     AREA-AVERAGED Fm(INCH/HR) =   0.03
```

```
 AREA-AVERAGED Fp(INCH/HR) =   0.25  AREA-AVERAGED Ap =   0.10
 TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       3.43

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.25   FLOW VELOCITY(FEET/SEC.) =   2.30
 LONGEST FLOWPATH FROM NODE    105.00 TO NODE    107.00 =     401.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    9.62
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.254
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                 C        0.38      0.25     0.100    86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA AREA(ACRES) =    0.38      SUBAREA RUNOFF(CFS) =    1.45
 EFFECTIVE AREA(ACRES) =      1.28   AREA-AVERAGED Fm(INCH/HR) =  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.10
 TOTAL AREA(ACRES) =        1.3       PEAK FLOW RATE(CFS) =       4.87

****************************************************************************
 FLOW PROCESS FROM NODE    107.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   292.10  DOWNSTREAM(FEET) =   291.60
 FLOW LENGTH(FEET) =    89.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.50
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       4.87
 PIPE TRAVEL TIME(MIN.) =   0.33    Tc(MIN.) =    9.94
 LONGEST FLOWPATH FROM NODE    105.00 TO NODE    104.00 =     490.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =    9.94
 RAINFALL INTENSITY(INCH/HR) =   4.17
 AREA-AVERAGED Fm(INCH/HR) =  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.25
 AREA-AVERAGED Ap =  0.10
 EFFECTIVE STREAM AREA(ACRES) =       1.28
 TOTAL STREAM AREA(ACRES) =       1.28
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       4.87

 ** CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
```

```
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        8.42    8.73    4.496  0.27( 0.03) 0.10       2.0     101.00
    2        4.87    9.94    4.172  0.25( 0.03) 0.10       1.3     105.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR  2 STREAMS.

** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1       13.03    8.73    4.496  0.27( 0.03) 0.10       3.1     101.00
    2       12.69    9.94    4.172  0.26( 0.03) 0.10       3.3     105.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =      13.03    Tc(MIN.) =     8.73
EFFECTIVE AREA(ACRES) =       3.13   AREA-AVERAGED Fm(INCH/HR) =  0.03
AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap =  0.10
TOTAL AREA(ACRES) =        3.3
LONGEST FLOWPATH FROM NODE    101.00 TO NODE    104.00 =     626.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    108.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   291.60  DOWNSTREAM(FEET) =   291.00
  FLOW LENGTH(FEET) =   118.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  17.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.47
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      13.03
  PIPE TRAVEL TIME(MIN.) =   0.36    Tc(MIN.) =    9.09
  LONGEST FLOWPATH FROM NODE    101.00 TO NODE    108.00 =     744.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    108.00 TO NODE    108.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    9.09
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.393
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 C       0.71      0.25     0.100    86
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.71      SUBAREA RUNOFF(CFS) =    2.79
  EFFECTIVE AREA(ACRES) =      3.84   AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap =  0.10
  TOTAL AREA(ACRES) =        4.0       PEAK FLOW RATE(CFS) =      15.11

****************************************************************************
  FLOW PROCESS FROM NODE    108.00 TO NODE    109.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   291.00  DOWNSTREAM(FEET) =   290.50
 FLOW LENGTH(FEET) =    20.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  10.15
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      15.11
 PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =    9.12
 LONGEST FLOWPATH FROM NODE    101.00 TO NODE    109.00 =     764.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        4.0  TC(MIN.) =      9.12
 EFFECTIVE AREA(ACRES) =      3.84  AREA-AVERAGED Fm(INCH/HR)=  0.03
 AREA-AVERAGED Fp(INCH/HR) =  0.26  AREA-AVERAGED Ap = 0.100
 PEAK FLOW RATE(CFS)   =      15.11

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1      15.11    9.12    4.384  0.26( 0.03) 0.10       3.8     101.00
     2      14.62   10.34    4.081  0.26( 0.03) 0.10       4.0     105.00
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                    AND LOW LOSS FRACTION ESTIMATIONS
============================================================================
         (C) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                            fuscoe engineering
                             16795 Von Karman
                                Suite 100
                                Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina, Placentia
  Proposed Condition  2-year/24-hour hydrograph
============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC I:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     2.05 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
         1          0.98       10.00       56.(AMC II)     0.300       0.801
         2          3.02       10.00       69.(AMC II)     0.250       0.801

    TOTAL AREA (Acres) =      4.00
                                  _
    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.026
                                          _
    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.199
============================================================================

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina, Placentia
  Proposed Condition  2-year/24-hour hydrograph  (calib. coef: 0.869)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.87
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.026
    LOW LOSS FRACTION = 0.199
    TIME OF CONCENTRATION(MIN.) =  9.52
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =   2
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.19
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.53
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  0.89
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  1.22
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  2.05
```

```
-----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.50
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.18

*****************************************************************************
  TIME     VOLUME      Q    0.        2.5       5.0       7.5      10.0
 (HOURS)    (AF)     (CFS)
-----------------------------------------------------------------------------
  0.13      0.0006      0.09  Q         .         .         .         .
  0.29      0.0018      0.09  Q         .         .         .         .
  0.45      0.0029      0.09  Q         .         .         .         .
  0.61      0.0041      0.09  Q         .         .         .         .
  0.77      0.0053      0.09  Q         .         .         .         .
  0.93      0.0065      0.09  Q         .         .         .         .
  1.09      0.0077      0.09  Q         .         .         .         .
  1.24      0.0089      0.09  Q         .         .         .         .
  1.40      0.0102      0.09  Q         .         .         .         .
  1.56      0.0114      0.09  Q         .         .         .         .
  1.72      0.0126      0.09  Q         .         .         .         .
  1.88      0.0139      0.10  Q         .         .         .         .
  2.04      0.0152      0.10  Q         .         .         .         .
  2.20      0.0164      0.10  Q         .         .         .         .
  2.35      0.0177      0.10  Q         .         .         .         .
  2.51      0.0190      0.10  Q         .         .         .         .
  2.67      0.0203      0.10  Q         .         .         .         .
  2.83      0.0216      0.10  Q         .         .         .         .
  2.99      0.0229      0.10  Q         .         .         .         .
  3.15      0.0242      0.10  Q         .         .         .         .
  3.31      0.0256      0.10  Q         .         .         .         .
  3.47      0.0269      0.10  Q         .         .         .         .
  3.62      0.0283      0.10  Q         .         .         .         .
  3.78      0.0296      0.10  Q         .         .         .         .
  3.94      0.0310      0.11  Q         .         .         .         .
  4.10      0.0324      0.11  Q         .         .         .         .
  4.26      0.0338      0.11  Q         .         .         .         .
  4.42      0.0352      0.11  Q         .         .         .         .
  4.58      0.0366      0.11  Q         .         .         .         .
  4.73      0.0381      0.11  Q         .         .         .         .
  4.89      0.0395      0.11  Q         .         .         .         .
  5.05      0.0410      0.11  Q         .         .         .         .
  5.21      0.0425      0.11  Q         .         .         .         .
  5.37      0.0440      0.11  Q         .         .         .         .
  5.53      0.0455      0.11  Q         .         .         .         .
  5.69      0.0470      0.12  Q         .         .         .         .
  5.85      0.0485      0.12  Q         .         .         .         .
  6.00      0.0501      0.12  Q         .         .         .         .
  6.16      0.0516      0.12  Q         .         .         .         .
  6.32      0.0532      0.12  Q         .         .         .         .
  6.48      0.0548      0.12  Q         .         .         .         .
  6.64      0.0564      0.12  Q         .         .         .         .
  6.80      0.0580      0.12  Q         .         .         .         .
  6.96      0.0597      0.13  Q         .         .         .         .
  7.11      0.0613      0.13  Q         .         .         .         .
  7.27      0.0630      0.13  Q         .         .         .         .
  7.43      0.0647      0.13  Q         .         .         .         .
  7.59      0.0664      0.13  Q         .         .         .         .
  7.75      0.0682      0.13  Q         .         .         .         .
  7.91      0.0699      0.14  Q         .         .         .         .
  8.07      0.0717      0.14  Q         .         .         .         .
```

```
 8.23      0.0735      0.14  Q         .         .         .         .
 8.38      0.0753      0.14  Q         .         .         .         .
 8.54      0.0772      0.14  Q         .         .         .         .
 8.70      0.0791      0.14  Q         .         .         .         .
 8.86      0.0810      0.15  Q         .         .         .         .
 9.02      0.0829      0.15  Q         .         .         .         .
 9.18      0.0848      0.15  Q         .         .         .         .
 9.34      0.0868      0.15  Q         .         .         .         .
 9.49      0.0888      0.15  Q         .         .         .         .
 9.65      0.0909      0.16  Q         .         .         .         .
 9.81      0.0929      0.16  Q         .         .         .         .
 9.97      0.0950      0.16  Q         .         .         .         .
10.13      0.0972      0.16  Q         .         .         .         .
10.29      0.0994      0.17  Q         .         .         .         .
10.45      0.1016      0.17  Q         .         .         .         .
10.61      0.1038      0.17  Q         .         .         .         .
10.76      0.1061      0.18  Q         .         .         .         .
10.92      0.1084      0.18  Q         .         .         .         .
11.08      0.1108      0.18  Q         .         .         .         .
11.24      0.1133      0.19  Q         .         .         .         .
11.40      0.1157      0.19  Q         .         .         .         .
11.56      0.1183      0.19  Q         .         .         .         .
11.72      0.1208      0.20  Q         .         .         .         .
11.87      0.1235      0.20  Q         .         .         .         .
12.03      0.1262      0.21  Q         .         .         .         .
12.19      0.1292      0.25  .Q        .         .         .         .
12.35      0.1326      0.27  .Q        .         .         .         .
12.51      0.1361      0.27  .Q        .         .         .         .
12.67      0.1397      0.28  .Q        .         .         .         .
12.83      0.1434      0.28  .Q        .         .         .         .
12.99      0.1472      0.29  .Q        .         .         .         .
13.14      0.1511      0.30  .Q        .         .         .         .
13.30      0.1552      0.31  .Q        .         .         .         .
13.46      0.1593      0.32  .Q        .         .         .         .
13.62      0.1636      0.33  .Q        .         .         .         .
13.78      0.1680      0.34  .Q        .         .         .         .
13.94      0.1726      0.36  .Q        .         .         .         .
14.10      0.1774      0.37  .Q        .         .         .         .
14.25      0.1826      0.42  .Q        .         .         .         .
14.41      0.1881      0.43  .Q        .         .         .         .
14.57      0.1940      0.47  .Q        .         .         .         .
14.73      0.2003      0.49  .Q        .         .         .         .
14.89      0.2071      0.54  . Q       .         .         .         .
15.05      0.2144      0.57  . Q       .         .         .         .
15.21      0.2225      0.65  . Q       .         .         .         .
15.37      0.2314      0.70  . Q       .         .         .         .
15.52      0.2407      0.72  . Q       .         .         .         .
15.68      0.2508      0.83  .  Q      .         .         .         .
15.84      0.2644      1.24  .   Q     .         .         .         .
16.00      0.2838      1.72  .     Q   .         .         .         .
16.16      0.3302      5.35  .         .         .Q        .         .
16.32      0.3717      0.98  .  Q      .         .         .         .
16.48      0.3829      0.73  . Q       .         .         .         .
16.63      0.3917      0.61  . Q       .         .         .         .
16.79      0.3990      0.52  . Q       .         .         .         .
16.95      0.4054      0.45  .Q        .         .         .         .
17.11      0.4109      0.40  .Q        .         .         .         .
17.27      0.4159      0.35  .Q        .         .         .         .
17.43      0.4203      0.33  .Q        .         .         .         .
17.59      0.4244      0.31  .Q        .         .         .         .
17.75      0.4283      0.29  .Q        .         .         .         .
```

```
 17.90      0.4321      0.28  .Q        .        .        .        .
 18.06      0.4356      0.26  .Q        .        .        .        .
 18.22      0.4387      0.21  Q         .        .        .        .
 18.38      0.4413      0.20  Q         .        .        .        .
 18.54      0.4438      0.19  Q         .        .        .        .
 18.70      0.4463      0.18  Q         .        .        .        .
 18.86      0.4486      0.17  Q         .        .        .        .
 19.01      0.4508      0.17  Q         .        .        .        .
 19.17      0.4530      0.16  Q         .        .        .        .
 19.33      0.4551      0.16  Q         .        .        .        .
 19.49      0.4572      0.15  Q         .        .        .        .
 19.65      0.4591      0.15  Q         .        .        .        .
 19.81      0.4611      0.14  Q         .        .        .        .
 19.97      0.4629      0.14  Q         .        .        .        .
 20.13      0.4648      0.14  Q         .        .        .        .
 20.28      0.4665      0.13  Q         .        .        .        .
 20.44      0.4683      0.13  Q         .        .        .        .
 20.60      0.4700      0.13  Q         .        .        .        .
 20.76      0.4716      0.13  Q         .        .        .        .
 20.92      0.4733      0.12  Q         .        .        .        .
 21.08      0.4749      0.12  Q         .        .        .        .
 21.24      0.4764      0.12  Q         .        .        .        .
 21.39      0.4780      0.12  Q         .        .        .        .
 21.55      0.4795      0.11  Q         .        .        .        .
 21.71      0.4809      0.11  Q         .        .        .        .
 21.87      0.4824      0.11  Q         .        .        .        .
 22.03      0.4838      0.11  Q         .        .        .        .
 22.19      0.4852      0.11  Q         .        .        .        .
 22.35      0.4866      0.10  Q         .        .        .        .
 22.51      0.4880      0.10  Q         .        .        .        .
 22.66      0.4893      0.10  Q         .        .        .        .
 22.82      0.4906      0.10  Q         .        .        .        .
 22.98      0.4919      0.10  Q         .        .        .        .
 23.14      0.4932      0.10  Q         .        .        .        .
 23.30      0.4944      0.10  Q         .        .        .        .
 23.46      0.4957      0.09  Q         .        .        .        .
 23.62      0.4969      0.09  Q         .        .        .        .
 23.77      0.4981      0.09  Q         .        .        .        .
 23.93      0.4993      0.09  Q         .        .        .        .
 24.09      0.5005      0.09  Q         .        .        .        .
 24.25      0.5011      0.00  Q         .        .        .        .
-----------------------------------------------------------------------
---------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated                Duration
       Peak Flow Rate                     (minutes)
   =======================                =========
             0%                            1447.0
            10%                             114.2
            20%                              28.6
            30%                              19.0
            40%                               9.5
            50%                               9.5
            60%                               9.5
            70%                               9.5
            80%                               9.5
            90%                               9.5
```

```
****************************************************************************
          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                    AND LOW LOSS FRACTION ESTIMATIONS
============================================================================
         (C) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                            fuscoe engineering
                             16795 Von Karman
                                Suite 100
                                Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Proposed Condition 10-yr/24-hour hydrograph
============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     3.68 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
        1           0.98       10.00            56.       0.300       0.855
        2           3.02       10.00            69.       0.250       0.872

    TOTAL AREA (Acres) =      4.00
                               _
    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.026
                                       _
    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.132
============================================================================

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Proposed Condition 10-yr/24-hour hydrograph  (calib coef: 0.867)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.87
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.026
    LOW LOSS FRACTION = 0.132
    TIME OF CONCENTRATION(MIN.) =  9.27
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =  10
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.34
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.72
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.95
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.59
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.20
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  3.68
```

```
----------------------------------------------------------------------------

   TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.96
   TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.27

****************************************************************************
  TIME     VOLUME       Q    0.         2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.09      0.0006      0.17  Q          .         .         .         .
  0.24      0.0028      0.17  Q          .         .         .         .
  0.40      0.0050      0.17  Q          .         .         .         .
  0.55      0.0072      0.17  Q          .         .         .         .
  0.70      0.0095      0.18  Q          .         .         .         .
  0.86      0.0117      0.18  Q          .         .         .         .
  1.01      0.0140      0.18  Q          .         .         .         .
  1.17      0.0162      0.18  Q          .         .         .         .
  1.32      0.0185      0.18  Q          .         .         .         .
  1.48      0.0208      0.18  Q          .         .         .         .
  1.63      0.0231      0.18  Q          .         .         .         .
  1.79      0.0255      0.18  Q          .         .         .         .
  1.94      0.0278      0.18  Q          .         .         .         .
  2.09      0.0302      0.19  Q          .         .         .         .
  2.25      0.0326      0.19  Q          .         .         .         .
  2.40      0.0350      0.19  Q          .         .         .         .
  2.56      0.0374      0.19  Q          .         .         .         .
  2.71      0.0398      0.19  Q          .         .         .         .
  2.87      0.0423      0.19  Q          .         .         .         .
  3.02      0.0448      0.19  Q          .         .         .         .
  3.18      0.0472      0.20  Q          .         .         .         .
  3.33      0.0498      0.20  Q          .         .         .         .
  3.49      0.0523      0.20  Q          .         .         .         .
  3.64      0.0548      0.20  Q          .         .         .         .
  3.79      0.0574      0.20  Q          .         .         .         .
  3.95      0.0600      0.20  Q          .         .         .         .
  4.10      0.0626      0.21  Q          .         .         .         .
  4.26      0.0652      0.21  Q          .         .         .         .
  4.41      0.0679      0.21  Q          .         .         .         .
  4.57      0.0705      0.21  Q          .         .         .         .
  4.72      0.0732      0.21  Q          .         .         .         .
  4.88      0.0759      0.21  Q          .         .         .         .
  5.03      0.0787      0.22  Q          .         .         .         .
  5.18      0.0815      0.22  Q          .         .         .         .
  5.34      0.0842      0.22  Q          .         .         .         .
  5.49      0.0871      0.22  Q          .         .         .         .
  5.65      0.0899      0.22  Q          .         .         .         .
  5.80      0.0928      0.23  Q          .         .         .         .
  5.96      0.0957      0.23  Q          .         .         .         .
  6.11      0.0986      0.23  Q          .         .         .         .
  6.27      0.1015      0.23  Q          .         .         .         .
  6.42      0.1045      0.23  Q          .         .         .         .
  6.58      0.1075      0.24  Q          .         .         .         .
  6.73      0.1106      0.24  Q          .         .         .         .
  6.88      0.1136      0.24  Q          .         .         .         .
  7.04      0.1167      0.24  Q          .         .         .         .
  7.19      0.1199      0.25  Q          .         .         .         .
  7.35      0.1231      0.25  Q          .         .         .         .
  7.50      0.1263      0.25  .Q         .         .         .         .
  7.66      0.1295      0.26  .Q         .         .         .         .
  7.81      0.1328      0.26  .Q         .         .         .         .
```

```
 7.97      0.1361      0.26  .Q        .         .         .         .
 8.12      0.1395      0.27  .Q        .         .         .         .
 8.27      0.1429      0.27  .Q        .         .         .         .
 8.43      0.1463      0.27  .Q        .         .         .         .
 8.58      0.1498      0.27  .Q        .         .         .         .
 8.74      0.1533      0.28  .Q        .         .         .         .
 8.89      0.1569      0.28  .Q        .         .         .         .
 9.05      0.1605      0.29  .Q        .         .         .         .
 9.20      0.1642      0.29  .Q        .         .         .         .
 9.36      0.1679      0.29  .Q        .         .         .         .
 9.51      0.1717      0.30  .Q        .         .         .         .
 9.67      0.1756      0.30  .Q        .         .         .         .
 9.82      0.1795      0.31  .Q        .         .         .         .
 9.97      0.1834      0.31  .Q        .         .         .         .
10.13      0.1874      0.32  .Q        .         .         .         .
10.28      0.1915      0.32  .Q        .         .         .         .
10.44      0.1957      0.33  .Q        .         .         .         .
10.59      0.1999      0.33  .Q        .         .         .         .
10.75      0.2042      0.34  .Q        .         .         .         .
10.90      0.2086      0.35  .Q        .         .         .         .
11.06      0.2130      0.35  .Q        .         .         .         .
11.21      0.2176      0.36  .Q        .         .         .         .
11.36      0.2222      0.37  .Q        .         .         .         .
11.52      0.2270      0.38  .Q        .         .         .         .
11.67      0.2318      0.38  .Q        .         .         .         .
11.83      0.2368      0.39  .Q        .         .         .         .
11.98      0.2418      0.40  .Q        .         .         .         .
12.14      0.2476      0.50  . Q       .         .         .         .
12.29      0.2541      0.53  . Q       .         .         .         .
12.45      0.2609      0.54  . Q       .         .         .         .
12.60      0.2679      0.55  . Q       .         .         .         .
12.76      0.2751      0.57  . Q       .         .         .         .
12.91      0.2824      0.58  . Q       .         .         .         .
13.06      0.2899      0.60  . Q       .         .         .         .
13.22      0.2976      0.61  . Q       .         .         .         .
13.37      0.3056      0.64  . Q       .         .         .         .
13.53      0.3139      0.65  . Q       .         .         .         .
13.68      0.3225      0.69  . Q       .         .         .         .
13.84      0.3314      0.71  . Q       .         .         .         .
13.99      0.3406      0.75  . Q       .         .         .         .
14.15      0.3503      0.77  .  Q      .         .         .         .
14.30      0.3605      0.82  .  Q      .         .         .         .
14.45      0.3711      0.85  .  Q      .         .         .         .
14.61      0.3824      0.92  .  Q      .         .         .         .
14.76      0.3944      0.96  .  Q      .         .         .         .
14.92      0.4071      1.05  .   Q     .         .         .         .
15.07      0.4209      1.10  .   Q     .         .         .         .
15.23      0.4359      1.25  .   Q     .         .         .         .
15.38      0.4524      1.34  .    Q    .         .         .         .
15.54      0.4697      1.36  .    Q    .         .         .         .
15.69      0.4883      1.55  .     Q   .         .         .         .
15.85      0.5132      2.35  .        Q.         .         .         .
16.00      0.5489      3.24  .         . Q       .         .         .
16.15      0.6321      9.79  .         .         .         .        Q.
16.31      0.7064      1.84  .      Q  .         .         .         .
16.46      0.7268      1.34  .    Q    .         .         .         .
16.62      0.7428      1.17  .   Q     .         .         .         .
16.77      0.7567      1.00  .  Q      .         .         .         .
16.93      0.7687      0.88  .  Q      .         .         .         .
17.08      0.7794      0.79  .  Q      .         .         .         .
17.24      0.7891      0.73  . Q       .         .         .         .
```

```
 17.39      0.7980      0.67  . Q       .         .         .         .
 17.55      0.8063      0.63  . Q       .         .         .         .
 17.70      0.8140      0.59  . Q       .         .         .         .
 17.85      0.8213      0.56  . Q       .         .         .         .
 18.01      0.8283      0.53  . Q       .         .         .         .
 18.16      0.8343      0.41  .Q        .         .         .         .
 18.32      0.8394      0.39  .Q        .         .         .         .
 18.47      0.8442      0.37  .Q        .         .         .         .
 18.63      0.8489      0.36  .Q        .         .         .         .
 18.78      0.8533      0.34  .Q        .         .         .         .
 18.94      0.8576      0.33  .Q        .         .         .         .
 19.09      0.8618      0.32  .Q        .         .         .         .
 19.24      0.8658      0.31  .Q        .         .         .         .
 19.40      0.8697      0.30  .Q        .         .         .         .
 19.55      0.8735      0.29  .Q        .         .         .         .
 19.71      0.8772      0.28  .Q        .         .         .         .
 19.86      0.8808      0.28  .Q        .         .         .         .
 20.02      0.8842      0.27  .Q        .         .         .         .
 20.17      0.8876      0.26  .Q        .         .         .         .
 20.33      0.8910      0.26  .Q        .         .         .         .
 20.48      0.8942      0.25  .Q        .         .         .         .
 20.64      0.8974      0.25  Q         .         .         .         .
 20.79      0.9005      0.24  Q         .         .         .         .
 20.94      0.9035      0.24  Q         .         .         .         .
 21.10      0.9065      0.23  Q         .         .         .         .
 21.25      0.9094      0.23  Q         .         .         .         .
 21.41      0.9123      0.22  Q         .         .         .         .
 21.56      0.9151      0.22  Q         .         .         .         .
 21.72      0.9179      0.21  Q         .         .         .         .
 21.87      0.9206      0.21  Q         .         .         .         .
 22.03      0.9233      0.21  Q         .         .         .         .
 22.18      0.9259      0.20  Q         .         .         .         .
 22.33      0.9285      0.20  Q         .         .         .         .
 22.49      0.9310      0.20  Q         .         .         .         .
 22.64      0.9335      0.19  Q         .         .         .         .
 22.80      0.9360      0.19  Q         .         .         .         .
 22.95      0.9384      0.19  Q         .         .         .         .
 23.11      0.9408      0.19  Q         .         .         .         .
 23.26      0.9432      0.18  Q         .         .         .         .
 23.42      0.9455      0.18  Q         .         .         .         .
 23.57      0.9478      0.18  Q         .         .         .         .
 23.73      0.9501      0.18  Q         .         .         .         .
 23.88      0.9524      0.17  Q         .         .         .         .
 24.03      0.9546      0.17  Q         .         .         .         .
 24.19      0.9557      0.00  Q         .         .         .         .
----------------------------------------------------------------------------
-------------------------------------------------------------------------------
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                 Duration
        Peak Flow Rate                      (minutes)
    =======================                 =========
               0%                             1446.1
              10%                              120.5
              20%                               27.8
              30%                               18.5
              40%                                9.3
              50%                                9.3
              60%                                9.3
```

```
****************************************************************************
          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                    AND LOW LOSS FRACTION ESTIMATIONS
============================================================================
         (C) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                           Analysis prepared by:

                             fuscoe engineering
                              16795 Von Karman
                                 Suite 100
                                 Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Proposed Condition  25-yr/24-hour hydrograph
============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     4.49 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
        1          0.98       10.00           56.       0.300       0.870
        2          3.02       10.00           69.       0.250       0.888

    TOTAL AREA (Acres) =      4.00
                                   _
    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.026
                                           _
    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.116
============================================================================

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Proposed Condition  25-yr/24-hour hydrograph  (calib coef: 0.8715)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.87
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.026
    LOW LOSS FRACTION = 0.116
    TIME OF CONCENTRATION(MIN.) =  9.22
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =  25
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.87
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.15
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.94
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.71
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  4.49
```

```
----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     1.19
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.31

****************************************************************************
  TIME     VOLUME       Q    0.         5.0      10.0      15.0      20.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.02      0.0000      0.00  Q         .         .         .         .
  0.17      0.0013      0.21  Q         .         .         .         .
  0.33      0.0040      0.21  Q         .         .         .         .
  0.48      0.0067      0.21  Q         .         .         .         .
  0.63      0.0094      0.21  Q         .         .         .         .
  0.79      0.0122      0.22  Q         .         .         .         .
  0.94      0.0149      0.22  Q         .         .         .         .
  1.09      0.0177      0.22  Q         .         .         .         .
  1.25      0.0205      0.22  Q         .         .         .         .
  1.40      0.0233      0.22  Q         .         .         .         .
  1.56      0.0261      0.22  Q         .         .         .         .
  1.71      0.0289      0.22  Q         .         .         .         .
  1.86      0.0318      0.23  Q         .         .         .         .
  2.02      0.0347      0.23  Q         .         .         .         .
  2.17      0.0376      0.23  Q         .         .         .         .
  2.32      0.0405      0.23  Q         .         .         .         .
  2.48      0.0434      0.23  Q         .         .         .         .
  2.63      0.0464      0.23  Q         .         .         .         .
  2.78      0.0494      0.24  Q         .         .         .         .
  2.94      0.0524      0.24  Q         .         .         .         .
  3.09      0.0554      0.24  Q         .         .         .         .
  3.25      0.0584      0.24  Q         .         .         .         .
  3.40      0.0615      0.24  Q         .         .         .         .
  3.55      0.0646      0.25  Q         .         .         .         .
  3.71      0.0677      0.25  Q         .         .         .         .
  3.86      0.0709      0.25  Q         .         .         .         .
  4.01      0.0740      0.25  Q         .         .         .         .
  4.17      0.0772      0.25  Q         .         .         .         .
  4.32      0.0805      0.25  Q         .         .         .         .
  4.47      0.0837      0.26  Q         .         .         .         .
  4.63      0.0870      0.26  Q         .         .         .         .
  4.78      0.0903      0.26  Q         .         .         .         .
  4.94      0.0936      0.26  Q         .         .         .         .
  5.09      0.0970      0.27  Q         .         .         .         .
  5.24      0.1004      0.27  Q         .         .         .         .
  5.40      0.1038      0.27  Q         .         .         .         .
  5.55      0.1072      0.27  Q         .         .         .         .
  5.70      0.1107      0.28  Q         .         .         .         .
  5.86      0.1142      0.28  Q         .         .         .         .
  6.01      0.1178      0.28  Q         .         .         .         .
  6.17      0.1214      0.28  Q         .         .         .         .
  6.32      0.1250      0.29  Q         .         .         .         .
  6.47      0.1287      0.29  Q         .         .         .         .
  6.63      0.1324      0.29  Q         .         .         .         .
  6.78      0.1361      0.29  Q         .         .         .         .
  6.93      0.1399      0.30  Q         .         .         .         .
  7.09      0.1437      0.30  Q         .         .         .         .
  7.24      0.1475      0.31  Q         .         .         .         .
  7.39      0.1514      0.31  Q         .         .         .         .
  7.55      0.1554      0.31  Q         .         .         .         .
  7.70      0.1594      0.32  Q         .         .         .         .
```

```
 7.86      0.1634      0.32  Q         .         .         .         .
 8.01      0.1675      0.32  Q         .         .         .         .
 8.16      0.1716      0.33  Q         .         .         .         .
 8.32      0.1758      0.33  Q         .         .         .         .
 8.47      0.1800      0.34  Q         .         .         .         .
 8.62      0.1843      0.34  Q         .         .         .         .
 8.78      0.1886      0.35  Q         .         .         .         .
 8.93      0.1930      0.35  Q         .         .         .         .
 9.09      0.1975      0.35  Q         .         .         .         .
 9.24      0.2020      0.36  Q         .         .         .         .
 9.39      0.2066      0.36  Q         .         .         .         .
 9.55      0.2113      0.37  Q         .         .         .         .
 9.70      0.2160      0.38  Q         .         .         .         .
 9.85      0.2208      0.38  Q         .         .         .         .
10.01      0.2257      0.39  Q         .         .         .         .
10.16      0.2306      0.39  Q         .         .         .         .
10.31      0.2357      0.40  Q         .         .         .         .
10.47      0.2408      0.41  Q         .         .         .         .
10.62      0.2460      0.41  Q         .         .         .         .
10.78      0.2513      0.42  Q         .         .         .         .
10.93      0.2567      0.43  Q         .         .         .         .
11.08      0.2622      0.44  Q         .         .         .         .
11.24      0.2678      0.45  Q         .         .         .         .
11.39      0.2735      0.45  Q         .         .         .         .
11.54      0.2794      0.47  Q         .         .         .         .
11.70      0.2853      0.47  Q         .         .         .         .
11.85      0.2914      0.49  Q         .         .         .         .
12.00      0.2977      0.50  Q         .         .         .         .
12.16      0.3051      0.68  .Q        .         .         .         .
12.31      0.3138      0.69  .Q        .         .         .         .
12.47      0.3226      0.71  .Q        .         .         .         .
12.62      0.3317      0.72  .Q        .         .         .         .
12.77      0.3410      0.74  .Q        .         .         .         .
12.93      0.3505      0.76  .Q        .         .         .         .
13.08      0.3603      0.79  .Q        .         .         .         .
13.23      0.3704      0.80  .Q        .         .         .         .
13.39      0.3808      0.84  .Q        .         .         .         .
13.54      0.3916      0.86  .Q        .         .         .         .
13.70      0.4027      0.90  .Q        .         .         .         .
13.85      0.4142      0.92  .Q        .         .         .         .
14.00      0.4262      0.97  .Q        .         .         .         .
14.16      0.4387      0.99  .Q        .         .         .         .
14.31      0.4516      1.05  . Q       .         .         .         .
14.46      0.4651      1.08  . Q       .         .         .         .
14.62      0.4794      1.16  . Q       .         .         .         .
14.77      0.4944      1.21  . Q       .         .         .         .
14.92      0.5106      1.33  . Q       .         .         .         .
15.08      0.5278      1.39  . Q       .         .         .         .
15.23      0.5467      1.57  .  Q      .         .         .         .
15.39      0.5673      1.68  .  Q      .         .         .         .
15.54      0.5887      1.70  .  Q      .         .         .         .
15.69      0.6117      1.93  .  Q      .         .         .         .
15.85      0.6429      2.98  .    Q    .         .         .         .
16.00      0.6876      4.06  .       Q .         .         .         .
16.15      0.7879     11.74  .         .         .  Q      .         .
16.31      0.8771      2.30  .   Q     .         .         .         .
16.46      0.9023      1.67  .  Q      .         .         .         .
16.61      0.9223      1.47  . Q       .         .         .         .
16.77      0.9397      1.27  . Q       .         .         .         .
16.92      0.9549      1.12  . Q       .         .         .         .
17.08      0.9684      1.01  . Q       .         .         .         .
```

```
 17.23      0.9808      0.94  .Q        .         .         .         .
 17.38      0.9924      0.88  .Q        .         .         .         .
 17.54      1.0031      0.82  .Q        .         .         .         .
 17.69      1.0133      0.77  .Q        .         .         .         .
 17.84      1.0228      0.73  .Q        .         .         .         .
 18.00      1.0319      0.70  .Q        .         .         .         .
 18.15      1.0395      0.51  .Q        .         .         .         .
 18.31      1.0458      0.48  Q         .         .         .         .
 18.46      1.0518      0.46  Q         .         .         .         .
 18.61      1.0575      0.44  Q         .         .         .         .
 18.77      1.0630      0.43  Q         .         .         .         .
 18.92      1.0683      0.41  Q         .         .         .         .
 19.07      1.0734      0.40  Q         .         .         .         .
 19.23      1.0784      0.38  Q         .         .         .         .
 19.38      1.0832      0.37  Q         .         .         .         .
 19.53      1.0878      0.36  Q         .         .         .         .
 19.69      1.0924      0.35  Q         .         .         .         .
 19.84      1.0968      0.34  Q         .         .         .         .
 20.00      1.1011      0.33  Q         .         .         .         .
 20.15      1.1052      0.33  Q         .         .         .         .
 20.30      1.1093      0.32  Q         .         .         .         .
 20.46      1.1133      0.31  Q         .         .         .         .
 20.61      1.1172      0.30  Q         .         .         .         .
 20.76      1.1210      0.30  Q         .         .         .         .
 20.92      1.1248      0.29  Q         .         .         .         .
 21.07      1.1284      0.29  Q         .         .         .         .
 21.22      1.1320      0.28  Q         .         .         .         .
 21.38      1.1355      0.27  Q         .         .         .         .
 21.53      1.1390      0.27  Q         .         .         .         .
 21.69      1.1424      0.26  Q         .         .         .         .
 21.84      1.1457      0.26  Q         .         .         .         .
 21.99      1.1490      0.26  Q         .         .         .         .
 22.15      1.1522      0.25  Q         .         .         .         .
 22.30      1.1554      0.25  Q         .         .         .         .
 22.45      1.1585      0.24  Q         .         .         .         .
 22.61      1.1616      0.24  Q         .         .         .         .
 22.76      1.1646      0.24  Q         .         .         .         .
 22.92      1.1676      0.23  Q         .         .         .         .
 23.07      1.1705      0.23  Q         .         .         .         .
 23.22      1.1734      0.23  Q         .         .         .         .
 23.38      1.1763      0.22  Q         .         .         .         .
 23.53      1.1791      0.22  Q         .         .         .         .
 23.68      1.1819      0.22  Q         .         .         .         .
 23.84      1.1846      0.21  Q         .         .         .         .
 23.99      1.1873      0.21  Q         .         .         .         .
 24.14      1.1900      0.21  Q         .         .         .         .
 24.30      1.1914      0.00  Q         .         .         .         .
----------------------------------------------------------------------------
-------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated              Duration
       Peak Flow Rate                   (minutes)
   =======================              =========
              0%                          1447.5
             10%                           129.1
             20%                            27.7
             30%                            18.4
             40%                             9.2
```

```
____________________________________________________________________________
****************************************************************************
           NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                     AND LOW LOSS FRACTION ESTIMATIONS
============================================================================
         (C) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                            fuscoe engineering
                             16795 Von Karman
                                Suite 100
                                Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Proposed Condition 100-yr/24-hour hydrograph
============================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     5.63 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
         1          0.98       10.00       56.(AMC II)     0.300       0.916
         2          3.02       10.00       69.(AMC II)     0.250       0.934

    TOTAL AREA (Acres) =      4.00
                               _
    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.026
                                      _
    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.070
============================================================================

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Proposed Condition 100-yr/24-hour hydrograph  (calib coef: 0.8665)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.87
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.026
    LOW LOSS FRACTION = 0.070
    TIME OF CONCENTRATION(MIN.) =  9.12
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) = 100
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.52
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  1.09
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.45
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  2.43
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  3.36
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  5.63
```

```
----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     1.53
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.35

****************************************************************************
  TIME     VOLUME       Q    0.         5.0      10.0      15.0      20.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.04      0.0000      0.00  Q         .         .         .         .
  0.19      0.0018      0.28  Q         .         .         .         .
  0.34      0.0053      0.28  Q         .         .         .         .
  0.50      0.0089      0.29  Q         .         .         .         .
  0.65      0.0125      0.29  Q         .         .         .         .
  0.80      0.0161      0.29  Q         .         .         .         .
  0.95      0.0198      0.29  Q         .         .         .         .
  1.10      0.0234      0.29  Q         .         .         .         .
  1.26      0.0271      0.30  Q         .         .         .         .
  1.41      0.0308      0.30  Q         .         .         .         .
  1.56      0.0346      0.30  Q         .         .         .         .
  1.71      0.0384      0.30  Q         .         .         .         .
  1.86      0.0421      0.30  Q         .         .         .         .
  2.02      0.0460      0.30  Q         .         .         .         .
  2.17      0.0498      0.31  Q         .         .         .         .
  2.32      0.0537      0.31  Q         .         .         .         .
  2.47      0.0576      0.31  Q         .         .         .         .
  2.62      0.0615      0.31  Q         .         .         .         .
  2.78      0.0654      0.32  Q         .         .         .         .
  2.93      0.0694      0.32  Q         .         .         .         .
  3.08      0.0734      0.32  Q         .         .         .         .
  3.23      0.0774      0.32  Q         .         .         .         .
  3.38      0.0815      0.33  Q         .         .         .         .
  3.54      0.0856      0.33  Q         .         .         .         .
  3.69      0.0897      0.33  Q         .         .         .         .
  3.84      0.0939      0.33  Q         .         .         .         .
  3.99      0.0981      0.34  Q         .         .         .         .
  4.14      0.1023      0.34  Q         .         .         .         .
  4.30      0.1066      0.34  Q         .         .         .         .
  4.45      0.1108      0.34  Q         .         .         .         .
  4.60      0.1152      0.35  Q         .         .         .         .
  4.75      0.1195      0.35  Q         .         .         .         .
  4.90      0.1239      0.35  Q         .         .         .         .
  5.06      0.1284      0.35  Q         .         .         .         .
  5.21      0.1329      0.36  Q         .         .         .         .
  5.36      0.1374      0.36  Q         .         .         .         .
  5.51      0.1419      0.36  Q         .         .         .         .
  5.66      0.1465      0.37  Q         .         .         .         .
  5.82      0.1512      0.37  Q         .         .         .         .
  5.97      0.1558      0.37  Q         .         .         .         .
  6.12      0.1606      0.38  Q         .         .         .         .
  6.27      0.1653      0.38  Q         .         .         .         .
  6.42      0.1702      0.39  Q         .         .         .         .
  6.58      0.1750      0.39  Q         .         .         .         .
  6.73      0.1799      0.39  Q         .         .         .         .
  6.88      0.1849      0.40  Q         .         .         .         .
  7.03      0.1899      0.40  Q         .         .         .         .
  7.18      0.1950      0.40  Q         .         .         .         .
  7.34      0.2001      0.41  Q         .         .         .         .
  7.49      0.2053      0.41  Q         .         .         .         .
  7.64      0.2105      0.42  Q         .         .         .         .
```

```
 7.79      0.2158       0.42  Q         .         .         .         .
 7.94      0.2212       0.43  Q         .         .         .         .
 8.10      0.2266       0.43  Q         .         .         .         .
 8.25      0.2321       0.44  Q         .         .         .         .
 8.40      0.2376       0.44  Q         .         .         .         .
 8.55      0.2433       0.45  Q         .         .         .         .
 8.70      0.2489       0.45  Q         .         .         .         .
 8.86      0.2547       0.46  Q         .         .         .         .
 9.01      0.2605       0.47  Q         .         .         .         .
 9.16      0.2665       0.48  Q         .         .         .         .
 9.31      0.2725       0.48  Q         .         .         .         .
 9.46      0.2786       0.49  Q         .         .         .         .
 9.62      0.2847       0.49  Q         .         .         .         .
 9.77      0.2910       0.50  .Q        .         .         .         .
 9.92      0.2974       0.51  .Q        .         .         .         .
10.07      0.3038       0.52  .Q        .         .         .         .
10.22      0.3104       0.53  .Q        .         .         .         .
10.38      0.3170       0.54  .Q        .         .         .         .
10.53      0.3238       0.54  .Q        .         .         .         .
10.68      0.3307       0.56  .Q        .         .         .         .
10.83      0.3377       0.56  .Q        .         .         .         .
10.98      0.3449       0.58  .Q        .         .         .         .
11.14      0.3522       0.58  .Q        .         .         .         .
11.29      0.3596       0.60  .Q        .         .         .         .
11.44      0.3672       0.61  .Q        .         .         .         .
11.59      0.3749       0.62  .Q        .         .         .         .
11.74      0.3828       0.63  .Q        .         .         .         .
11.90      0.3908       0.65  .Q        .         .         .         .
12.05      0.3991       0.66  .Q        .         .         .         .
12.20      0.4086       0.86  .Q        .         .         .         .
12.35      0.4194       0.87  .Q        .         .         .         .
12.50      0.4305       0.89  .Q        .         .         .         .
12.66      0.4418       0.91  .Q        .         .         .         .
12.81      0.4533       0.94  .Q        .         .         .         .
12.96      0.4652       0.95  .Q        .         .         .         .
13.11      0.4774       0.99  .Q        .         .         .         .
13.26      0.4899       1.00  . Q       .         .         .         .
13.42      0.5027       1.04  . Q       .         .         .         .
13.57      0.5160       1.07  . Q       .         .         .         .
13.72      0.5296       1.11  . Q       .         .         .         .
13.87      0.5438       1.14  . Q       .         .         .         .
14.02      0.5584       1.20  . Q       .         .         .         .
14.18      0.5737       1.24  . Q       .         .         .         .
14.33      0.5898       1.32  . Q       .         .         .         .
14.48      0.6066       1.36  . Q       .         .         .         .
14.63      0.6243       1.46  . Q       .         .         .         .
14.78      0.6431       1.52  .  Q      .         .         .         .
14.94      0.6631       1.67  .  Q      .         .         .         .
15.09      0.6846       1.75  .  Q      .         .         .         .
15.24      0.7080       1.97  .  Q      .         .         .         .
15.39      0.7337       2.11  .   Q     .         .         .         .
15.54      0.7609       2.21  .   Q     .         .         .         .
15.70      0.7905       2.50  .    Q    .         .         .         .
15.85      0.8288       3.60  .      Q  .         .         .         .
16.00      0.8825       4.95  .        Q.         .         .         .
16.15      1.0085      15.11  .         .         .         Q         .
16.30      1.1217       2.92  .    Q    .         .         .         .
16.46      1.1534       2.12  .   Q     .         .         .         .
16.61      1.1783       1.85  .  Q      .         .         .         .
16.76      1.2000       1.59  .  Q      .         .         .         .
16.91      1.2188       1.41  . Q       .         .         .         .
```

```
 17.06      1.2357      1.28  . Q       .         .         .         .
 17.22      1.2510      1.17  . Q       .         .         .         .
 17.37      1.2652      1.09  . Q       .         .         .         .
 17.52      1.2785      1.02  . Q       .         .         .         .
 17.67      1.2910      0.97  .Q        .         .         .         .
 17.82      1.3028      0.92  .Q        .         .         .         .
 17.98      1.3141      0.88  .Q        .         .         .         .
 18.13      1.3244      0.75  .Q        .         .         .         .
 18.28      1.3332      0.64  .Q        .         .         .         .
 18.43      1.3410      0.61  .Q        .         .         .         .
 18.58      1.3486      0.59  .Q        .         .         .         .
 18.74      1.3559      0.57  .Q        .         .         .         .
 18.89      1.3629      0.55  .Q        .         .         .         .
 19.04      1.3697      0.53  .Q        .         .         .         .
 19.19      1.3763      0.51  .Q        .         .         .         .
 19.34      1.3826      0.50  Q         .         .         .         .
 19.50      1.3888      0.48  Q         .         .         .         .
 19.65      1.3948      0.47  Q         .         .         .         .
 19.80      1.4006      0.46  Q         .         .         .         .
 19.95      1.4063      0.45  Q         .         .         .         .
 20.10      1.4119      0.44  Q         .         .         .         .
 20.26      1.4173      0.43  Q         .         .         .         .
 20.41      1.4226      0.42  Q         .         .         .         .
 20.56      1.4278      0.41  Q         .         .         .         .
 20.71      1.4329      0.40  Q         .         .         .         .
 20.86      1.4378      0.39  Q         .         .         .         .
 21.02      1.4427      0.38  Q         .         .         .         .
 21.17      1.4475      0.38  Q         .         .         .         .
 21.32      1.4521      0.37  Q         .         .         .         .
 21.47      1.4567      0.36  Q         .         .         .         .
 21.62      1.4613      0.36  Q         .         .         .         .
 21.78      1.4657      0.35  Q         .         .         .         .
 21.93      1.4701      0.34  Q         .         .         .         .
 22.08      1.4743      0.34  Q         .         .         .         .
 22.23      1.4786      0.33  Q         .         .         .         .
 22.38      1.4827      0.33  Q         .         .         .         .
 22.54      1.4868      0.32  Q         .         .         .         .
 22.69      1.4909      0.32  Q         .         .         .         .
 22.84      1.4948      0.31  Q         .         .         .         .
 22.99      1.4988      0.31  Q         .         .         .         .
 23.14      1.5026      0.31  Q         .         .         .         .
 23.30      1.5064      0.30  Q         .         .         .         .
 23.45      1.5102      0.30  Q         .         .         .         .
 23.60      1.5139      0.29  Q         .         .         .         .
 23.75      1.5176      0.29  Q         .         .         .         .
 23.90      1.5212      0.29  Q         .         .         .         .
 24.06      1.5248      0.28  Q         .         .         .         .
 24.21      1.5266      0.00  Q         .         .         .         .
-----------------------------------------------------------------------------
--------------------------------------------------------------------------------
```

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1441.0
10%	127.7
20%	27.4
30%	18.2

APPENDIX 3

Web Soil Survey

United States Department of Agriculture

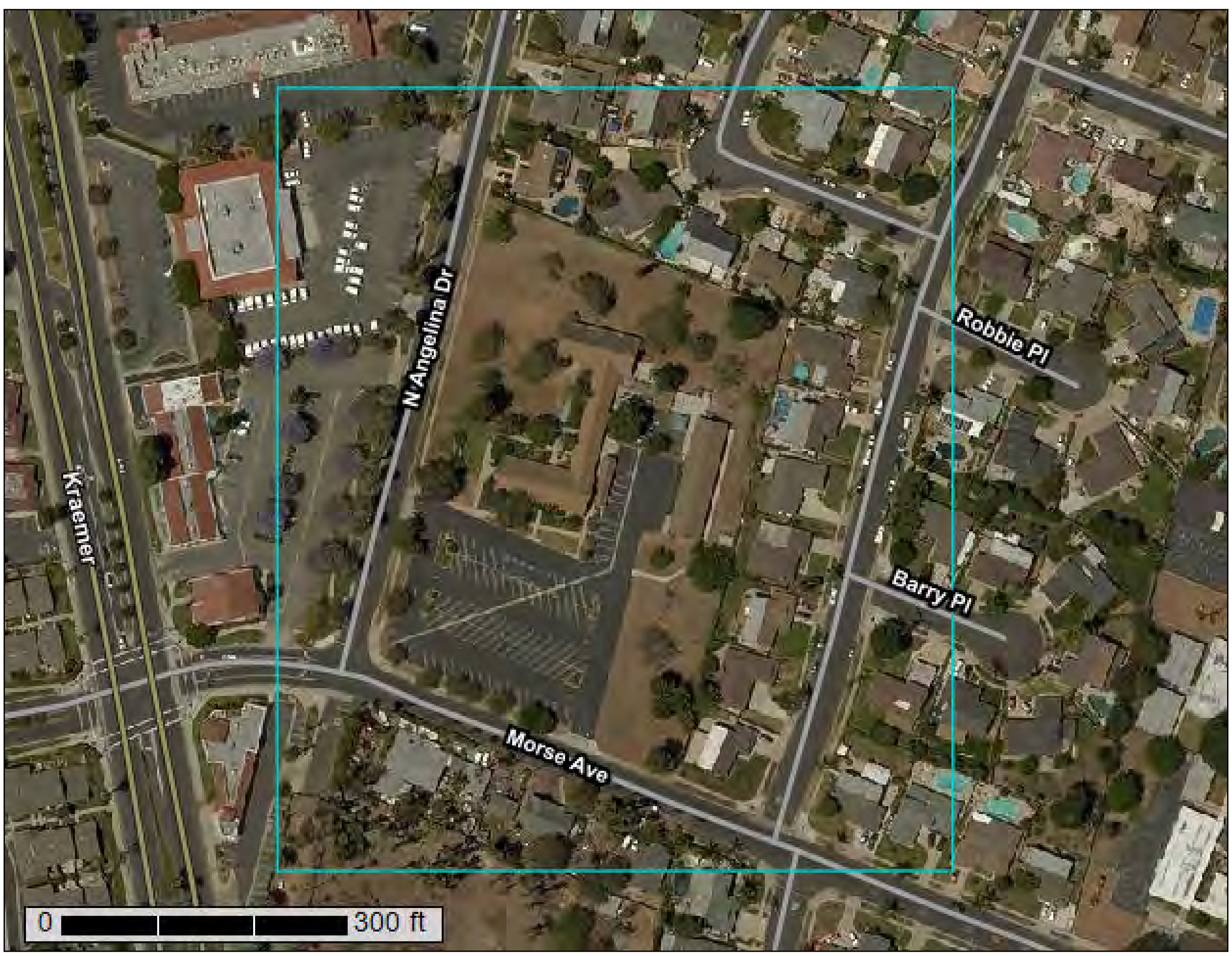
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Orange County and Part of Riverside County, California

1314 N. Angelina, Placentia, CA



April 10, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

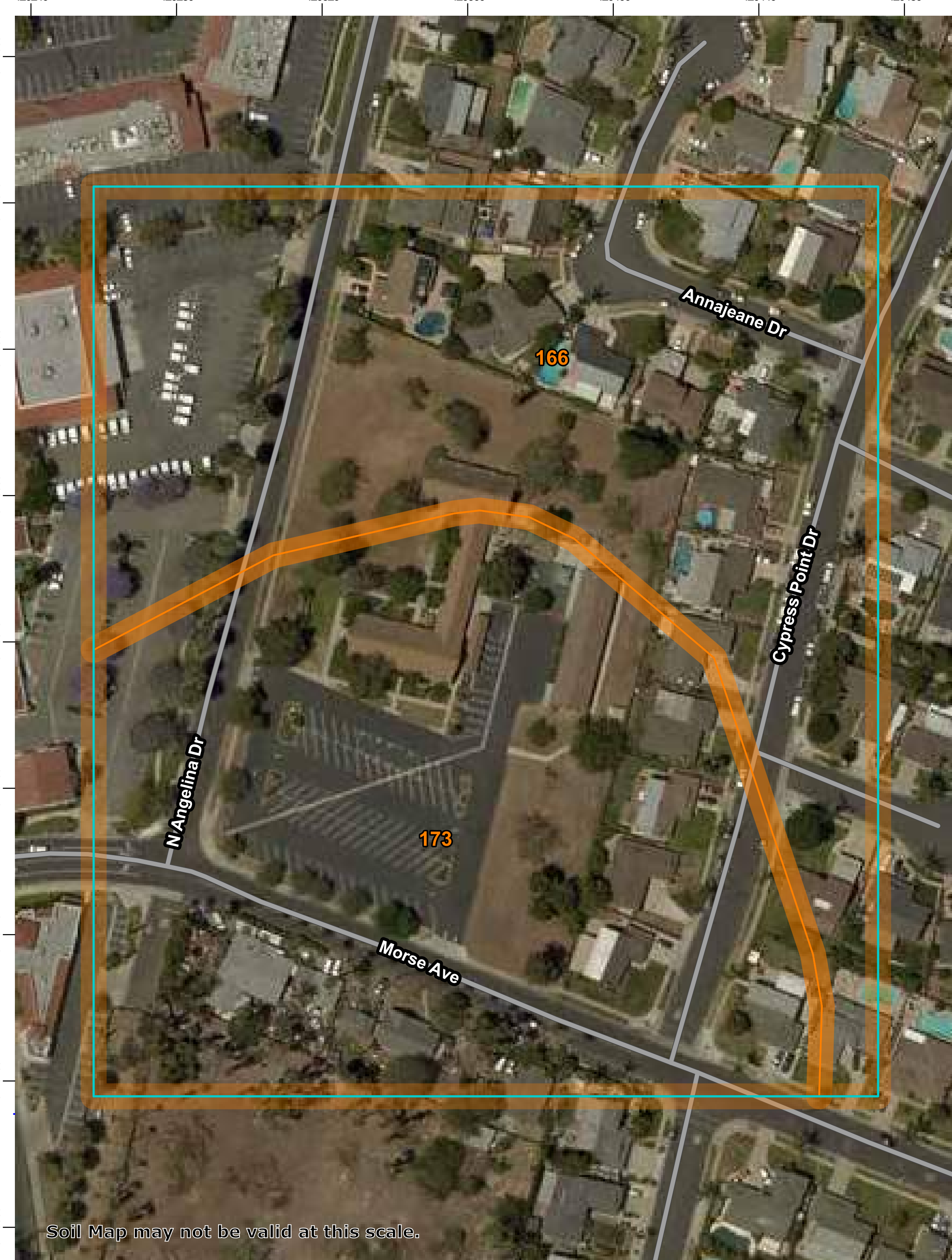
Soil Map

117° 51' 45" W

117° 51' 35" W

33° 53' 14" N

33° 53' 14" N



33° 53' 3" N

33° 53' 3" N

117° 51' 45" W

117° 51' 35" W

Map Scale: 1:1,670 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 20, 40, 80, 120

Feet: 0, 50, 100, 200, 300

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Orange County and Part of Riverside County, California
Survey Area Data: Version 13, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 3, 2010—Jul 2, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
166	Mocho loam, 0 to 2 percent slopes, warm MAAT, MLRA 19	6.6	49.7%
173	Myford sandy loam, 2 to 9 percent slopes	6.7	50.3%
Totals for Area of Interest		**13.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Orange County and Part of Riverside County, California

166—Mocho loam, 0 to 2 percent slopes, warm MAAT, MLRA 19

Map Unit Setting

National map unit symbol: 2tyyv
Elevation: 20 to 1,920 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 62 to 66 degrees F
Frost-free period: 320 to 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Mocho and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mocho

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

Ap - 0 to 10 inches: loam
A - 10 to 16 inches: loam
Bk1 - 16 to 34 inches: loam
Bk2 - 34 to 60 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

Minor Components

Sorrento

Percent of map unit: 6 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Bolsa, silt loam, drained

Percent of map unit: 3 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Anacapa

Percent of map unit: 2 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hueneme

Percent of map unit: 2 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Chino, drained

Percent of map unit: 1 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mocho, 2 to 9 percent slopes

Percent of map unit: 1 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

173—Myford sandy loam, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hcnl
Elevation: 0 to 1,560 feet
Mean annual precipitation: 11 to 18 inches
Mean annual air temperature: 62 to 65 degrees F
Frost-free period: 320 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Myford and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Myford

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone

Typical profile

A1 - 0 to 1 inches: sandy loam
A2 - 1 to 4 inches: sandy loam
A3 - 4 to 12 inches: sandy loam
Bt1 - 12 to 18 inches: sandy clay
Bt2 - 18 to 28 inches: sandy clay loam
Btk1 - 28 to 35 inches: sandy clay loam
Btk2 - 35 to 41 inches: sandy clay loam
B't1 - 41 to 49 inches: sandy clay loam
B't2 - 49 to 61 inches: sandy clay loam
Bt3 - 61 to 71 inches: sandy clay loam
C - 71 to 79 inches: sandy loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 8 to 20 inches to abrupt textural change
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: CLAYPAN (1975) (R019XD061CA)
Hydric soil rating: No

Minor Components

Myford, thick surface

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: CLAYPAN (1975) (R019XD061CA)
Hydric soil rating: No

Yorba, gravelly sandy loam

Percent of map unit: 5 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: CLAYPAN (1975) (R019XD061CA)
Hydric soil rating: No

Capistrano

Percent of map unit: 5 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

Chesterton, loamy sand

Percent of map unit: 3 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: CLAYPAN (1975) (R019XD061CA)
Hydric soil rating: No

Water

Percent of map unit: 2 percent
Landform: Depressions

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX 4

Detention Analyses

```
****************************************************************************
                     SMALL AREA UNIT HYDROGRAPH MODEL
============================================================================
         (C) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                            fuscoe engineering
                             16795 Von Karman
                                Suite 100
                                Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Proposed 2-year/24-hour storm event (calib coef: 0.869)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.87
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.026
    LOW LOSS FRACTION = 0.199
    TIME OF CONCENTRATION(MIN.) =  9.52
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =   2
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.19
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.53
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  0.89
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  1.22
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  2.05

----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.50
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.18

****************************************************************************
  TIME     VOLUME       Q    0.        2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.13      0.0006      0.09  Q         .         .         .         .
  0.29      0.0018      0.09  Q         .         .         .         .
  0.45      0.0029      0.09  Q         .         .         .         .
  0.61      0.0041      0.09  Q         .         .         .         .
  0.77      0.0053      0.09  Q         .         .         .         .
  0.93      0.0065      0.09  Q         .         .         .         .
  1.09      0.0077      0.09  Q         .         .         .         .
  1.24      0.0089      0.09  Q         .         .         .         .
  1.40      0.0102      0.09  Q         .         .         .         .
  1.56      0.0114      0.09  Q         .         .         .         .
  1.72      0.0126      0.09  Q         .         .         .         .
  1.88      0.0139      0.10  Q         .         .         .         .
  2.04      0.0152      0.10  Q         .         .         .         .
```

2.20	0.0164	0.10	Q	.	.	.	.
2.35	0.0177	0.10	Q	.	.	.	.
2.51	0.0190	0.10	Q	.	.	.	.
2.67	0.0203	0.10	Q	.	.	.	.
2.83	0.0216	0.10	Q	.	.	.	.
2.99	0.0229	0.10	Q	.	.	.	.
3.15	0.0242	0.10	Q	.	.	.	.
3.31	0.0256	0.10	Q	.	.	.	.
3.47	0.0269	0.10	Q	.	.	.	.
3.62	0.0283	0.10	Q	.	.	.	.
3.78	0.0296	0.10	Q	.	.	.	.
3.94	0.0310	0.11	Q	.	.	.	.
4.10	0.0324	0.11	Q	.	.	.	.
4.26	0.0338	0.11	Q	.	.	.	.
4.42	0.0352	0.11	Q	.	.	.	.
4.58	0.0366	0.11	Q	.	.	.	.
4.73	0.0381	0.11	Q	.	.	.	.
4.89	0.0395	0.11	Q	.	.	.	.
5.05	0.0410	0.11	Q	.	.	.	.
5.21	0.0425	0.11	Q	.	.	.	.
5.37	0.0440	0.11	Q	.	.	.	.
5.53	0.0455	0.11	Q	.	.	.	.
5.69	0.0470	0.12	Q	.	.	.	.
5.85	0.0485	0.12	Q	.	.	.	.
6.00	0.0501	0.12	Q	.	.	.	.
6.16	0.0516	0.12	Q	.	.	.	.
6.32	0.0532	0.12	Q	.	.	.	.
6.48	0.0548	0.12	Q	.	.	.	.
6.64	0.0564	0.12	Q	.	.	.	.
6.80	0.0580	0.12	Q	.	.	.	.
6.96	0.0597	0.13	Q	.	.	.	.
7.11	0.0613	0.13	Q	.	.	.	.
7.27	0.0630	0.13	Q	.	.	.	.
7.43	0.0647	0.13	Q	.	.	.	.
7.59	0.0664	0.13	Q	.	.	.	.
7.75	0.0682	0.13	Q	.	.	.	.
7.91	0.0699	0.14	Q	.	.	.	.
8.07	0.0717	0.14	Q	.	.	.	.
8.23	0.0735	0.14	Q	.	.	.	.
8.38	0.0753	0.14	Q	.	.	.	.
8.54	0.0772	0.14	Q	.	.	.	.
8.70	0.0791	0.14	Q	.	.	.	.
8.86	0.0810	0.15	Q	.	.	.	.
9.02	0.0829	0.15	Q	.	.	.	.
9.18	0.0848	0.15	Q	.	.	.	.
9.34	0.0868	0.15	Q	.	.	.	.
9.49	0.0888	0.15	Q	.	.	.	.
9.65	0.0909	0.16	Q	.	.	.	.
9.81	0.0929	0.16	Q	.	.	.	.
9.97	0.0950	0.16	Q	.	.	.	.
10.13	0.0972	0.16	Q	.	.	.	.
10.29	0.0994	0.17	Q	.	.	.	.
10.45	0.1016	0.17	Q	.	.	.	.
10.61	0.1038	0.17	Q	.	.	.	.
10.76	0.1061	0.18	Q	.	.	.	.
10.92	0.1084	0.18	Q	.	.	.	.
11.08	0.1108	0.18	Q	.	.	.	.
11.24	0.1133	0.19	Q	.	.	.	.
11.40	0.1157	0.19	Q	.	.	.	.
11.56	0.1183	0.19	Q	.	.	.	.
11.72	0.1208	0.20	Q	.	.	.	.

```
11.87      0.1235      0.20  Q         .         .         .         .
12.03      0.1262      0.21  Q         .         .         .         .
12.19      0.1292      0.25  .Q        .         .         .         .
12.35      0.1326      0.27  .Q        .         .         .         .
12.51      0.1361      0.27  .Q        .         .         .         .
12.67      0.1397      0.28  .Q        .         .         .         .
12.83      0.1434      0.28  .Q        .         .         .         .
12.99      0.1472      0.29  .Q        .         .         .         .
13.14      0.1511      0.30  .Q        .         .         .         .
13.30      0.1552      0.31  .Q        .         .         .         .
13.46      0.1593      0.32  .Q        .         .         .         .
13.62      0.1636      0.33  .Q        .         .         .         .
13.78      0.1680      0.34  .Q        .         .         .         .
13.94      0.1726      0.36  .Q        .         .         .         .
14.10      0.1774      0.37  .Q        .         .         .         .
14.25      0.1826      0.42  .Q        .         .         .         .
14.41      0.1881      0.43  .Q        .         .         .         .
14.57      0.1940      0.47  .Q        .         .         .         .
14.73      0.2003      0.49  .Q        .         .         .         .
14.89      0.2071      0.54  . Q       .         .         .         .
15.05      0.2144      0.57  . Q       .         .         .         .
15.21      0.2225      0.65  . Q       .         .         .         .
15.37      0.2314      0.70  . Q       .         .         .         .
15.52      0.2407      0.72  . Q       .         .         .         .
15.68      0.2508      0.83  .  Q      .         .         .         .
15.84      0.2644      1.24  .   Q     .         .         .         .
16.00      0.2838      1.72  .     Q   .         .         .         .
16.16      0.3302      5.35  .         .         .Q        .         .
16.32      0.3717      0.98  .  Q      .         .         .         .
16.48      0.3829      0.73  . Q       .         .         .         .
16.63      0.3917      0.61  . Q       .         .         .         .
16.79      0.3990      0.52  . Q       .         .         .         .
16.95      0.4054      0.45  .Q        .         .         .         .
17.11      0.4109      0.40  .Q        .         .         .         .
17.27      0.4159      0.35  .Q        .         .         .         .
17.43      0.4203      0.33  .Q        .         .         .         .
17.59      0.4244      0.31  .Q        .         .         .         .
17.75      0.4283      0.29  .Q        .         .         .         .
17.90      0.4321      0.28  .Q        .         .         .         .
18.06      0.4356      0.26  .Q        .         .         .         .
18.22      0.4387      0.21  Q         .         .         .         .
18.38      0.4413      0.20  Q         .         .         .         .
18.54      0.4438      0.19  Q         .         .         .         .
18.70      0.4463      0.18  Q         .         .         .         .
18.86      0.4486      0.17  Q         .         .         .         .
19.01      0.4508      0.17  Q         .         .         .         .
19.17      0.4530      0.16  Q         .         .         .         .
19.33      0.4551      0.16  Q         .         .         .         .
19.49      0.4572      0.15  Q         .         .         .         .
19.65      0.4591      0.15  Q         .         .         .         .
19.81      0.4611      0.14  Q         .         .         .         .
19.97      0.4629      0.14  Q         .         .         .         .
20.13      0.4648      0.14  Q         .         .         .         .
20.28      0.4665      0.13  Q         .         .         .         .
20.44      0.4683      0.13  Q         .         .         .         .
20.60      0.4700      0.13  Q         .         .         .         .
20.76      0.4716      0.13  Q         .         .         .         .
20.92      0.4733      0.12  Q         .         .         .         .
21.08      0.4749      0.12  Q         .         .         .         .
21.24      0.4764      0.12  Q         .         .         .         .
21.39      0.4780      0.12  Q         .         .         .         .
```

```
 21.55      0.4795      0.11  Q         .         .         .         .
 21.71      0.4809      0.11  Q         .         .         .         .
 21.87      0.4824      0.11  Q         .         .         .         .
 22.03      0.4838      0.11  Q         .         .         .         .
 22.19      0.4852      0.11  Q         .         .         .         .
 22.35      0.4866      0.10  Q         .         .         .         .
 22.51      0.4880      0.10  Q         .         .         .         .
 22.66      0.4893      0.10  Q         .         .         .         .
 22.82      0.4906      0.10  Q         .         .         .         .
 22.98      0.4919      0.10  Q         .         .         .         .
 23.14      0.4932      0.10  Q         .         .         .         .
 23.30      0.4944      0.10  Q         .         .         .         .
 23.46      0.4957      0.09  Q         .         .         .         .
 23.62      0.4969      0.09  Q         .         .         .         .
 23.77      0.4981      0.09  Q         .         .         .         .
 23.93      0.4993      0.09  Q         .         .         .         .
 24.09      0.5005      0.09  Q         .         .         .         .
 24.25      0.5011      0.00  Q         .         .         .         .
----------------------------------------------------------------------------
-------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated                 Duration
       Peak Flow Rate                      (minutes)
   =======================                 =========
             0%                             1447.0
            10%                              114.2
            20%                               28.6
            30%                               19.0
            40%                                9.5
            50%                                9.5
            60%                                9.5
            70%                                9.5
            80%                                9.5
            90%                                9.5

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Proposed 2-year/24-hour storm event (calib coef: 0.869)



****************************************************************************
    FLOW-THROUGH DETENTION BASIN MODEL

    SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
    CONSTANT HYDROGRAPH TIME UNIT(MINUTES) =    9.520
    DEAD STORAGE(AF) =       0.00
    SPECIFIED DEAD STORAGE(AF) FILLED =       0.00
    ASSUMED INITIAL DEPTH(FEET) IN STORAGE BASIN =    0.00


                   INFLOW
                     |
                     |
                     |
                     V               __effective depth
               -------------         |   (and volume)
```

```
                 |            |    |    |
                 | detention  |    |....V.............
                 |   basin    |<-->|          outflow
                 |            |    |.........__________
                 -------------     |         |   \
                       |           | storage |     basin outlet
                       V           -----------
                    OUTFLOW


     DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:
     TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES =  17
     *BASIN-DEPTH  STORAGE    OUTFLOW  **BASIN-DEPTH  STORAGE    OUTFLOW  *
     *   (FEET)  (ACRE-FEET)   (CFS)   **   (FEET)  (ACRE-FEET)   (CFS)   *
     *      0.000      0.000      0.000**      0.250      0.006      1.000*
     *      0.500      0.012      2.000**      0.750      0.018      3.000*
     *      1.000      0.023      4.400**      1.250      0.029      6.200*
     *      1.500      0.035      7.500**      1.750      0.041      8.700*
     *      2.000      0.047      9.700**      2.250      0.053     10.700*
     *      2.500      0.059     11.500**      2.750      0.064     12.300*
     *      3.000      0.070     13.100**      3.250      0.076     13.800*
     *      3.500      0.082     14.500**      3.750      0.088     15.100*
     *      4.000      0.094     15.700**
----------------------------------------------------------------------------
     BASIN STORAGE, OUTFLOW AND DEPTH ROUTING VALUES:
      INTERVAL   DEPTH   {S-O*DT/2}   {S+O*DT/2}
       NUMBER   (FEET)   (ACRE-FEET)  (ACRE-FEET)
           1     0.00       0.00000      0.00000
           2     0.25      -0.00056      0.01256
           3     0.50      -0.00111      0.02511
           4     0.75      -0.00167      0.03767
           5     1.00      -0.00585      0.05185
           6     1.25      -0.01165      0.06965
           7     1.50      -0.01417      0.08417
           8     1.75      -0.01604      0.09804
           9     2.00      -0.01660      0.11060
          10     2.25      -0.01715      0.12315
          11     2.50      -0.01640      0.13440
          12     2.75      -0.01664      0.14464
          13     3.00      -0.01589      0.15589
          14     3.25      -0.01448      0.16648
          15     3.50      -0.01307      0.17707
          16     3.75      -0.01100      0.18700
          17     4.00      -0.00894      0.19694
     WHERE S=STORAGE(AF);O=OUTFLOW(AF/MIN.);DT=UNIT INTERVAL(MIN.)
----------------------------------------------------------------------------
     DETENTION BASIN ROUTING RESULTS:
     NOTE: COMPUTED BASIN DEPTH, OUTFLOW, AND STORAGE QUANTITIES
           OCCUR AT THE GIVEN TIME. BASIN INFLOW VALUES REPRESENT THE
           AVERAGE INFLOW DURING THE RECENT HYDROGRAPH UNIT INTERVAL.

        TIME  DEAD-STORAGE  INFLOW  EFFECTIVE  OUTFLOW  EFFECTIVE
       (HRS)   FILLED(AF)    (CFS)  DEPTH(FT)   (CFS)   VOLUME(AF)
----------------------------------------------------------------------------
       0.133        0.000     0.09       0.02     0.05       0.001
       0.292        0.000     0.09       0.02     0.09       0.001
       0.451        0.000     0.09       0.02     0.09       0.001
       0.609        0.000     0.09       0.02     0.09       0.001
       0.768        0.000     0.09       0.02     0.10       0.001
       0.927        0.000     0.09       0.02     0.10       0.001
       1.085        0.000     0.09       0.02     0.10       0.001
```

1.244	0.000	0.09	0.02	0.10	0.001
1.403	0.000	0.09	0.02	0.10	0.001
1.561	0.000	0.09	0.02	0.10	0.001
1.720	0.000	0.09	0.02	0.10	0.001
1.879	0.000	0.10	0.03	0.10	0.001
2.037	0.000	0.10	0.03	0.10	0.001
2.196	0.000	0.10	0.03	0.10	0.001
2.355	0.000	0.10	0.03	0.10	0.001
2.513	0.000	0.10	0.03	0.10	0.001
2.672	0.000	0.10	0.03	0.10	0.001
2.831	0.000	0.10	0.03	0.10	0.001
2.989	0.000	0.10	0.03	0.10	0.001
3.148	0.000	0.10	0.03	0.11	0.001
3.307	0.000	0.10	0.03	0.11	0.001
3.465	0.000	0.10	0.03	0.11	0.001
3.624	0.000	0.10	0.03	0.11	0.001
3.783	0.000	0.10	0.03	0.11	0.001
3.941	0.000	0.11	0.03	0.11	0.001
4.100	0.000	0.11	0.03	0.11	0.001
4.259	0.000	0.11	0.03	0.11	0.001
4.417	0.000	0.11	0.03	0.11	0.001
4.576	0.000	0.11	0.03	0.11	0.001
4.735	0.000	0.11	0.03	0.11	0.001
4.893	0.000	0.11	0.03	0.12	0.001
5.052	0.000	0.11	0.03	0.12	0.001
5.211	0.000	0.11	0.03	0.12	0.001
5.369	0.000	0.11	0.03	0.12	0.001
5.528	0.000	0.11	0.03	0.12	0.001
5.687	0.000	0.12	0.03	0.12	0.001
5.845	0.000	0.12	0.03	0.12	0.001
6.004	0.000	0.12	0.03	0.12	0.001
6.163	0.000	0.12	0.03	0.12	0.001
6.321	0.000	0.12	0.03	0.13	0.001
6.480	0.000	0.12	0.03	0.13	0.001
6.639	0.000	0.12	0.03	0.13	0.001
6.797	0.000	0.12	0.03	0.13	0.001
6.956	0.000	0.13	0.03	0.13	0.001
7.115	0.000	0.13	0.03	0.13	0.001
7.273	0.000	0.13	0.03	0.13	0.001
7.432	0.000	0.13	0.03	0.14	0.001
7.591	0.000	0.13	0.03	0.14	0.001
7.749	0.000	0.13	0.03	0.14	0.001
7.908	0.000	0.14	0.04	0.14	0.001
8.067	0.000	0.14	0.04	0.14	0.001
8.225	0.000	0.14	0.04	0.14	0.001
8.384	0.000	0.14	0.04	0.15	0.001
8.543	0.000	0.14	0.04	0.15	0.001
8.701	0.000	0.14	0.04	0.15	0.001
8.860	0.000	0.15	0.04	0.15	0.001
9.019	0.000	0.15	0.04	0.15	0.001
9.177	0.000	0.15	0.04	0.16	0.001
9.336	0.000	0.15	0.04	0.16	0.001
9.495	0.000	0.15	0.04	0.16	0.001
9.653	0.000	0.16	0.04	0.16	0.001
9.812	0.000	0.16	0.04	0.16	0.001
9.971	0.000	0.16	0.04	0.17	0.001
10.129	0.000	0.16	0.04	0.17	0.001
10.288	0.000	0.17	0.04	0.17	0.001
10.447	0.000	0.17	0.04	0.18	0.001
10.605	0.000	0.17	0.05	0.18	0.001
10.764	0.000	0.18	0.05	0.18	0.001

10.923	0.000	0.18	0.05	0.19	0.001
11.081	0.000	0.18	0.05	0.19	0.001
11.240	0.000	0.19	0.05	0.19	0.001
11.399	0.000	0.19	0.05	0.20	0.001
11.557	0.000	0.19	0.05	0.20	0.001
11.716	0.000	0.20	0.05	0.21	0.001
11.875	0.000	0.20	0.05	0.21	0.001
12.033	0.000	0.21	0.05	0.22	0.001
12.192	0.000	0.25	0.07	0.24	0.002
12.351	0.000	0.27	0.07	0.27	0.002
12.509	0.000	0.27	0.07	0.28	0.002
12.668	0.000	0.28	0.07	0.29	0.002
12.827	0.000	0.28	0.07	0.29	0.002
12.985	0.000	0.29	0.08	0.30	0.002
13.144	0.000	0.30	0.08	0.31	0.002
13.303	0.000	0.31	0.08	0.32	0.002
13.461	0.000	0.32	0.08	0.33	0.002
13.620	0.000	0.33	0.09	0.34	0.002
13.779	0.000	0.34	0.09	0.35	0.002
13.937	0.000	0.36	0.09	0.37	0.002
14.096	0.000	0.37	0.10	0.38	0.002
14.255	0.000	0.42	0.11	0.41	0.003
14.413	0.000	0.43	0.11	0.44	0.003
14.572	0.000	0.47	0.12	0.47	0.003
14.731	0.000	0.49	0.13	0.50	0.003
14.889	0.000	0.54	0.14	0.54	0.003
15.048	0.000	0.57	0.15	0.58	0.004
15.207	0.000	0.65	0.17	0.64	0.004
15.365	0.000	0.70	0.18	0.71	0.004
15.524	0.000	0.72	0.19	0.74	0.005
15.683	0.000	0.83	0.22	0.81	0.005
15.841	0.000	1.24	0.32	1.08	0.008
16.000	0.000	1.72	0.45	1.55	0.011
16.159	0.000	5.35	1.26	4.02	0.029
16.317	0.000	0.98	0.26	3.63	0.006
16.476	0.000	0.73	0.19	0.89	0.005
16.635	0.000	0.61	0.16	0.70	0.004
16.793	0.000	0.52	0.13	0.59	0.003
16.952	0.000	0.45	0.12	0.50	0.003
17.111	0.000	0.40	0.10	0.44	0.003
17.269	0.000	0.35	0.09	0.39	0.002
17.428	0.000	0.33	0.09	0.35	0.002
17.587	0.000	0.31	0.08	0.33	0.002
17.745	0.000	0.29	0.08	0.31	0.002
17.904	0.000	0.28	0.07	0.29	0.002
18.063	0.000	0.26	0.07	0.28	0.002
18.221	0.000	0.21	0.05	0.24	0.001
18.380	0.000	0.20	0.05	0.21	0.001
18.539	0.000	0.19	0.05	0.20	0.001
18.697	0.000	0.18	0.05	0.19	0.001
18.856	0.000	0.17	0.05	0.19	0.001
19.015	0.000	0.17	0.04	0.18	0.001
19.173	0.000	0.16	0.04	0.17	0.001
19.332	0.000	0.16	0.04	0.17	0.001
19.491	0.000	0.15	0.04	0.16	0.001
19.649	0.000	0.15	0.04	0.16	0.001
19.808	0.000	0.14	0.04	0.15	0.001
19.967	0.000	0.14	0.04	0.15	0.001
20.125	0.000	0.14	0.04	0.15	0.001
20.284	0.000	0.13	0.04	0.14	0.001
20.443	0.000	0.13	0.03	0.14	0.001

20.601	0.000	0.13	0.03	0.14	0.001
20.760	0.000	0.13	0.03	0.13	0.001
20.919	0.000	0.12	0.03	0.13	0.001
21.077	0.000	0.12	0.03	0.13	0.001
21.236	0.000	0.12	0.03	0.12	0.001
21.395	0.000	0.12	0.03	0.12	0.001
21.553	0.000	0.11	0.03	0.12	0.001
21.712	0.000	0.11	0.03	0.12	0.001
21.871	0.000	0.11	0.03	0.12	0.001
22.029	0.000	0.11	0.03	0.11	0.001
22.188	0.000	0.11	0.03	0.11	0.001
22.347	0.000	0.10	0.03	0.11	0.001
22.505	0.000	0.10	0.03	0.11	0.001
22.664	0.000	0.10	0.03	0.11	0.001
22.823	0.000	0.10	0.03	0.10	0.001
22.981	0.000	0.10	0.03	0.10	0.001
23.140	0.000	0.10	0.03	0.10	0.001
23.299	0.000	0.10	0.02	0.10	0.001
23.457	0.000	0.09	0.02	0.10	0.001
23.616	0.000	0.09	0.02	0.10	0.001
23.775	0.000	0.09	0.02	0.10	0.001
23.933	0.000	0.09	0.02	0.10	0.001
24.092	0.000	0.09	0.02	0.09	0.001
24.251	0.000	0.00	0.00	0.05	0.000
24.409	0.000	0.00	0.00	0.00	0.000

```
****************************************************************************
                      SMALL AREA UNIT HYDROGRAPH MODEL
============================================================================
         (C) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                           Analysis prepared by:

                             fuscoe engineering
                              16795 Von Karman
                                 Suite 100
                                 Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Proposed Pipe Detention 10-year (calib coef: 0.867)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.87
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.026
    LOW LOSS FRACTION = 0.132
    TIME OF CONCENTRATION(MIN.) =  9.27
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =  10
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.34
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.72
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.95
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.59
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.20
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  3.68

----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.96
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.27

****************************************************************************
  TIME     VOLUME       Q    0.        2.5       5.0       7.5      10.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.09      0.0006      0.17  Q         .         .         .         .
  0.24      0.0028      0.17  Q         .         .         .         .
  0.40      0.0050      0.17  Q         .         .         .         .
  0.55      0.0072      0.17  Q         .         .         .         .
  0.70      0.0095      0.18  Q         .         .         .         .
  0.86      0.0117      0.18  Q         .         .         .         .
  1.01      0.0140      0.18  Q         .         .         .         .
  1.17      0.0162      0.18  Q         .         .         .         .
  1.32      0.0185      0.18  Q         .         .         .         .
  1.48      0.0208      0.18  Q         .         .         .         .
  1.63      0.0231      0.18  Q         .         .         .         .
  1.79      0.0255      0.18  Q         .         .         .         .
  1.94      0.0278      0.18  Q         .         .         .         .
```

2.09	0.0302	0.19	Q	.	.	.	.
2.25	0.0326	0.19	Q	.	.	.	.
2.40	0.0350	0.19	Q	.	.	.	.
2.56	0.0374	0.19	Q	.	.	.	.
2.71	0.0398	0.19	Q	.	.	.	.
2.87	0.0423	0.19	Q	.	.	.	.
3.02	0.0448	0.19	Q	.	.	.	.
3.18	0.0472	0.20	Q	.	.	.	.
3.33	0.0498	0.20	Q	.	.	.	.
3.49	0.0523	0.20	Q	.	.	.	.
3.64	0.0548	0.20	Q	.	.	.	.
3.79	0.0574	0.20	Q	.	.	.	.
3.95	0.0600	0.20	Q	.	.	.	.
4.10	0.0626	0.21	Q	.	.	.	.
4.26	0.0652	0.21	Q	.	.	.	.
4.41	0.0679	0.21	Q	.	.	.	.
4.57	0.0705	0.21	Q	.	.	.	.
4.72	0.0732	0.21	Q	.	.	.	.
4.88	0.0759	0.21	Q	.	.	.	.
5.03	0.0787	0.22	Q	.	.	.	.
5.18	0.0815	0.22	Q	.	.	.	.
5.34	0.0842	0.22	Q	.	.	.	.
5.49	0.0871	0.22	Q	.	.	.	.
5.65	0.0899	0.22	Q	.	.	.	.
5.80	0.0928	0.23	Q	.	.	.	.
5.96	0.0957	0.23	Q	.	.	.	.
6.11	0.0986	0.23	Q	.	.	.	.
6.27	0.1015	0.23	Q	.	.	.	.
6.42	0.1045	0.23	Q	.	.	.	.
6.58	0.1075	0.24	Q	.	.	.	.
6.73	0.1106	0.24	Q	.	.	.	.
6.88	0.1136	0.24	Q	.	.	.	.
7.04	0.1167	0.24	Q	.	.	.	.
7.19	0.1199	0.25	Q	.	.	.	.
7.35	0.1231	0.25	Q	.	.	.	.
7.50	0.1263	0.25	.Q	.	.	.	.
7.66	0.1295	0.26	.Q	.	.	.	.
7.81	0.1328	0.26	.Q	.	.	.	.
7.97	0.1361	0.26	.Q	.	.	.	.
8.12	0.1395	0.27	.Q	.	.	.	.
8.27	0.1429	0.27	.Q	.	.	.	.
8.43	0.1463	0.27	.Q	.	.	.	.
8.58	0.1498	0.27	.Q	.	.	.	.
8.74	0.1533	0.28	.Q	.	.	.	.
8.89	0.1569	0.28	.Q	.	.	.	.
9.05	0.1605	0.29	.Q	.	.	.	.
9.20	0.1642	0.29	.Q	.	.	.	.
9.36	0.1679	0.29	.Q	.	.	.	.
9.51	0.1717	0.30	.Q	.	.	.	.
9.67	0.1756	0.30	.Q	.	.	.	.
9.82	0.1795	0.31	.Q	.	.	.	.
9.97	0.1834	0.31	.Q	.	.	.	.
10.13	0.1874	0.32	.Q	.	.	.	.
10.28	0.1915	0.32	.Q	.	.	.	.
10.44	0.1957	0.33	.Q	.	.	.	.
10.59	0.1999	0.33	.Q	.	.	.	.
10.75	0.2042	0.34	.Q	.	.	.	.
10.90	0.2086	0.35	.Q	.	.	.	.
11.06	0.2130	0.35	.Q	.	.	.	.
11.21	0.2176	0.36	.Q	.	.	.	.
11.36	0.2222	0.37	.Q	.	.	.	.

```
11.52      0.2270      0.38  .Q        .         .         .         .
11.67      0.2318      0.38  .Q        .         .         .         .
11.83      0.2368      0.39  .Q        .         .         .         .
11.98      0.2418      0.40  .Q        .         .         .         .
12.14      0.2476      0.50  . Q       .         .         .         .
12.29      0.2541      0.53  . Q       .         .         .         .
12.45      0.2609      0.54  . Q       .         .         .         .
12.60      0.2679      0.55  . Q       .         .         .         .
12.76      0.2751      0.57  . Q       .         .         .         .
12.91      0.2824      0.58  . Q       .         .         .         .
13.06      0.2899      0.60  . Q       .         .         .         .
13.22      0.2976      0.61  . Q       .         .         .         .
13.37      0.3056      0.64  . Q       .         .         .         .
13.53      0.3139      0.65  . Q       .         .         .         .
13.68      0.3225      0.69  . Q       .         .         .         .
13.84      0.3314      0.71  . Q       .         .         .         .
13.99      0.3406      0.75  . Q       .         .         .         .
14.15      0.3503      0.77  .  Q      .         .         .         .
14.30      0.3605      0.82  .  Q      .         .         .         .
14.45      0.3711      0.85  .  Q      .         .         .         .
14.61      0.3824      0.92  .  Q      .         .         .         .
14.76      0.3944      0.96  .  Q      .         .         .         .
14.92      0.4071      1.05  .   Q     .         .         .         .
15.07      0.4209      1.10  .   Q     .         .         .         .
15.23      0.4359      1.25  .   Q     .         .         .         .
15.38      0.4524      1.34  .    Q    .         .         .         .
15.54      0.4697      1.36  .    Q    .         .         .         .
15.69      0.4883      1.55  .     Q   .         .         .         .
15.85      0.5132      2.35  .        Q.         .         .         .
16.00      0.5489      3.24  .         . Q       .         .         .
16.15      0.6321      9.79  .         .         .         .        Q.
16.31      0.7064      1.84  .      Q  .         .         .         .
16.46      0.7268      1.34  .    Q    .         .         .         .
16.62      0.7428      1.17  .   Q     .         .         .         .
16.77      0.7567      1.00  .  Q      .         .         .         .
16.93      0.7687      0.88  .  Q      .         .         .         .
17.08      0.7794      0.79  .  Q      .         .         .         .
17.24      0.7891      0.73  . Q       .         .         .         .
17.39      0.7980      0.67  . Q       .         .         .         .
17.55      0.8063      0.63  . Q       .         .         .         .
17.70      0.8140      0.59  . Q       .         .         .         .
17.85      0.8213      0.56  . Q       .         .         .         .
18.01      0.8283      0.53  . Q       .         .         .         .
18.16      0.8343      0.41  .Q        .         .         .         .
18.32      0.8394      0.39  .Q        .         .         .         .
18.47      0.8442      0.37  .Q        .         .         .         .
18.63      0.8489      0.36  .Q        .         .         .         .
18.78      0.8533      0.34  .Q        .         .         .         .
18.94      0.8576      0.33  .Q        .         .         .         .
19.09      0.8618      0.32  .Q        .         .         .         .
19.24      0.8658      0.31  .Q        .         .         .         .
19.40      0.8697      0.30  .Q        .         .         .         .
19.55      0.8735      0.29  .Q        .         .         .         .
19.71      0.8772      0.28  .Q        .         .         .         .
19.86      0.8808      0.28  .Q        .         .         .         .
20.02      0.8842      0.27  .Q        .         .         .         .
20.17      0.8876      0.26  .Q        .         .         .         .
20.33      0.8910      0.26  .Q        .         .         .         .
20.48      0.8942      0.25  .Q        .         .         .         .
20.64      0.8974      0.25  Q         .         .         .         .
20.79      0.9005      0.24  Q         .         .         .         .
```

```
 20.94      0.9035      0.24  Q         .         .         .         .
 21.10      0.9065      0.23  Q         .         .         .         .
 21.25      0.9094      0.23  Q         .         .         .         .
 21.41      0.9123      0.22  Q         .         .         .         .
 21.56      0.9151      0.22  Q         .         .         .         .
 21.72      0.9179      0.21  Q         .         .         .         .
 21.87      0.9206      0.21  Q         .         .         .         .
 22.03      0.9233      0.21  Q         .         .         .         .
 22.18      0.9259      0.20  Q         .         .         .         .
 22.33      0.9285      0.20  Q         .         .         .         .
 22.49      0.9310      0.20  Q         .         .         .         .
 22.64      0.9335      0.19  Q         .         .         .         .
 22.80      0.9360      0.19  Q         .         .         .         .
 22.95      0.9384      0.19  Q         .         .         .         .
 23.11      0.9408      0.19  Q         .         .         .         .
 23.26      0.9432      0.18  Q         .         .         .         .
 23.42      0.9455      0.18  Q         .         .         .         .
 23.57      0.9478      0.18  Q         .         .         .         .
 23.73      0.9501      0.18  Q         .         .         .         .
 23.88      0.9524      0.17  Q         .         .         .         .
 24.03      0.9546      0.17  Q         .         .         .         .
 24.19      0.9557      0.00  Q         .         .         .         .
----------------------------------------------------------------------------
-------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated                 Duration
       Peak Flow Rate                      (minutes)
   =======================                 =========
             0%                             1446.1
            10%                              120.5
            20%                               27.8
            30%                               18.5
            40%                                9.3
            50%                                9.3
            60%                                9.3
            70%                                9.3
            80%                                9.3
            90%                                9.3

 Problem Descriptions:
  Placentia Senior Housing
  1314 N. Angelina Drive
  Proposed Pipe Detention 10-year (calib coef: 0.867)



****************************************************************************
    FLOW-THROUGH DETENTION BASIN MODEL

    SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
    CONSTANT HYDROGRAPH TIME UNIT(MINUTES) =    9.270
    DEAD STORAGE(AF) =       0.00
    SPECIFIED DEAD STORAGE(AF) FILLED =       0.00
    ASSUMED INITIAL DEPTH(FEET) IN STORAGE BASIN =    0.00


                   INFLOW
                     |
```

```
              |
              |
              V                 __effective depth
        ------------            |   (and volume)
        |          |     |      |
        | detention |    |....V.............
        |   basin  |<-->|           outflow
        |          |     |.........__________
        ------------     |         |   \
              |          | storage |     basin outlet
              V          -----------
           OUTFLOW
```

DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:
TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES = 11

*BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	**BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS) *
* 0.000	0.000	0.000**	0.250	0.006	1.000*
* 0.500	0.012	2.000**	0.750	0.018	3.000*
* 1.000	0.023	4.400**	1.250	0.029	6.200*
* 1.500	0.035	7.500**	1.750	0.041	8.700*
* 2.000	0.047	9.700**	2.250	0.053	10.700*
* 2.500	0.059	11.500**			

BASIN STORAGE, OUTFLOW AND DEPTH ROUTING VALUES:

INTERVAL NUMBER	DEPTH (FEET)	{S-O*DT/2} (ACRE-FEET)	{S+O*DT/2} (ACRE-FEET)
1	0.00	0.00000	0.00000
2	0.25	-0.00038	0.01238
3	0.50	-0.00077	0.02477
4	0.75	-0.00115	0.03715
5	1.00	-0.00509	0.05109
6	1.25	-0.01058	0.06858
7	1.50	-0.01288	0.08288
8	1.75	-0.01454	0.09654
9	2.00	-0.01493	0.10893
10	2.25	-0.01531	0.12131
11	2.50	-0.01442	0.13242

WHERE S=STORAGE(AF);O=OUTFLOW(AF/MIN.);DT=UNIT INTERVAL(MIN.)

DETENTION BASIN ROUTING RESULTS:
NOTE: COMPUTED BASIN DEPTH, OUTFLOW, AND STORAGE QUANTITIES OCCUR AT THE GIVEN TIME. BASIN INFLOW VALUES REPRESENT THE AVERAGE INFLOW DURING THE RECENT HYDROGRAPH UNIT INTERVAL.

TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
0.086	0.000	0.17	0.04	0.09	0.001
0.241	0.000	0.17	0.04	0.18	0.001
0.395	0.000	0.17	0.04	0.18	0.001
0.550	0.000	0.17	0.04	0.18	0.001
0.704	0.000	0.18	0.05	0.18	0.001
0.859	0.000	0.18	0.05	0.18	0.001
1.013	0.000	0.18	0.05	0.18	0.001
1.168	0.000	0.18	0.05	0.18	0.001
1.322	0.000	0.18	0.05	0.18	0.001
1.477	0.000	0.18	0.05	0.19	0.001
1.631	0.000	0.18	0.05	0.19	0.001
1.786	0.000	0.18	0.05	0.19	0.001

1.940	0.000	0.18	0.05	0.19	0.001
2.095	0.000	0.19	0.05	0.19	0.001
2.249	0.000	0.19	0.05	0.19	0.001
2.404	0.000	0.19	0.05	0.19	0.001
2.558	0.000	0.19	0.05	0.20	0.001
2.713	0.000	0.19	0.05	0.20	0.001
2.867	0.000	0.19	0.05	0.20	0.001
3.022	0.000	0.19	0.05	0.20	0.001
3.176	0.000	0.20	0.05	0.20	0.001
3.331	0.000	0.20	0.05	0.20	0.001
3.485	0.000	0.20	0.05	0.20	0.001
3.640	0.000	0.20	0.05	0.21	0.001
3.794	0.000	0.20	0.05	0.21	0.001
3.949	0.000	0.20	0.05	0.21	0.001
4.103	0.000	0.21	0.05	0.21	0.001
4.258	0.000	0.21	0.05	0.21	0.001
4.412	0.000	0.21	0.05	0.21	0.001
4.567	0.000	0.21	0.05	0.22	0.001
4.721	0.000	0.21	0.05	0.22	0.001
4.876	0.000	0.21	0.06	0.22	0.001
5.030	0.000	0.22	0.06	0.22	0.001
5.185	0.000	0.22	0.06	0.22	0.001
5.339	0.000	0.22	0.06	0.23	0.001
5.494	0.000	0.22	0.06	0.23	0.001
5.648	0.000	0.22	0.06	0.23	0.001
5.803	0.000	0.23	0.06	0.23	0.001
5.957	0.000	0.23	0.06	0.23	0.001
6.112	0.000	0.23	0.06	0.24	0.001
6.266	0.000	0.23	0.06	0.24	0.001
6.421	0.000	0.23	0.06	0.24	0.001
6.575	0.000	0.24	0.06	0.24	0.001
6.730	0.000	0.24	0.06	0.25	0.001
6.884	0.000	0.24	0.06	0.25	0.001
7.039	0.000	0.24	0.06	0.25	0.002
7.193	0.000	0.25	0.06	0.25	0.002
7.348	0.000	0.25	0.06	0.26	0.002
7.502	0.000	0.25	0.07	0.26	0.002
7.657	0.000	0.26	0.07	0.26	0.002
7.811	0.000	0.26	0.07	0.26	0.002
7.966	0.000	0.26	0.07	0.27	0.002
8.120	0.000	0.27	0.07	0.27	0.002
8.275	0.000	0.27	0.07	0.27	0.002
8.429	0.000	0.27	0.07	0.28	0.002
8.584	0.000	0.27	0.07	0.28	0.002
8.738	0.000	0.28	0.07	0.29	0.002
8.893	0.000	0.28	0.07	0.29	0.002
9.047	0.000	0.29	0.07	0.29	0.002
9.202	0.000	0.29	0.07	0.30	0.002
9.356	0.000	0.29	0.08	0.30	0.002
9.511	0.000	0.30	0.08	0.31	0.002
9.665	0.000	0.30	0.08	0.31	0.002
9.820	0.000	0.31	0.08	0.31	0.002
9.974	0.000	0.31	0.08	0.32	0.002
10.129	0.000	0.32	0.08	0.32	0.002
10.283	0.000	0.32	0.08	0.33	0.002
10.438	0.000	0.33	0.08	0.34	0.002
10.592	0.000	0.33	0.09	0.34	0.002
10.747	0.000	0.34	0.09	0.35	0.002
10.901	0.000	0.35	0.09	0.35	0.002
11.056	0.000	0.35	0.09	0.36	0.002
11.210	0.000	0.36	0.09	0.37	0.002

11.365	0.000	0.37	0.09	0.37	0.002
11.519	0.000	0.38	0.10	0.38	0.002
11.674	0.000	0.38	0.10	0.39	0.002
11.828	0.000	0.39	0.10	0.40	0.002
11.983	0.000	0.40	0.10	0.41	0.002
12.137	0.000	0.50	0.13	0.46	0.003
12.292	0.000	0.53	0.14	0.53	0.003
12.446	0.000	0.54	0.14	0.55	0.003
12.601	0.000	0.55	0.14	0.56	0.003
12.755	0.000	0.57	0.15	0.58	0.004
12.910	0.000	0.58	0.15	0.59	0.004
13.064	0.000	0.60	0.15	0.61	0.004
13.219	0.000	0.61	0.16	0.62	0.004
13.373	0.000	0.64	0.16	0.65	0.004
13.528	0.000	0.65	0.17	0.67	0.004
13.682	0.000	0.69	0.18	0.69	0.004
13.837	0.000	0.71	0.18	0.72	0.004
13.991	0.000	0.75	0.19	0.75	0.005
14.146	0.000	0.77	0.20	0.78	0.005
14.300	0.000	0.82	0.21	0.82	0.005
14.455	0.000	0.85	0.22	0.86	0.005
14.609	0.000	0.92	0.24	0.91	0.006
14.764	0.000	0.96	0.25	0.96	0.006
14.918	0.000	1.05	0.27	1.03	0.006
15.073	0.000	1.10	0.28	1.11	0.007
15.227	0.000	1.25	0.32	1.21	0.008
15.382	0.000	1.34	0.35	1.33	0.008
15.536	0.000	1.36	0.35	1.39	0.008
15.691	0.000	1.55	0.40	1.50	0.010
15.845	0.000	2.35	0.61	2.01	0.015
16.000	0.000	3.24	0.83	2.92	0.020
16.155	0.000	9.79	2.33	7.20	0.055
16.309	0.000	1.84	0.48	6.44	0.011
16.463	0.000	1.34	0.35	1.64	0.008
16.618	0.000	1.17	0.30	1.30	0.007
16.772	0.000	1.00	0.26	1.12	0.006
16.927	0.000	0.88	0.23	0.97	0.005
17.082	0.000	0.79	0.20	0.86	0.005
17.236	0.000	0.73	0.19	0.78	0.004
17.391	0.000	0.67	0.17	0.72	0.004
17.545	0.000	0.63	0.16	0.67	0.004
17.699	0.000	0.59	0.15	0.63	0.004
17.854	0.000	0.56	0.14	0.59	0.003
18.009	0.000	0.53	0.14	0.56	0.003
18.163	0.000	0.41	0.10	0.48	0.003
18.318	0.000	0.39	0.10	0.41	0.002
18.472	0.000	0.37	0.10	0.39	0.002
18.626	0.000	0.36	0.09	0.37	0.002
18.781	0.000	0.34	0.09	0.36	0.002
18.935	0.000	0.33	0.09	0.35	0.002
19.090	0.000	0.32	0.08	0.34	0.002
19.245	0.000	0.31	0.08	0.32	0.002
19.399	0.000	0.30	0.08	0.31	0.002
19.553	0.000	0.29	0.08	0.31	0.002
19.708	0.000	0.28	0.07	0.30	0.002
19.862	0.000	0.28	0.07	0.29	0.002
20.017	0.000	0.27	0.07	0.28	0.002
20.172	0.000	0.26	0.07	0.27	0.002
20.326	0.000	0.26	0.07	0.27	0.002
20.480	0.000	0.25	0.06	0.26	0.002
20.635	0.000	0.25	0.06	0.26	0.002

20.789	0.000	0.24	0.06	0.25	0.001
20.944	0.000	0.24	0.06	0.25	0.001
21.099	0.000	0.23	0.06	0.24	0.001
21.253	0.000	0.23	0.06	0.24	0.001
21.408	0.000	0.22	0.06	0.23	0.001
21.562	0.000	0.22	0.06	0.23	0.001
21.716	0.000	0.21	0.06	0.22	0.001
21.871	0.000	0.21	0.05	0.22	0.001
22.026	0.000	0.21	0.05	0.22	0.001
22.180	0.000	0.20	0.05	0.21	0.001
22.335	0.000	0.20	0.05	0.21	0.001
22.489	0.000	0.20	0.05	0.21	0.001
22.643	0.000	0.19	0.05	0.20	0.001
22.798	0.000	0.19	0.05	0.20	0.001
22.953	0.000	0.19	0.05	0.20	0.001
23.107	0.000	0.19	0.05	0.19	0.001
23.262	0.000	0.18	0.05	0.19	0.001
23.416	0.000	0.18	0.05	0.19	0.001
23.570	0.000	0.18	0.05	0.19	0.001
23.725	0.000	0.18	0.05	0.18	0.001
23.879	0.000	0.17	0.05	0.18	0.001
24.034	0.000	0.17	0.04	0.18	0.001
24.189	0.000	0.00	0.00	0.09	0.000
24.343	0.000	0.00	0.00	0.00	0.000

```
****************************************************************************
                       SMALL AREA UNIT HYDROGRAPH MODEL
============================================================================
         (C) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                            Analysis prepared by:

                              fuscoe engineering
                               16795 Von Karman
                                  Suite 100
                                  Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior Living
  1314 N. Angelina Drive
  Proposed 25-year pipe detention (calib coef: 0.8715)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.87
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.026
    LOW LOSS FRACTION = 0.116
    TIME OF CONCENTRATION(MIN.) =  9.22
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) =  25
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.87
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.15
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.94
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.71
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  4.49

----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     1.19
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.31

****************************************************************************
  TIME     VOLUME       Q    0.        5.0      10.0      15.0      20.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.02      0.0000      0.00  Q         .         .         .         .
  0.17      0.0013      0.21  Q         .         .         .         .
  0.33      0.0040      0.21  Q         .         .         .         .
  0.48      0.0067      0.21  Q         .         .         .         .
  0.63      0.0094      0.21  Q         .         .         .         .
  0.79      0.0122      0.22  Q         .         .         .         .
  0.94      0.0149      0.22  Q         .         .         .         .
  1.09      0.0177      0.22  Q         .         .         .         .
  1.25      0.0205      0.22  Q         .         .         .         .
  1.40      0.0233      0.22  Q         .         .         .         .
  1.56      0.0261      0.22  Q         .         .         .         .
  1.71      0.0289      0.22  Q         .         .         .         .
  1.86      0.0318      0.23  Q         .         .         .         .
```

2.02	0.0347	0.23	Q	.	.	.	.
2.17	0.0376	0.23	Q	.	.	.	.
2.32	0.0405	0.23	Q	.	.	.	.
2.48	0.0434	0.23	Q	.	.	.	.
2.63	0.0464	0.23	Q	.	.	.	.
2.78	0.0494	0.24	Q	.	.	.	.
2.94	0.0524	0.24	Q	.	.	.	.
3.09	0.0554	0.24	Q	.	.	.	.
3.25	0.0584	0.24	Q	.	.	.	.
3.40	0.0615	0.24	Q	.	.	.	.
3.55	0.0646	0.25	Q	.	.	.	.
3.71	0.0677	0.25	Q	.	.	.	.
3.86	0.0709	0.25	Q	.	.	.	.
4.01	0.0740	0.25	Q	.	.	.	.
4.17	0.0772	0.25	Q	.	.	.	.
4.32	0.0805	0.25	Q	.	.	.	.
4.47	0.0837	0.26	Q	.	.	.	.
4.63	0.0870	0.26	Q	.	.	.	.
4.78	0.0903	0.26	Q	.	.	.	.
4.94	0.0936	0.26	Q	.	.	.	.
5.09	0.0970	0.27	Q	.	.	.	.
5.24	0.1004	0.27	Q	.	.	.	.
5.40	0.1038	0.27	Q	.	.	.	.
5.55	0.1072	0.27	Q	.	.	.	.
5.70	0.1107	0.28	Q	.	.	.	.
5.86	0.1142	0.28	Q	.	.	.	.
6.01	0.1178	0.28	Q	.	.	.	.
6.17	0.1214	0.28	Q	.	.	.	.
6.32	0.1250	0.29	Q	.	.	.	.
6.47	0.1287	0.29	Q	.	.	.	.
6.63	0.1324	0.29	Q	.	.	.	.
6.78	0.1361	0.29	Q	.	.	.	.
6.93	0.1399	0.30	Q	.	.	.	.
7.09	0.1437	0.30	Q	.	.	.	.
7.24	0.1475	0.31	Q	.	.	.	.
7.39	0.1514	0.31	Q	.	.	.	.
7.55	0.1554	0.31	Q	.	.	.	.
7.70	0.1594	0.32	Q	.	.	.	.
7.86	0.1634	0.32	Q	.	.	.	.
8.01	0.1675	0.32	Q	.	.	.	.
8.16	0.1716	0.33	Q	.	.	.	.
8.32	0.1758	0.33	Q	.	.	.	.
8.47	0.1800	0.34	Q	.	.	.	.
8.62	0.1843	0.34	Q	.	.	.	.
8.78	0.1886	0.35	Q	.	.	.	.
8.93	0.1930	0.35	Q	.	.	.	.
9.09	0.1975	0.35	Q	.	.	.	.
9.24	0.2020	0.36	Q	.	.	.	.
9.39	0.2066	0.36	Q	.	.	.	.
9.55	0.2113	0.37	Q	.	.	.	.
9.70	0.2160	0.38	Q	.	.	.	.
9.85	0.2208	0.38	Q	.	.	.	.
10.01	0.2257	0.39	Q	.	.	.	.
10.16	0.2306	0.39	Q	.	.	.	.
10.31	0.2357	0.40	Q	.	.	.	.
10.47	0.2408	0.41	Q	.	.	.	.
10.62	0.2460	0.41	Q	.	.	.	.
10.78	0.2513	0.42	Q	.	.	.	.
10.93	0.2567	0.43	Q	.	.	.	.
11.08	0.2622	0.44	Q	.	.	.	.
11.24	0.2678	0.45	Q	.	.	.	.

```
11.39      0.2735      0.45  Q         .         .         .         .
11.54      0.2794      0.47  Q         .         .         .         .
11.70      0.2853      0.47  Q         .         .         .         .
11.85      0.2914      0.49  Q         .         .         .         .
12.00      0.2977      0.50  Q         .         .         .         .
12.16      0.3051      0.68  .Q        .         .         .         .
12.31      0.3138      0.69  .Q        .         .         .         .
12.47      0.3226      0.71  .Q        .         .         .         .
12.62      0.3317      0.72  .Q        .         .         .         .
12.77      0.3410      0.74  .Q        .         .         .         .
12.93      0.3505      0.76  .Q        .         .         .         .
13.08      0.3603      0.79  .Q        .         .         .         .
13.23      0.3704      0.80  .Q        .         .         .         .
13.39      0.3808      0.84  .Q        .         .         .         .
13.54      0.3916      0.86  .Q        .         .         .         .
13.70      0.4027      0.90  .Q        .         .         .         .
13.85      0.4142      0.92  .Q        .         .         .         .
14.00      0.4262      0.97  .Q        .         .         .         .
14.16      0.4387      0.99  .Q        .         .         .         .
14.31      0.4516      1.05  . Q       .         .         .         .
14.46      0.4651      1.08  . Q       .         .         .         .
14.62      0.4794      1.16  . Q       .         .         .         .
14.77      0.4944      1.21  . Q       .         .         .         .
14.92      0.5106      1.33  . Q       .         .         .         .
15.08      0.5278      1.39  . Q       .         .         .         .
15.23      0.5467      1.57  .  Q      .         .         .         .
15.39      0.5673      1.68  .  Q      .         .         .         .
15.54      0.5887      1.70  .  Q      .         .         .         .
15.69      0.6117      1.93  .  Q      .         .         .         .
15.85      0.6429      2.98  .    Q    .         .         .         .
16.00      0.6876      4.06  .       Q .         .         .         .
16.15      0.7879     11.74  .         .         .  Q      .         .
16.31      0.8771      2.30  .   Q     .         .         .         .
16.46      0.9023      1.67  .  Q      .         .         .         .
16.61      0.9223      1.47  . Q       .         .         .         .
16.77      0.9397      1.27  . Q       .         .         .         .
16.92      0.9549      1.12  . Q       .         .         .         .
17.08      0.9684      1.01  . Q       .         .         .         .
17.23      0.9808      0.94  .Q        .         .         .         .
17.38      0.9924      0.88  .Q        .         .         .         .
17.54      1.0031      0.82  .Q        .         .         .         .
17.69      1.0133      0.77  .Q        .         .         .         .
17.84      1.0228      0.73  .Q        .         .         .         .
18.00      1.0319      0.70  .Q        .         .         .         .
18.15      1.0395      0.51  .Q        .         .         .         .
18.31      1.0458      0.48  Q         .         .         .         .
18.46      1.0518      0.46  Q         .         .         .         .
18.61      1.0575      0.44  Q         .         .         .         .
18.77      1.0630      0.43  Q         .         .         .         .
18.92      1.0683      0.41  Q         .         .         .         .
19.07      1.0734      0.40  Q         .         .         .         .
19.23      1.0784      0.38  Q         .         .         .         .
19.38      1.0832      0.37  Q         .         .         .         .
19.53      1.0878      0.36  Q         .         .         .         .
19.69      1.0924      0.35  Q         .         .         .         .
19.84      1.0968      0.34  Q         .         .         .         .
20.00      1.1011      0.33  Q         .         .         .         .
20.15      1.1052      0.33  Q         .         .         .         .
20.30      1.1093      0.32  Q         .         .         .         .
20.46      1.1133      0.31  Q         .         .         .         .
20.61      1.1172      0.30  Q         .         .         .         .
```

```
 20.76      1.1210      0.30  Q         .         .         .         .
 20.92      1.1248      0.29  Q         .         .         .         .
 21.07      1.1284      0.29  Q         .         .         .         .
 21.22      1.1320      0.28  Q         .         .         .         .
 21.38      1.1355      0.27  Q         .         .         .         .
 21.53      1.1390      0.27  Q         .         .         .         .
 21.69      1.1424      0.26  Q         .         .         .         .
 21.84      1.1457      0.26  Q         .         .         .         .
 21.99      1.1490      0.26  Q         .         .         .         .
 22.15      1.1522      0.25  Q         .         .         .         .
 22.30      1.1554      0.25  Q         .         .         .         .
 22.45      1.1585      0.24  Q         .         .         .         .
 22.61      1.1616      0.24  Q         .         .         .         .
 22.76      1.1646      0.24  Q         .         .         .         .
 22.92      1.1676      0.23  Q         .         .         .         .
 23.07      1.1705      0.23  Q         .         .         .         .
 23.22      1.1734      0.23  Q         .         .         .         .
 23.38      1.1763      0.22  Q         .         .         .         .
 23.53      1.1791      0.22  Q         .         .         .         .
 23.68      1.1819      0.22  Q         .         .         .         .
 23.84      1.1846      0.21  Q         .         .         .         .
 23.99      1.1873      0.21  Q         .         .         .         .
 24.14      1.1900      0.21  Q         .         .         .         .
 24.30      1.1914      0.00  Q         .         .         .         .
----------------------------------------------------------------------------
-------------------------------------------------------------------------------
    TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
    (Note: 100% of Peak Flow Rate estimate assumed to have
    an instantaneous time duration)

    Percentile of Estimated                Duration
        Peak Flow Rate                     (minutes)
    =======================                =========
              0%                            1447.5
             10%                             129.1
             20%                              27.7
             30%                              18.4
             40%                               9.2
             50%                               9.2
             60%                               9.2
             70%                               9.2
             80%                               9.2
             90%                               9.2

  Problem Descriptions:
   Placentia Senior Living
   1314 N. Angelina Drive
   Proposed 25-year pipe detention (calib coef: 0.8715)



============================================================================
     FLOW-THROUGH DETENTION BASIN MODEL

     SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
     CONSTANT HYDROGRAPH TIME UNIT(MINUTES) =    9.220
     DEAD STORAGE(AF) =       0.00
     SPECIFIED DEAD STORAGE(AF) FILLED =       0.00
     ASSUMED INITIAL DEPTH(FEET) IN STORAGE BASIN =    0.00
```

```
            INFLOW
              |
              |
              |
              V               __effective depth
        ------------          |   (and volume)
        |          |    |     |
        | detention |   |....V.............
        |   basin  |<-->|         outflow
        |          |    |.........__________
        ------------    |         |   \
              |         | storage |     basin outlet
              V         -----------
           OUTFLOW
```

DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:
TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES = 17

*BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	**BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS) *
* 0.000	0.000	0.000**	0.250	0.006	1.000*
* 0.500	0.012	2.000**	0.750	0.018	3.000*
* 1.000	0.023	4.400**	1.250	0.029	6.200*
* 1.500	0.035	7.500**	1.750	0.041	8.700*
* 2.000	0.047	9.700**	2.250	0.053	10.700*
* 2.500	0.059	11.500**	2.750	0.064	12.300*
* 3.000	0.070	13.100**	3.250	0.076	13.800*
* 3.500	0.082	14.500**	3.750	0.088	15.100*
* 4.000	0.094	15.700**			

BASIN STORAGE, OUTFLOW AND DEPTH ROUTING VALUES:

INTERVAL NUMBER	DEPTH (FEET)	{S-O*DT/2} (ACRE-FEET)	{S+O*DT/2} (ACRE-FEET)
1	0.00	0.00000	0.00000
2	0.25	-0.00035	0.01235
3	0.50	-0.00070	0.02470
4	0.75	-0.00105	0.03705
5	1.00	-0.00494	0.05094
6	1.25	-0.01037	0.06837
7	1.50	-0.01262	0.08262
8	1.75	-0.01424	0.09624
9	2.00	-0.01459	0.10859
10	2.25	-0.01494	0.12094
11	2.50	-0.01402	0.13202
12	2.75	-0.01410	0.14210
13	3.00	-0.01318	0.15318
14	3.25	-0.01163	0.16363
15	3.50	-0.01007	0.17407
16	3.75	-0.00788	0.18388
17	4.00	-0.00569	0.19369

WHERE S=STORAGE(AF);O=OUTFLOW(AF/MIN.);DT=UNIT INTERVAL(MIN.)

DETENTION BASIN ROUTING RESULTS:
NOTE: COMPUTED BASIN DEPTH, OUTFLOW, AND STORAGE QUANTITIES
OCCUR AT THE GIVEN TIME. BASIN INFLOW VALUES REPRESENT THE
AVERAGE INFLOW DURING THE RECENT HYDROGRAPH UNIT INTERVAL.

TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
0.019	0.000	0.00	0.00	0.00	0.000

0.172	0.000	0.21	0.05	0.11	0.001
0.326	0.000	0.21	0.05	0.22	0.001
0.480	0.000	0.21	0.05	0.22	0.001
0.633	0.000	0.21	0.06	0.22	0.001
0.787	0.000	0.22	0.06	0.22	0.001
0.941	0.000	0.22	0.06	0.22	0.001
1.094	0.000	0.22	0.06	0.22	0.001
1.248	0.000	0.22	0.06	0.23	0.001
1.402	0.000	0.22	0.06	0.23	0.001
1.555	0.000	0.22	0.06	0.23	0.001
1.709	0.000	0.22	0.06	0.23	0.001
1.863	0.000	0.23	0.06	0.23	0.001
2.016	0.000	0.23	0.06	0.23	0.001
2.170	0.000	0.23	0.06	0.23	0.001
2.324	0.000	0.23	0.06	0.24	0.001
2.477	0.000	0.23	0.06	0.24	0.001
2.631	0.000	0.23	0.06	0.24	0.001
2.785	0.000	0.24	0.06	0.24	0.001
2.938	0.000	0.24	0.06	0.24	0.001
3.092	0.000	0.24	0.06	0.25	0.001
3.246	0.000	0.24	0.06	0.25	0.001
3.399	0.000	0.24	0.06	0.25	0.001
3.553	0.000	0.25	0.06	0.25	0.002
3.707	0.000	0.25	0.06	0.25	0.002
3.860	0.000	0.25	0.06	0.25	0.002
4.014	0.000	0.25	0.06	0.26	0.002
4.168	0.000	0.25	0.07	0.26	0.002
4.321	0.000	0.25	0.07	0.26	0.002
4.475	0.000	0.26	0.07	0.26	0.002
4.629	0.000	0.26	0.07	0.27	0.002
4.782	0.000	0.26	0.07	0.27	0.002
4.936	0.000	0.26	0.07	0.27	0.002
5.090	0.000	0.27	0.07	0.27	0.002
5.243	0.000	0.27	0.07	0.27	0.002
5.397	0.000	0.27	0.07	0.28	0.002
5.551	0.000	0.27	0.07	0.28	0.002
5.704	0.000	0.28	0.07	0.28	0.002
5.858	0.000	0.28	0.07	0.28	0.002
6.012	0.000	0.28	0.07	0.29	0.002
6.165	0.000	0.28	0.07	0.29	0.002
6.319	0.000	0.29	0.07	0.29	0.002
6.473	0.000	0.29	0.07	0.30	0.002
6.626	0.000	0.29	0.08	0.30	0.002
6.780	0.000	0.29	0.08	0.30	0.002
6.934	0.000	0.30	0.08	0.31	0.002
7.087	0.000	0.30	0.08	0.31	0.002
7.241	0.000	0.31	0.08	0.31	0.002
7.395	0.000	0.31	0.08	0.32	0.002
7.548	0.000	0.31	0.08	0.32	0.002
7.702	0.000	0.32	0.08	0.32	0.002
7.856	0.000	0.32	0.08	0.33	0.002
8.009	0.000	0.32	0.08	0.33	0.002
8.163	0.000	0.33	0.08	0.33	0.002
8.317	0.000	0.33	0.08	0.34	0.002
8.470	0.000	0.34	0.09	0.34	0.002
8.624	0.000	0.34	0.09	0.35	0.002
8.778	0.000	0.35	0.09	0.35	0.002
8.931	0.000	0.35	0.09	0.36	0.002
9.085	0.000	0.35	0.09	0.36	0.002
9.239	0.000	0.36	0.09	0.37	0.002
9.392	0.000	0.36	0.09	0.37	0.002

9.546	0.000	0.37	0.09	0.38	0.002
9.700	0.000	0.38	0.10	0.38	0.002
9.853	0.000	0.38	0.10	0.39	0.002
10.007	0.000	0.39	0.10	0.39	0.002
10.161	0.000	0.39	0.10	0.40	0.002
10.314	0.000	0.40	0.10	0.41	0.002
10.468	0.000	0.41	0.10	0.41	0.003
10.622	0.000	0.41	0.11	0.42	0.003
10.775	0.000	0.42	0.11	0.43	0.003
10.929	0.000	0.43	0.11	0.44	0.003
11.083	0.000	0.44	0.11	0.45	0.003
11.236	0.000	0.45	0.12	0.45	0.003
11.390	0.000	0.45	0.12	0.46	0.003
11.544	0.000	0.47	0.12	0.47	0.003
11.697	0.000	0.47	0.12	0.48	0.003
11.851	0.000	0.49	0.13	0.49	0.003
12.005	0.000	0.50	0.13	0.51	0.003
12.158	0.000	0.68	0.17	0.60	0.004
12.312	0.000	0.69	0.18	0.70	0.004
12.466	0.000	0.71	0.18	0.72	0.004
12.619	0.000	0.72	0.18	0.73	0.004
12.773	0.000	0.74	0.19	0.75	0.005
12.927	0.000	0.76	0.19	0.77	0.005
13.080	0.000	0.79	0.20	0.79	0.005
13.234	0.000	0.80	0.21	0.82	0.005
13.388	0.000	0.84	0.22	0.84	0.005
13.541	0.000	0.86	0.22	0.87	0.005
13.695	0.000	0.90	0.23	0.90	0.006
13.849	0.000	0.92	0.24	0.93	0.006
14.002	0.000	0.97	0.25	0.97	0.006
14.156	0.000	0.99	0.25	1.01	0.006
14.310	0.000	1.05	0.27	1.05	0.006
14.463	0.000	1.08	0.28	1.09	0.007
14.617	0.000	1.16	0.30	1.15	0.007
14.771	0.000	1.21	0.31	1.22	0.007
14.924	0.000	1.33	0.34	1.30	0.008
15.078	0.000	1.39	0.36	1.40	0.009
15.232	0.000	1.57	0.40	1.52	0.010
15.385	0.000	1.68	0.43	1.67	0.010
15.539	0.000	1.70	0.44	1.74	0.010
15.693	0.000	1.93	0.49	1.86	0.012
15.846	0.000	2.98	0.76	2.53	0.018
16.000	0.000	4.06	1.01	3.77	0.023
16.154	0.000	11.74	2.91	8.63	0.068
16.307	0.000	2.30	0.59	7.59	0.014
16.461	0.000	1.67	0.43	2.04	0.010
16.615	0.000	1.47	0.38	1.62	0.009
16.768	0.000	1.27	0.33	1.41	0.008
16.922	0.000	1.12	0.29	1.23	0.007
17.076	0.000	1.01	0.26	1.10	0.006
17.229	0.000	0.94	0.24	1.01	0.006
17.383	0.000	0.88	0.23	0.94	0.005
17.537	0.000	0.82	0.21	0.87	0.005
17.690	0.000	0.77	0.20	0.82	0.005
17.844	0.000	0.73	0.19	0.77	0.005
17.998	0.000	0.70	0.18	0.73	0.004
18.151	0.000	0.51	0.13	0.62	0.003
18.305	0.000	0.48	0.12	0.51	0.003
18.459	0.000	0.46	0.12	0.48	0.003
18.612	0.000	0.44	0.11	0.46	0.003
18.766	0.000	0.43	0.11	0.45	0.003

18.920	0.000	0.41	0.11	0.43	0.003
19.073	0.000	0.40	0.10	0.41	0.002
19.227	0.000	0.38	0.10	0.40	0.002
19.381	0.000	0.37	0.10	0.39	0.002
19.534	0.000	0.36	0.09	0.38	0.002
19.688	0.000	0.35	0.09	0.37	0.002
19.842	0.000	0.34	0.09	0.36	0.002
19.995	0.000	0.33	0.09	0.35	0.002
20.149	0.000	0.33	0.08	0.34	0.002
20.303	0.000	0.32	0.08	0.33	0.002
20.456	0.000	0.31	0.08	0.32	0.002
20.610	0.000	0.30	0.08	0.32	0.002
20.764	0.000	0.30	0.08	0.31	0.002
20.917	0.000	0.29	0.07	0.30	0.002
21.071	0.000	0.29	0.07	0.30	0.002
21.225	0.000	0.28	0.07	0.29	0.002
21.378	0.000	0.27	0.07	0.28	0.002
21.532	0.000	0.27	0.07	0.28	0.002
21.686	0.000	0.26	0.07	0.27	0.002
21.839	0.000	0.26	0.07	0.27	0.002
21.993	0.000	0.26	0.07	0.27	0.002
22.147	0.000	0.25	0.06	0.26	0.002
22.300	0.000	0.25	0.06	0.26	0.002
22.454	0.000	0.24	0.06	0.25	0.002
22.608	0.000	0.24	0.06	0.25	0.001
22.761	0.000	0.24	0.06	0.25	0.001
22.915	0.000	0.23	0.06	0.24	0.001
23.069	0.000	0.23	0.06	0.24	0.001
23.222	0.000	0.23	0.06	0.23	0.001
23.376	0.000	0.22	0.06	0.23	0.001
23.530	0.000	0.22	0.06	0.23	0.001
23.683	0.000	0.22	0.06	0.23	0.001
23.837	0.000	0.21	0.06	0.22	0.001
23.991	0.000	0.21	0.05	0.22	0.001
24.144	0.000	0.21	0.05	0.22	0.001
24.298	0.000	0.00	0.00	0.11	0.000
24.452	0.000	0.00	0.00	0.00	0.000

```
****************************************************************************
                      SMALL AREA UNIT HYDROGRAPH MODEL
============================================================================
         (C) Copyright 1989-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                            fuscoe engineering
                             16795 Von Karman
                                Suite 100
                                Irvine, CA

****************************************************************************
----------------------------------------------------------------------------

 Problem Descriptions:
  Placentia Senior  Housing
  1314 N. Angelina Drive
  100-year pipe detention (calib coef: 0.8665)
----------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.87
    TOTAL CATCHMENT AREA(ACRES) =    4.00
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.026
    LOW LOSS FRACTION = 0.070
    TIME OF CONCENTRATION(MIN.) =  9.12
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
    RETURN FREQUENCY(YEARS) = 100
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.52
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  1.09
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.45
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  2.43
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  3.36
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  5.63

----------------------------------------------------------------------------

    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     1.53
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.35

****************************************************************************
  TIME     VOLUME       Q    0.        5.0      10.0      15.0      20.0
 (HOURS)    (AF)      (CFS)
----------------------------------------------------------------------------
  0.04      0.0000      0.00  Q         .         .         .         .
  0.19      0.0018      0.28  Q         .         .         .         .
  0.34      0.0053      0.28  Q         .         .         .         .
  0.50      0.0089      0.29  Q         .         .         .         .
  0.65      0.0125      0.29  Q         .         .         .         .
  0.80      0.0161      0.29  Q         .         .         .         .
  0.95      0.0198      0.29  Q         .         .         .         .
  1.10      0.0234      0.29  Q         .         .         .         .
  1.26      0.0271      0.30  Q         .         .         .         .
  1.41      0.0308      0.30  Q         .         .         .         .
  1.56      0.0346      0.30  Q         .         .         .         .
  1.71      0.0384      0.30  Q         .         .         .         .
  1.86      0.0421      0.30  Q         .         .         .         .
```

2.02	0.0460	0.30	Q	.	.	.	.
2.17	0.0498	0.31	Q	.	.	.	.
2.32	0.0537	0.31	Q	.	.	.	.
2.47	0.0576	0.31	Q	.	.	.	.
2.62	0.0615	0.31	Q	.	.	.	.
2.78	0.0654	0.32	Q	.	.	.	.
2.93	0.0694	0.32	Q	.	.	.	.
3.08	0.0734	0.32	Q	.	.	.	.
3.23	0.0774	0.32	Q	.	.	.	.
3.38	0.0815	0.33	Q	.	.	.	.
3.54	0.0856	0.33	Q	.	.	.	.
3.69	0.0897	0.33	Q	.	.	.	.
3.84	0.0939	0.33	Q	.	.	.	.
3.99	0.0981	0.34	Q	.	.	.	.
4.14	0.1023	0.34	Q	.	.	.	.
4.30	0.1066	0.34	Q	.	.	.	.
4.45	0.1108	0.34	Q	.	.	.	.
4.60	0.1152	0.35	Q	.	.	.	.
4.75	0.1195	0.35	Q	.	.	.	.
4.90	0.1239	0.35	Q	.	.	.	.
5.06	0.1284	0.35	Q	.	.	.	.
5.21	0.1329	0.36	Q	.	.	.	.
5.36	0.1374	0.36	Q	.	.	.	.
5.51	0.1419	0.36	Q	.	.	.	.
5.66	0.1465	0.37	Q	.	.	.	.
5.82	0.1512	0.37	Q	.	.	.	.
5.97	0.1558	0.37	Q	.	.	.	.
6.12	0.1606	0.38	Q	.	.	.	.
6.27	0.1653	0.38	Q	.	.	.	.
6.42	0.1702	0.39	Q	.	.	.	.
6.58	0.1750	0.39	Q	.	.	.	.
6.73	0.1799	0.39	Q	.	.	.	.
6.88	0.1849	0.40	Q	.	.	.	.
7.03	0.1899	0.40	Q	.	.	.	.
7.18	0.1950	0.40	Q	.	.	.	.
7.34	0.2001	0.41	Q	.	.	.	.
7.49	0.2053	0.41	Q	.	.	.	.
7.64	0.2105	0.42	Q	.	.	.	.
7.79	0.2158	0.42	Q	.	.	.	.
7.94	0.2212	0.43	Q	.	.	.	.
8.10	0.2266	0.43	Q	.	.	.	.
8.25	0.2321	0.44	Q	.	.	.	.
8.40	0.2376	0.44	Q	.	.	.	.
8.55	0.2433	0.45	Q	.	.	.	.
8.70	0.2489	0.45	Q	.	.	.	.
8.86	0.2547	0.46	Q	.	.	.	.
9.01	0.2605	0.47	Q	.	.	.	.
9.16	0.2665	0.48	Q	.	.	.	.
9.31	0.2725	0.48	Q	.	.	.	.
9.46	0.2786	0.49	Q	.	.	.	.
9.62	0.2847	0.49	Q	.	.	.	.
9.77	0.2910	0.50	.Q	.	.	.	.
9.92	0.2974	0.51	.Q	.	.	.	.
10.07	0.3038	0.52	.Q	.	.	.	.
10.22	0.3104	0.53	.Q	.	.	.	.
10.38	0.3170	0.54	.Q	.	.	.	.
10.53	0.3238	0.54	.Q	.	.	.	.
10.68	0.3307	0.56	.Q	.	.	.	.
10.83	0.3377	0.56	.Q	.	.	.	.
10.98	0.3449	0.58	.Q	.	.	.	.
11.14	0.3522	0.58	.Q	.	.	.	.

```
11.29      0.3596      0.60  .Q        .         .         .         .
11.44      0.3672      0.61  .Q        .         .         .         .
11.59      0.3749      0.62  .Q        .         .         .         .
11.74      0.3828      0.63  .Q        .         .         .         .
11.90      0.3908      0.65  .Q        .         .         .         .
12.05      0.3991      0.66  .Q        .         .         .         .
12.20      0.4086      0.86  .Q        .         .         .         .
12.35      0.4194      0.87  .Q        .         .         .         .
12.50      0.4305      0.89  .Q        .         .         .         .
12.66      0.4418      0.91  .Q        .         .         .         .
12.81      0.4533      0.94  .Q        .         .         .         .
12.96      0.4652      0.95  .Q        .         .         .         .
13.11      0.4774      0.99  .Q        .         .         .         .
13.26      0.4899      1.00  . Q       .         .         .         .
13.42      0.5027      1.04  . Q       .         .         .         .
13.57      0.5160      1.07  . Q       .         .         .         .
13.72      0.5296      1.11  . Q       .         .         .         .
13.87      0.5438      1.14  . Q       .         .         .         .
14.02      0.5584      1.20  . Q       .         .         .         .
14.18      0.5737      1.24  . Q       .         .         .         .
14.33      0.5898      1.32  . Q       .         .         .         .
14.48      0.6066      1.36  . Q       .         .         .         .
14.63      0.6243      1.46  . Q       .         .         .         .
14.78      0.6431      1.52  .  Q      .         .         .         .
14.94      0.6631      1.67  .  Q      .         .         .         .
15.09      0.6846      1.75  .  Q      .         .         .         .
15.24      0.7080      1.97  .  Q      .         .         .         .
15.39      0.7337      2.11  .   Q     .         .         .         .
15.54      0.7609      2.21  .   Q     .         .         .         .
15.70      0.7905      2.50  .    Q    .         .         .         .
15.85      0.8288      3.60  .      Q  .         .         .         .
16.00      0.8825      4.95  .        Q.         .         .         .
16.15      1.0085     15.11  .         .         .         Q         .
16.30      1.1217      2.92  .    Q    .         .         .         .
16.46      1.1534      2.12  .   Q     .         .         .         .
16.61      1.1783      1.85  .  Q      .         .         .         .
16.76      1.2000      1.59  .  Q      .         .         .         .
16.91      1.2188      1.41  . Q       .         .         .         .
17.06      1.2357      1.28  . Q       .         .         .         .
17.22      1.2510      1.17  . Q       .         .         .         .
17.37      1.2652      1.09  . Q       .         .         .         .
17.52      1.2785      1.02  . Q       .         .         .         .
17.67      1.2910      0.97  .Q        .         .         .         .
17.82      1.3028      0.92  .Q        .         .         .         .
17.98      1.3141      0.88  .Q        .         .         .         .
18.13      1.3244      0.75  .Q        .         .         .         .
18.28      1.3332      0.64  .Q        .         .         .         .
18.43      1.3410      0.61  .Q        .         .         .         .
18.58      1.3486      0.59  .Q        .         .         .         .
18.74      1.3559      0.57  .Q        .         .         .         .
18.89      1.3629      0.55  .Q        .         .         .         .
19.04      1.3697      0.53  .Q        .         .         .         .
19.19      1.3763      0.51  .Q        .         .         .         .
19.34      1.3826      0.50  Q         .         .         .         .
19.50      1.3888      0.48  Q         .         .         .         .
19.65      1.3948      0.47  Q         .         .         .         .
19.80      1.4006      0.46  Q         .         .         .         .
19.95      1.4063      0.45  Q         .         .         .         .
20.10      1.4119      0.44  Q         .         .         .         .
20.26      1.4173      0.43  Q         .         .         .         .
20.41      1.4226      0.42  Q         .         .         .         .
```

```
 20.56      1.4278      0.41  Q         .         .         .         .
 20.71      1.4329      0.40  Q         .         .         .         .
 20.86      1.4378      0.39  Q         .         .         .         .
 21.02      1.4427      0.38  Q         .         .         .         .
 21.17      1.4475      0.38  Q         .         .         .         .
 21.32      1.4521      0.37  Q         .         .         .         .
 21.47      1.4567      0.36  Q         .         .         .         .
 21.62      1.4613      0.36  Q         .         .         .         .
 21.78      1.4657      0.35  Q         .         .         .         .
 21.93      1.4701      0.34  Q         .         .         .         .
 22.08      1.4743      0.34  Q         .         .         .         .
 22.23      1.4786      0.33  Q         .         .         .         .
 22.38      1.4827      0.33  Q         .         .         .         .
 22.54      1.4868      0.32  Q         .         .         .         .
 22.69      1.4909      0.32  Q         .         .         .         .
 22.84      1.4948      0.31  Q         .         .         .         .
 22.99      1.4988      0.31  Q         .         .         .         .
 23.14      1.5026      0.31  Q         .         .         .         .
 23.30      1.5064      0.30  Q         .         .         .         .
 23.45      1.5102      0.30  Q         .         .         .         .
 23.60      1.5139      0.29  Q         .         .         .         .
 23.75      1.5176      0.29  Q         .         .         .         .
 23.90      1.5212      0.29  Q         .         .         .         .
 24.06      1.5248      0.28  Q         .         .         .         .
 24.21      1.5266      0.00  Q         .         .         .         .
----------------------------------------------------------------------------
--------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated                 Duration
       Peak Flow Rate                      (minutes)
   =======================                 =========
             0%                             1441.0
            10%                              127.7
            20%                               27.4
            30%                               18.2
            40%                                9.1
            50%                                9.1
            60%                                9.1
            70%                                9.1
            80%                                9.1
            90%                                9.1

 Problem Descriptions:
  Placentia Senior  Housing
  1314 N. Angelina Drive
  100-year pipe detention (calib coef: 0.8665)


============================================================================
    FLOW-THROUGH DETENTION BASIN MODEL

    SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
    CONSTANT HYDROGRAPH TIME UNIT(MINUTES) =    9.120
    DEAD STORAGE(AF) =       0.00
    SPECIFIED DEAD STORAGE(AF) FILLED =       0.00
    ASSUMED INITIAL DEPTH(FEET) IN STORAGE BASIN =    0.00
```

```
           INFLOW
             |
             |
             |
             V               __effective depth
       -------------          |   (and volume)
       |           |    |     |
       | detention |    |....V.............
       |   basin   |<-->|          outflow
       |           |    |.........__________
       -------------    |         |   \
             |          | storage |     basin outlet
             V          -----------
          OUTFLOW
```

DEPTH-VS.-STORAGE AND DEPTH-VS.-DISCHARGE INFORMATION:
TOTAL NUMBER OF BASIN DEPTH INFORMATION ENTRIES = 17

*BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS)	**BASIN-DEPTH (FEET)	STORAGE (ACRE-FEET)	OUTFLOW (CFS) *
0.000	0.000	0.000	0.250	0.006	1.000
0.500	0.012	2.000	0.750	0.018	3.000
1.000	0.023	4.400	1.250	0.029	6.200
1.500	0.035	7.500	1.750	0.041	8.700
2.000	0.047	9.700	2.250	0.053	10.700
2.500	0.059	11.500	2.750	0.064	12.300
3.000	0.070	13.100	3.250	0.076	13.800
3.500	0.082	14.500	3.750	0.088	15.100
4.000	0.094	15.700			

BASIN STORAGE, OUTFLOW AND DEPTH ROUTING VALUES:

INTERVAL NUMBER	DEPTH (FEET)	{S-O*DT/2} (ACRE-FEET)	{S+O*DT/2} (ACRE-FEET)
1	0.00	0.00000	0.00000
2	0.25	-0.00028	0.01228
3	0.50	-0.00056	0.02456
4	0.75	-0.00084	0.03684
5	1.00	-0.00464	0.05064
6	1.25	-0.00994	0.06794
7	1.50	-0.01211	0.08211
8	1.75	-0.01364	0.09564
9	2.00	-0.01393	0.10793
10	2.25	-0.01421	0.12021
11	2.50	-0.01323	0.13123
12	2.75	-0.01326	0.14126
13	3.00	-0.01228	0.15228
14	3.25	-0.01068	0.16268
15	3.50	-0.00907	0.17307
16	3.75	-0.00684	0.18284
17	4.00	-0.00461	0.19261

WHERE S=STORAGE(AF);O=OUTFLOW(AF/MIN.);DT=UNIT INTERVAL(MIN.)

DETENTION BASIN ROUTING RESULTS:
NOTE: COMPUTED BASIN DEPTH, OUTFLOW, AND STORAGE QUANTITIES OCCUR AT THE GIVEN TIME. BASIN INFLOW VALUES REPRESENT THE AVERAGE INFLOW DURING THE RECENT HYDROGRAPH UNIT INTERVAL.

TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)

0.040	0.000	0.00	0.00	0.00	0.000
0.192	0.000	0.28	0.07	0.14	0.002
0.344	0.000	0.28	0.07	0.29	0.002
0.496	0.000	0.29	0.07	0.29	0.002
0.648	0.000	0.29	0.07	0.29	0.002
0.800	0.000	0.29	0.07	0.29	0.002
0.952	0.000	0.29	0.07	0.30	0.002
1.104	0.000	0.29	0.07	0.30	0.002
1.256	0.000	0.30	0.08	0.30	0.002
1.408	0.000	0.30	0.08	0.30	0.002
1.560	0.000	0.30	0.08	0.30	0.002
1.712	0.000	0.30	0.08	0.31	0.002
1.864	0.000	0.30	0.08	0.31	0.002
2.016	0.000	0.30	0.08	0.31	0.002
2.168	0.000	0.31	0.08	0.31	0.002
2.320	0.000	0.31	0.08	0.31	0.002
2.472	0.000	0.31	0.08	0.32	0.002
2.624	0.000	0.31	0.08	0.32	0.002
2.776	0.000	0.32	0.08	0.32	0.002
2.928	0.000	0.32	0.08	0.32	0.002
3.080	0.000	0.32	0.08	0.33	0.002
3.232	0.000	0.32	0.08	0.33	0.002
3.384	0.000	0.33	0.08	0.33	0.002
3.536	0.000	0.33	0.08	0.33	0.002
3.688	0.000	0.33	0.08	0.34	0.002
3.840	0.000	0.33	0.08	0.34	0.002
3.992	0.000	0.34	0.09	0.34	0.002
4.144	0.000	0.34	0.09	0.34	0.002
4.296	0.000	0.34	0.09	0.35	0.002
4.448	0.000	0.34	0.09	0.35	0.002
4.600	0.000	0.35	0.09	0.35	0.002
4.752	0.000	0.35	0.09	0.36	0.002
4.904	0.000	0.35	0.09	0.36	0.002
5.056	0.000	0.35	0.09	0.36	0.002
5.208	0.000	0.36	0.09	0.36	0.002
5.360	0.000	0.36	0.09	0.37	0.002
5.512	0.000	0.36	0.09	0.37	0.002
5.664	0.000	0.37	0.09	0.37	0.002
5.816	0.000	0.37	0.10	0.38	0.002
5.968	0.000	0.37	0.10	0.38	0.002
6.120	0.000	0.38	0.10	0.38	0.002
6.272	0.000	0.38	0.10	0.39	0.002
6.424	0.000	0.39	0.10	0.39	0.002
6.576	0.000	0.39	0.10	0.40	0.002
6.728	0.000	0.39	0.10	0.40	0.002
6.880	0.000	0.40	0.10	0.40	0.002
7.032	0.000	0.40	0.10	0.41	0.002
7.184	0.000	0.40	0.10	0.41	0.002
7.336	0.000	0.41	0.11	0.42	0.003
7.488	0.000	0.41	0.11	0.42	0.003
7.640	0.000	0.42	0.11	0.43	0.003
7.792	0.000	0.42	0.11	0.43	0.003
7.944	0.000	0.43	0.11	0.44	0.003
8.096	0.000	0.43	0.11	0.44	0.003
8.248	0.000	0.44	0.11	0.45	0.003
8.400	0.000	0.44	0.11	0.45	0.003
8.552	0.000	0.45	0.12	0.46	0.003
8.704	0.000	0.45	0.12	0.46	0.003
8.856	0.000	0.46	0.12	0.47	0.003
9.008	0.000	0.47	0.12	0.48	0.003
9.160	0.000	0.48	0.12	0.48	0.003

9.312	0.000	0.48	0.12	0.49	0.003
9.464	0.000	0.49	0.13	0.50	0.003
9.616	0.000	0.49	0.13	0.50	0.003
9.768	0.000	0.50	0.13	0.51	0.003
9.920	0.000	0.51	0.13	0.52	0.003
10.072	0.000	0.52	0.13	0.53	0.003
10.224	0.000	0.53	0.13	0.53	0.003
10.376	0.000	0.54	0.14	0.54	0.003
10.528	0.000	0.54	0.14	0.55	0.003
10.680	0.000	0.56	0.14	0.56	0.003
10.832	0.000	0.56	0.14	0.57	0.003
10.984	0.000	0.58	0.15	0.58	0.004
11.136	0.000	0.58	0.15	0.59	0.004
11.288	0.000	0.60	0.15	0.60	0.004
11.440	0.000	0.61	0.16	0.62	0.004
11.592	0.000	0.62	0.16	0.63	0.004
11.744	0.000	0.63	0.16	0.64	0.004
11.896	0.000	0.65	0.17	0.66	0.004
12.048	0.000	0.66	0.17	0.67	0.004
12.200	0.000	0.86	0.22	0.78	0.005
12.352	0.000	0.87	0.22	0.88	0.005
12.504	0.000	0.89	0.23	0.90	0.005
12.656	0.000	0.91	0.23	0.92	0.006
12.808	0.000	0.94	0.24	0.94	0.006
12.960	0.000	0.95	0.24	0.97	0.006
13.112	0.000	0.99	0.25	0.99	0.006
13.264	0.000	1.00	0.26	1.02	0.006
13.416	0.000	1.04	0.27	1.05	0.006
13.568	0.000	1.07	0.27	1.08	0.007
13.720	0.000	1.11	0.28	1.11	0.007
13.872	0.000	1.14	0.29	1.15	0.007
14.024	0.000	1.20	0.31	1.19	0.007
14.176	0.000	1.24	0.32	1.24	0.008
14.328	0.000	1.32	0.34	1.31	0.008
14.480	0.000	1.36	0.35	1.37	0.008
14.632	0.000	1.46	0.37	1.44	0.009
14.784	0.000	1.52	0.39	1.53	0.009
14.936	0.000	1.67	0.43	1.63	0.010
15.088	0.000	1.75	0.45	1.75	0.011
15.240	0.000	1.97	0.50	1.91	0.012
15.392	0.000	2.11	0.54	2.09	0.013
15.544	0.000	2.21	0.57	2.21	0.014
15.696	0.000	2.50	0.64	2.41	0.015
15.848	0.000	3.60	0.90	3.20	0.021
16.000	0.000	4.95	1.17	4.72	0.027
16.152	0.000	15.11	3.93	10.56	0.092
16.304	0.000	2.92	0.75	9.26	0.018
16.456	0.000	2.12	0.54	2.58	0.013
16.608	0.000	1.85	0.47	2.03	0.011
16.760	0.000	1.59	0.41	1.76	0.010
16.912	0.000	1.41	0.36	1.53	0.009
17.064	0.000	1.28	0.33	1.37	0.008
17.216	0.000	1.17	0.30	1.25	0.007
17.368	0.000	1.09	0.28	1.15	0.007
17.520	0.000	1.02	0.26	1.08	0.006
17.672	0.000	0.97	0.25	1.02	0.006
17.824	0.000	0.92	0.24	0.97	0.006
17.976	0.000	0.88	0.22	0.92	0.005
18.128	0.000	0.75	0.19	0.84	0.005
18.280	0.000	0.64	0.16	0.71	0.004
18.432	0.000	0.61	0.16	0.64	0.004

18.584	0.000	0.59	0.15	0.62	0.004
18.736	0.000	0.57	0.15	0.59	0.003
18.888	0.000	0.55	0.14	0.57	0.003
19.040	0.000	0.53	0.14	0.55	0.003
19.192	0.000	0.51	0.13	0.53	0.003
19.344	0.000	0.50	0.13	0.52	0.003
19.496	0.000	0.48	0.12	0.50	0.003
19.648	0.000	0.47	0.12	0.49	0.003
19.800	0.000	0.46	0.12	0.48	0.003
19.952	0.000	0.45	0.11	0.46	0.003
20.104	0.000	0.44	0.11	0.45	0.003
20.256	0.000	0.43	0.11	0.44	0.003
20.408	0.000	0.42	0.11	0.43	0.003
20.560	0.000	0.41	0.10	0.42	0.003
20.712	0.000	0.40	0.10	0.41	0.002
20.864	0.000	0.39	0.10	0.40	0.002
21.016	0.000	0.38	0.10	0.40	0.002
21.168	0.000	0.38	0.10	0.39	0.002
21.320	0.000	0.37	0.09	0.38	0.002
21.472	0.000	0.36	0.09	0.37	0.002
21.624	0.000	0.36	0.09	0.37	0.002
21.776	0.000	0.35	0.09	0.36	0.002
21.928	0.000	0.34	0.09	0.36	0.002
22.080	0.000	0.34	0.09	0.35	0.002
22.232	0.000	0.33	0.09	0.34	0.002
22.384	0.000	0.33	0.08	0.34	0.002
22.536	0.000	0.32	0.08	0.33	0.002
22.688	0.000	0.32	0.08	0.33	0.002
22.840	0.000	0.31	0.08	0.32	0.002
22.992	0.000	0.31	0.08	0.32	0.002
23.144	0.000	0.31	0.08	0.31	0.002
23.296	0.000	0.30	0.08	0.31	0.002
23.448	0.000	0.30	0.08	0.31	0.002
23.600	0.000	0.29	0.08	0.30	0.002
23.752	0.000	0.29	0.07	0.30	0.002
23.904	0.000	0.29	0.07	0.29	0.002
24.056	0.000	0.28	0.07	0.29	0.002
24.208	0.000	0.00	0.00	0.14	0.000
24.360	0.000	0.00	0.00	0.00	0.000

Rating Table for Circular Orifice - 2

Project Description

Solve For	Discharge

Input Data

Headwater Elevation	3.00	ft
Centroid Elevation	0.750	ft
Tailwater Elevation	0.00	ft
Discharge Coefficient	0.62	
Diameter	18.0	in

Headwater Elevation (ft)	Discharge (ft^3/s)	Velocity (ft/s)
0.25		
0.50		
0.75		
1.00	4.4	2.5
1.25	6.2	3.5
1.50	7.5	4.3
1.75	8.7	4.9
2.00	9.7	5.5
2.25	10.7	6.0
2.50	11.5	6.5
2.75	12.3	7.0
3.00	13.1	7.4
3.25	13.8	7.8
3.50	14.5	8.2
3.75	15.1	8.5
4.00	15.7	8.9

1314 N. Angelina Drive Detention & Outflow Summary				
diameter (in)	area (ft2)	length (ft)		Q (cfs) 18" sd orifice
48	12.57	325		
depth in 48" pipe (ft)	area (ft2)	volume (cf)	volume (ac-ft)	
0.25	0.79	255	0.006	1.0
0.50	1.57	511	0.012	2.0
0.75	2.36	766	0.018	3.0
1.00	3.14	1021	0.023	4.4
1.25	3.93	1276	0.029	6.2
1.50	4.71	1532	0.035	7.5
1.75	5.50	1787	0.041	8.7
2.00	6.28	2042	0.047	9.7
2.25	7.07	2297	0.053	10.7
2.50	7.85	2553	0.059	11.5
2.75	8.64	2808	0.064	12.3
3.00	9.42	3063	0.070	13.1
3.25	10.21	3318	0.076	13.8
3.50	11.00	3574	0.082	14.5
3.75	11.78	3829	0.088	15.1
4.00	12.57	4084	0.094	15.7

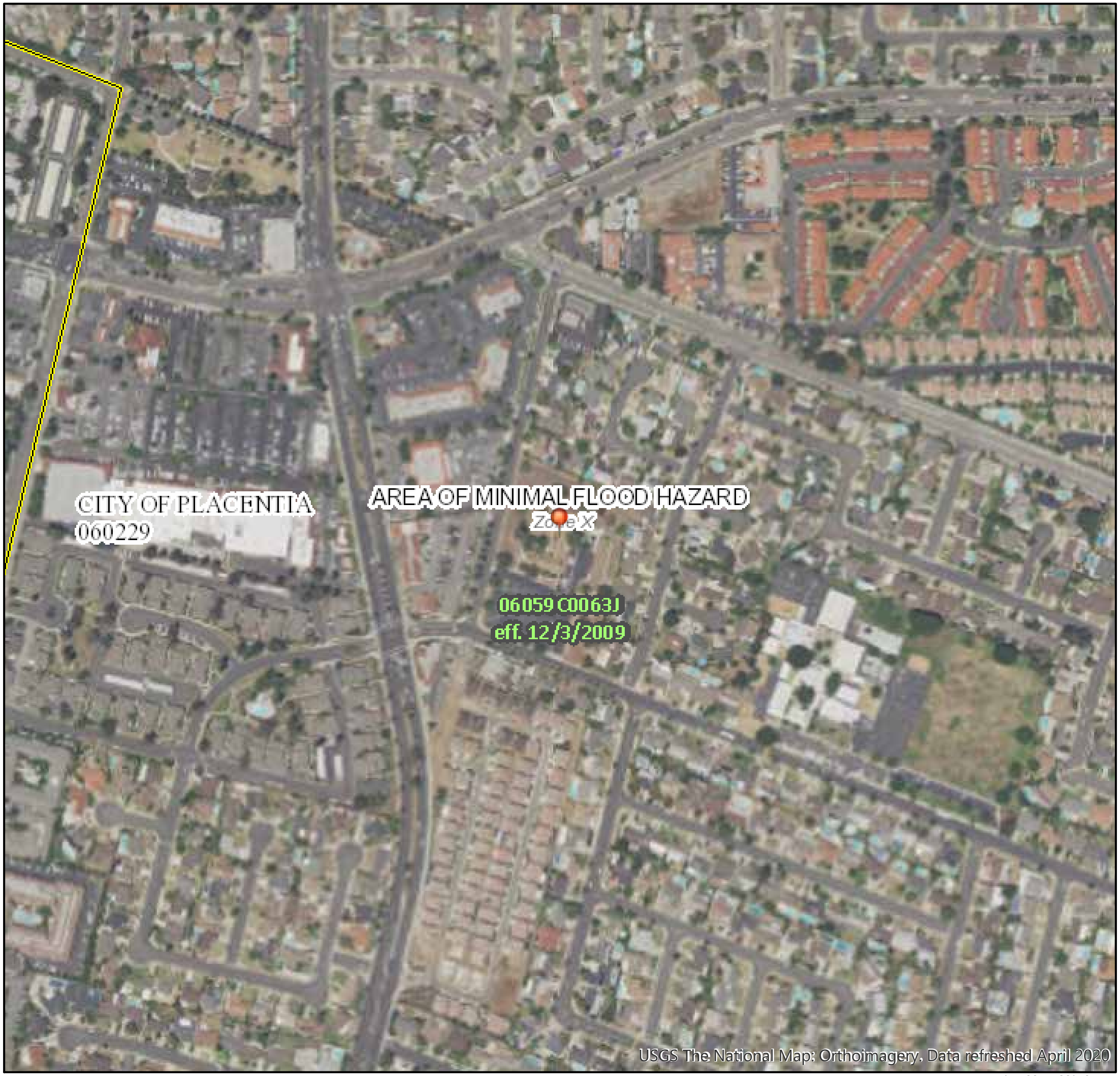
APPENDIX 5

FEMA Map

National Flood Hazard Layer FIRMette

FEMA

117°51'59" W 33°53'24" N



117°51'22" W 33°52'54" N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

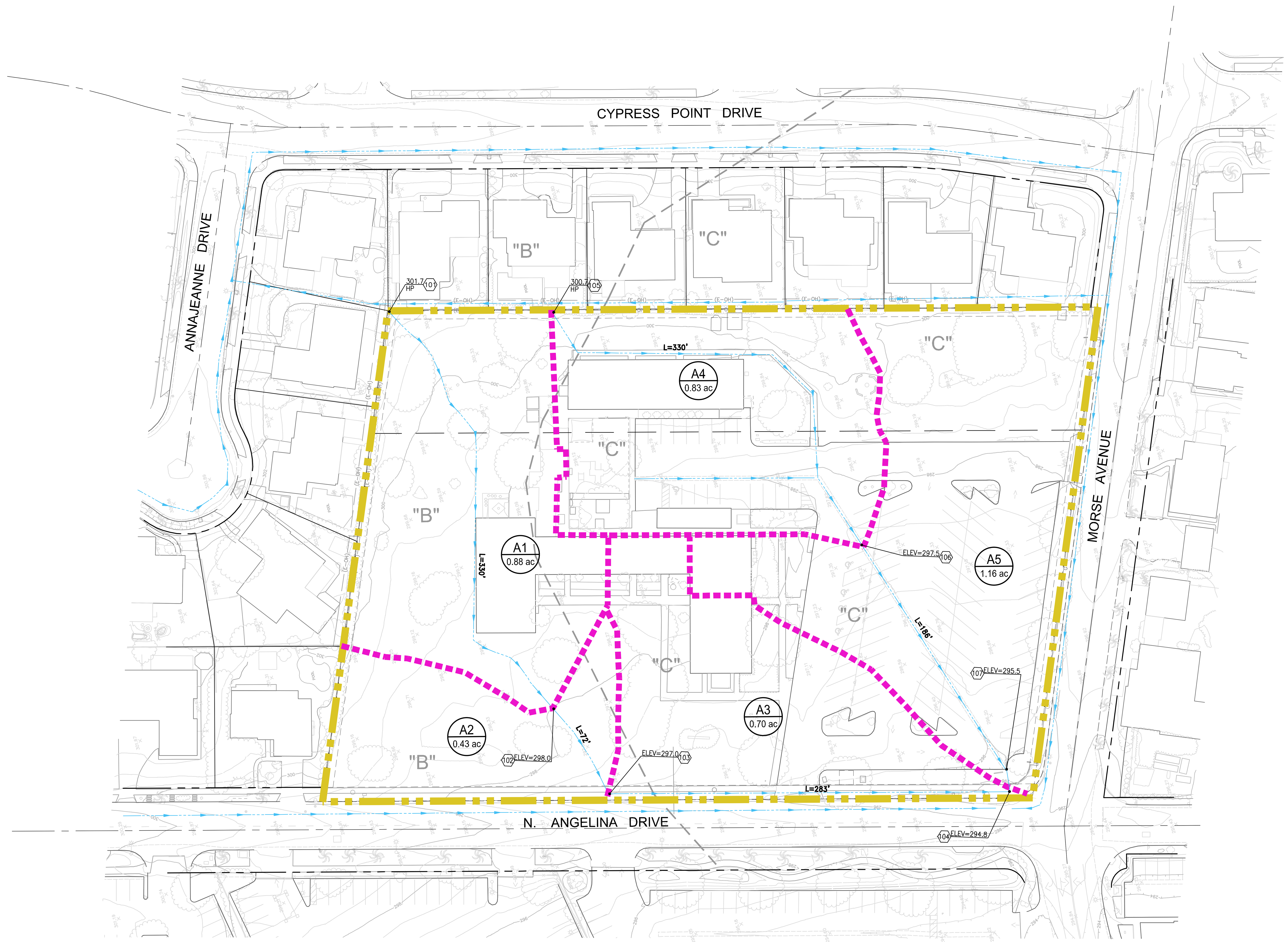
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/6/2020 at 1:20 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX 6

Hydrology Maps



SITE EXISTING CONDITION			
STORM EVENT	Q (CFS)	T_C (MIN)	VOLUME (AC-FT)
2-Year	4.01	11.08	0.27
10-Year	7.67	10.90	0.62
25-Year	9.30	10.82	0.80
100-Year	12.06	10.74	1.20

ASSESSOR PARCEL NO.

340-273-25

SITE ADDRESS

1314 N. ANGELINA DRIVE
PLACENTIA, CALIFORNIA 92870

APPLICANT/OWNER

NATIONAL COMMUNITY RENAISSANCE OF CALIFORNIA
9421 HAVEN AVENUE
RANCHO CUCAMONGA, CA 91730
TEL: (949) 394-7996

CIVIL ENGINEER

FUSCOE ENGINEERING
16795 VON KARMAN, SUITE 100
IRVINE, CA 92606
TEL: 949.474.1960
FAX: 949.474.5315

ABBREVATIONS

AC	ACRE
AC-FT	ACRE-FOOT
CFS	CUBIC FEET PER SECOND
ELEV	ELEVATION
HP	HIGH POINT
L	LENGTH
MIN	MINUTES
Q_2	FLOW RATE - 2-YEAR STORM
S	SLOPE
T_C	TIME OF CONCENTRATION

LEGEND

DRAINAGE BOUNDARY
DRAINAGE SUB-BOUNDARY
XX NODE
TIME OF CONCENTRATION FLOW PATH
L=XXX' FLOW PATH LENGTH
XX X.XXac DRAINAGE BOUNDARY DESIGNATION AND AREA
SOIL TYPE DELINEATION

40' 0' 20' 40'
SCALE: 1" = 40'

PREPARED BY:

FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ◦ fax 949.474.5315
www.fuscoe.com

HYDROLOGY MAP
EXISTING CONDITION

PLACENTIA SENIOR HOUSING 1314 N. ANGELINA DRIVE
CITY OF PLACENTIA, CALIFORNIA

PROJECT NO.
1653-010

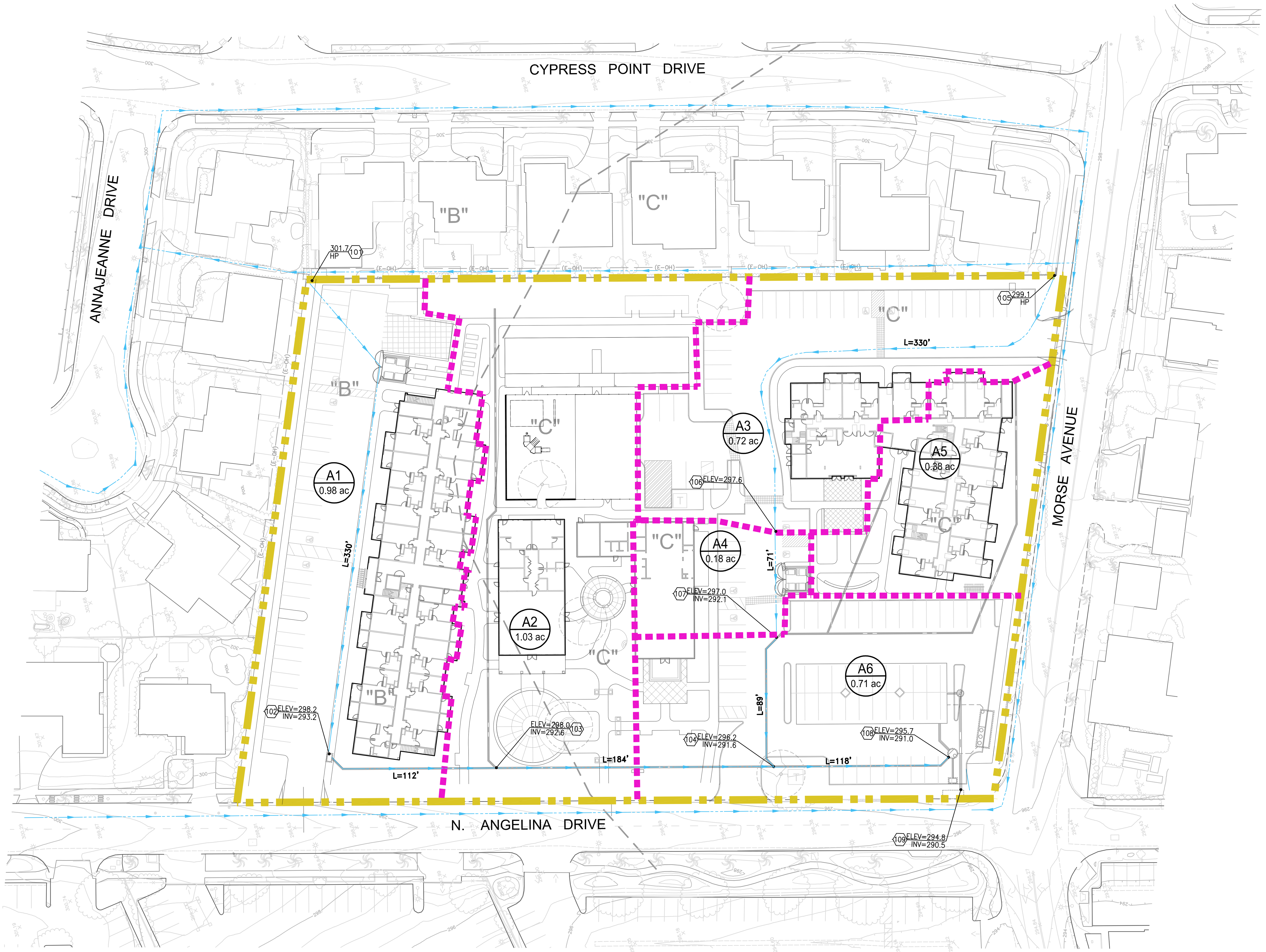
SHEET
1
OF 1

PLAN SET: X

CITY OF PLACENTIA - 1314 N. ANGELINA DRIVE
EXISTING HYDROLOGY MAP

2020-07-08

F:\PROJECTS\1653\010_SUPPORT FILES\REPORTS\HYDROLOGY\HYDROLOGY MAPS\1314 N.ANGELINA-PLACENTIA-1653-010-EX.DWG (07-06-20 5:06:30PM) Plotted by: Susan Williams



SITE PROPOSED CONDITION				
STORM EVENT	Q (un-mitigated) (CFS)	Q (mitigated) (CFS)	T_C (MIN)	VOLUME (AC-FT)
2-Year	5.35	4.0	9.52	0.50
10-Year	9.79	7.2	9.27	0.96
25-Year	11.74	8.6	9.22	1.19
100-Year	15.11	10.6	9.12	1.53

ASSESSOR PARCEL NO.

340-273-25

SITE ADDRESS

1314 N. ANGELINA DRIVE
PLACENTIA, CALIFORNIA 92870

APPLICANT/OWNER

NATIONAL COMMUNITY RENAISSANCE OF CALIFORNIA
9421 HAVEN AVENUE
RANCHO CUCAMONGA, CA 91730
TEL: (949) 394-7996

CIVIL ENGINEER

FUSCOE ENGINEERING
16795 VON KARMAN, SUITE 100
IRVINE, CA 92606
TEL: 949.474.1960
FAX: 949.474.5315

ABBREVATIONS

AC	ACRE
AC-FT	ACRE-FOOT
CFS	CUBIC FEET PER SECOND
ELEV	ELEVATION
HP	HIGH POINT
L	LENGTH
MIN	MINUTES
Q_2	FLOW RATE – 2-YEAR STORM
S	SLOPE
T_C	TIME OF CONCENTRATION

LEGEND

DRAINAGE BOUNDARY
DRAINAGE SUB-BOUNDARY
XX NODE
TIME OF CONCENTRATION FLOW PATH
L=XXX' FLOW PATH LENGTH
XX X.XXac DRAINAGE BOUNDARY DESIGNATION AND AREA
SOIL TYPE DELINEATION

N

40' 0' 20' 40'
SCALE: 1" = 40'

PREPARED BY:
FUSCOE ENGINEERING
16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ◦ fax 949.474.5315
www.fuscoe.com

HYDROLOGY MAP
PROPOSED CONDITION

PLACENTIA SENIOR HOUSING 1314 N. ANGELINA DRIVE
CITY OF PLACENTIA, CALIFORNIA

PROJECT NO. 1653-010

SHEET 1 OF 1

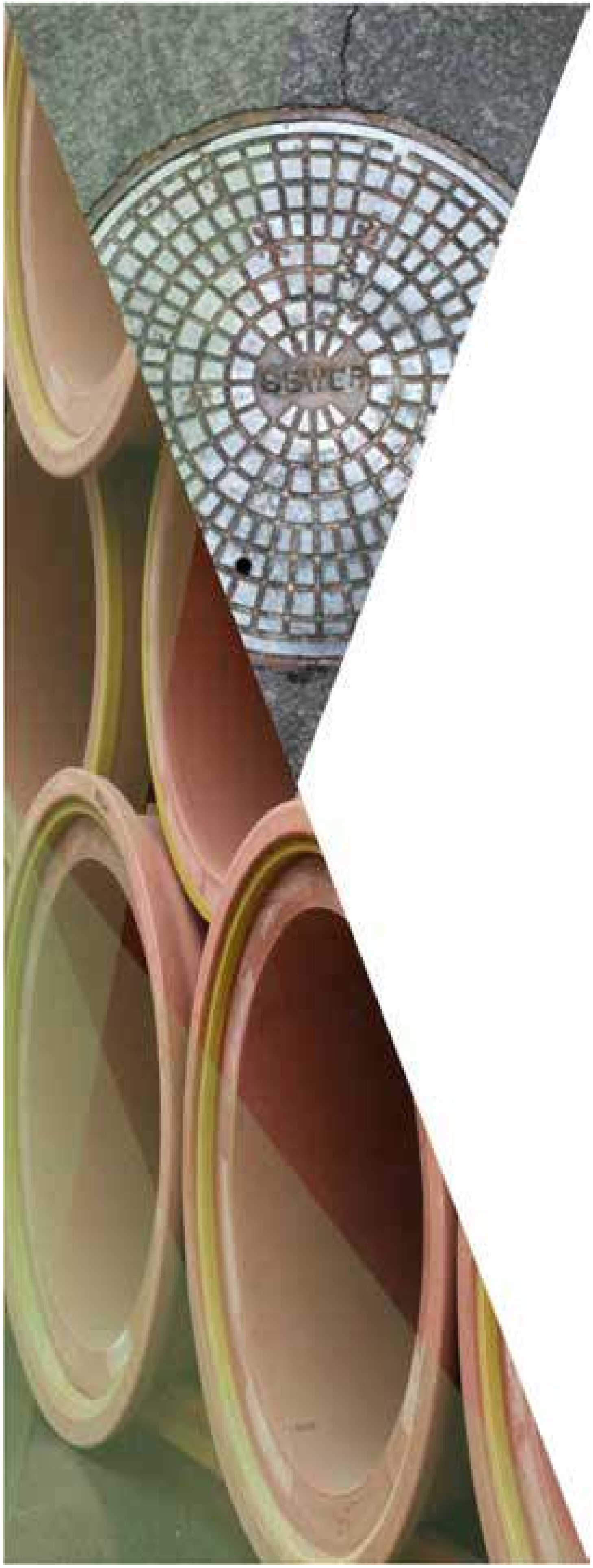
PLAN SET: X

CITY OF PLACENTIA – 1314 N. ANGELINA DRIVE
PROPOSED HYDROLOGY MAP

2020-07-08

F:\PROJECTS\1653\010_SUPPORT FILES\REPORTS\HYDROLOGY\HYDROLOGY MAPS\1314 N ANGELINA-PLACENTIA-1653-010-PR.DWG (07-07-20 9:36:54AM) Plotted by: Susan Williams

APPENDIX G – SEWER ANALYSIS REPORT



FUSCOE
ENGINEERING

SEWER ANALYSIS REPORT

PLACENTIA SENIOR HOUSING

1314 N. ANGELINA DRIVE
PLACENTIA, CALIFORNIA

PREPARED FOR
National Community Renaissance
9421 Haven Avenue
Rancho Cucamonga, California 91730
949.394.7996

FUSCOE ENGINEERING, INC.
16795 Von Karman, Suite 100
Irvine, California 92606
949.474.1960
www.fuscoe.com

PROJECT MANAGER
Joshua Ruiz, PE

DATE PREPARED: July 2020

PROJECT NUMBER: 1653.010.01

full circle thinking®

SEWER ANALYSIS REPORT

PLACENTIA SENIOR HOUSING

1314 N. Angelina Drive

Placentia, CA

PREPARED FOR

NATIONAL COMMUNITY RENAISSANCE
9421 HAVEN AVENUE
RANCHO CUCAMONGA, CA 91730
949.394.7996

PREPARED BY

FUSCOE ENGINEERING, INC.
16795 VON KARMAN AVE
IRVINE, CA 92606
949.474.1960

1st SUBMITTAL: JULY 2020

Table of Contents

1.0 INTRODUCTION

1.1 Purpose of the Study

The purpose of this analysis is to calculate and compare the sanitary sewer (wastewater) flows for pre and post development of the proposed Placentia Senior Housing project located at 1314 N. Angelina Drive in the City of Placentia, California. The calculations have been provided in cubic-feet per second (cfs) and include the monitored current flows (pre-development) along with the theoretical proposed flows (post-development), as requested by the City of Placentia (COP) Department of Public Works (DPW).

1.2 Existing Site Description

The Placentia Senior Housing project site is located at 1314 N. Angelina Drive and encompasses a total area of 4.001 acres. The property is currently occupied by the Church of the Blessed Sacrament. Under existing conditions, the project site is partially developed with a church building, classroom building, paved parking lot and lawn area. Adjacent land uses include residential and commercial. Part of the existing church building, as well as the paved parking lot and lawn area, currently on the project site will be demolished.

The project site is bounded by; Morse Avenue on the southerly edge, North Angelina Drive on the westerly edge and residential parcels on the northerly and easterly edges. A vicinity map is provided in Figure 1 of this report.

1.3 Project Description

The project proposes the development of two new affordable senior apartment buildings, while maintaining a portion of the existing church building and the entire existing classroom building, along with new driveways and parking lots. A total of 65 dwelling units are proposed which consist of 59 one-bedroom units and 6 two-bedroom units.

A Site Plan is provided in Appendix 1 of this report.

Figure 1 – Vicinity Map

1.4 Existing Sewer Facilities

Wastewater from the project site is believed to currently discharge into an existing COP-owned 8″ VCP sewer line with Morse Avenue. Based on As-Built plans, this existing sewer line drains southeasterly to an existing COP-owned manhole (SMH: 4145) located at the intersection with Cypress Point Drive. At this location, an existing COP-owned sewer line within Cypress Point Drive, which drains southerly, as well as an existing COP-owned sewer line within Morse Avenue, which drains northwesterly, connects into this manhole. Flows discharging from this manhole are conveyed southerly through an existing COP-owned 8″ VCP sewer line within Cypress Point Drive to an existing COP-owned manhole (SMH: 4111). From this location, wastewater continues to drain southerly.

1.5 Sewer Flow Monitoring

In order to determine whether the existing COP-owned sewer facilities can adequately handle the additional wastewater flows associated with the proposed development, it was required that flow monitoring be performed in order to establish currently existing wastewater flows. The COP DPW directed a minimum of two locations for said monitoring, the first nearest the project site and a second furthest downstream, along with requiring existing flow data to be collected dynamically at 15-minute intervals for a continuous period of two weeks. An additional stipulation for monitoring to be conducted during wet weather was requested. Below is the designation of the existing sewer facilities that have been monitored:

- Site 1: Intersection of Morse Avenue and Cypress Point Drive (SMH: 4145)
- Site 2: Intersection of Cypress Point Drive and Hillcrest Avenue (SMH: 4111)

The monitored flow at Site 1 includes flows discharging through the 8″ VCP sewer line within Morse Avenue (northwest of Cypress Point Drive) and the monitored flow at Site 2 includes flows discharging through the 8″ VCP sewer line within Cypress Point Drive (south of Morse Avenue). Thus, the monitored locations reflect flows through sewer lines that would serve the project.

The Location Map, included in Appendix 1 of this report, shows the COP DPW's directed existing sewer manhole flow monitoring location, and proximity to the proposed project site.

1.6 Proposed Sewer Facilities

Wastewater flows from the proposed project site will discharge into the existing COP-owned 8″ VCP sewer line within Morse Avenue, which drains southeasterly, and continue to discharge through an existing COP-owned manhole (SMH:4145) and into the existing COP-owned 8″ VCP sewer line within Cypress Point Drive, which drains southerly.

2.0 METHODOLOGY & RESULTS

2.1 Existing Sewer Line Capacity

Typically, a combination of Sewer Atlas mapping and As-Built plans are utilized to determine the existing sewer line piping diameter, slope and length. Sewer As-Built plans provided by the COP DPW have been marked up to indicate the flow monitoring location, as well as existing COP-owned manholes. Per As-Built plan data, pipe diameter and slope information was obtained for the existing COP-owned sewer lines. It was determined that the existing sewer line within Morse Avenue which drains southeasterly and discharges into existing manhole SMH: 4145 is an 8-in diameter pipe at 1.70% slope and the existing sewer line within Cypress Point Drive which drains southerly and discharges into existing manhole SMH: 4111 is an 8-in diameter pipe at 0.48% slope.

Sewer Atlas mapping (19) provided by the COP DPW has been marked up to indicate the flow monitoring locations, COP-owned sewer line diameters and slopes, as well as the proposed project site location. The marked-up Sewer Atlas mapping and As-Built plans are included in Appendix 2 of this report.

Capacity of the existing sewer line at the flow monitoring locations were determined using the following methodology. As per the COP Sanitary Sewer Master Plan and Condition Assessment, last revised February 2018, Section 3.1 Design Criteria, a Manning's formula "n" value of 0.013 was used in computing all existing (monitored) and proposed (theoretical) sewer flow depths. In addition, this section specifies that 12-in diameter pipelines and smaller are limited to flowing at half of full depth for peak wet weather flow condition which is the governing criteria for this report in assessing adequate capacity of the existing COP-owned sewer facilities.

Using the Kutter Flow Depth calculations, included in Appendix 4 of this report, it was determined that the capacity of the existing sewer lines in Morse Avenue and Cypress Point Drive are as follows:

- Site 1 (SMH 4146 to 4145): 8" VCP @ Slope = 1.70%; Capacity = 0.72 cfs
- Site 2 (SMH 4145 to 4111): 8" VCP @ Slope = 0.48%; Capacity = 0.38 cfs

The next step was to determine the existing condition (monitored) wastewater flows, followed by the proposed condition (theoretical) wastewater flows, and then analyze the adequacy of the existing COP-owned sewer facilities downstream of the project site. As part of the analysis, average daily and peak daily flows, along with factored wet weather flows, were each assessed in order to understand capacity under varying flow regimes.

2.2 Existing Condition Flows

Existing condition (monitored) wastewater flows were determined as follows. Flow monitoring was conducted on the existing COP-owned 8" VCP sewer line within Morse Avenue (northwest of Cypress Point Drive) and COP-owned 8" VCP sewer line within Cypress Point Drive (south of Morse Avenue). Monitoring was performed between June 9, 2020 and June 24, 2020 by Utility Systems Science and Software (US3). Sewer manhole flow monitoring was conducted dynamically for a continuous period of two weeks with a 5-minute interval sampling frequency.

In determining existing condition average daily and peak daily flows, compiled monitoring data was assessed to identify the single largest average daily flow and single largest individual flow measurement, respectively, obtained during the monitoring period. In addition, based on the COP DPW request for monitoring to be conducted during wet weather, factored Wet Weather ('WW') flows have been established by increasing existing condition (monitored) wastewater flows by 400%. The flow monitoring data is included in Appendix 6 of this report.

The following is a summary of the existing condition average daily and peak daily wastewater flows observed during the monitoring period, along with factored wet weather flows, which were utilized in the analysis:

<u>Existing Condition Flows:</u>

- Site 1 (8" VCP Sewer):
  - Average Flow = 0.0285 cfs
  - Peak Flow = 0.0706 cfs
  - Average 'WW' Flow = 0.1140 cfs
  - Peak 'WW' Flow = 0.2824 cfs
- Site 2 (8" VCP Sewer):
  - Average Flow = 0.0345 cfs
  - Peak Flow = 0.0694 cfs
  - Average 'WW' Flow = 0.1380 cfs
  - Peak 'WW' Flow = 0.2776 cfs

The existing condition flow depths for average and peak wastewater flows, along with factored wet weather flows, were calculated using the Kutter Flow Depth procedure, included in Appendix 4 of this report, and the following is a summary of the results:

<u>Existing Condition Flow Depths:</u>

- Site 1 (8" VCP Sewer):
  - Average Flow Depth = 0.86"; Peak Flow Depth = 1.29"
  - Average 'WW' Flow Depth = 1.60"; Peak 'WW' Flow Depth = 2.49"
- Site 2 (8" VCP Sewer):
  - Average Flow Depth = 1.24"; Peak Flow Depth = 1.71"
  - Average 'WW' Flow Depth = 2.36"; Peak 'WW' Flow Depth = 3.36"

2.3 Proposed Condition Flows

Proposed condition (theoretical) wastewater flows were determined as follows. Design flow rates were projected by utilizing the COP Study Guidelines to determine theoretical proposed average daily sewerage generation rates. Specifically, a residential loading rate was utilized in calculating the proposed flow and the specific COP Criteria is included in Appendix 7 of this report for reference.

Based on the proposed project development consisting of two buildings with a total of 65 residential units, and a residential loading rate of 100 gpd/du, the theoretical proposed average daily flow to be generated would be 0.0101 cfs. Also, as per the COP Study Guidelines it is assumed that peak daily flow is 4.5 times the average daily flow, therefore the theoretical proposed peak daily flow to be generated would be 0.0455 cfs.

It is important to note that while these are the theoretical average and peak wastewater flows expected to be generated by the proposed project, these values are conservative from a capacity analysis standpoint in comparison to the actual average and peak daily wastewater flows observed during the monitoring period.

Additionally, since the site is currently developed and occupied it is anticipated that wastewater flows, which will continue to be generated by the portion of the existing church building and the entire classroom building that are to remain, are currently encompassed for by the existing condition (monitored) wastewater flows.

The following is a summary of the proposed condition total (monitored existing plus theoretical proposed) average daily and peak daily wastewater flows anticipated to be observed, along with factored wet weather flows, which were utilized in the analysis:

Proposed Condition Flows:

- Site 1 (8″ VCP Sewer):
  - Average Flow = (0.0285 + 0.0101) = 0.0386 cfs
  - Peak Flow = (0.0706 + 0.0455) = 0.1161 cfs
  - Average 'WW' Flow = (0.1140 + 0.0101) = 0.1241 cfs
  - Peak 'WW' Flow = (0.2824 + 0.0455) = 0.3279 cfs
- Site 2 (8″ VCP Sewer):
  - Average Flow = (0.0345 + 0.0101) = 0.0446 cfs
  - Peak Flow = (0.0694 + 0.0455) = 0.1149 cfs
  - Average 'WW' Flow = (0.1380 + 0.0101) = 0.1481 cfs
  - Peak 'WW' Flow = (0.2776 + 0.0455) = 0.3231 cfs

The proposed condition flow depths for average and peak wastewater flows, along with factored wet weather flows, were calculated using the Kutter Flow Depth procedure, included in Appendix 5 of this report, and the following is a summary of the results:

Proposed Condition Flow Depths:

- Site 1 (8″ VCP Sewer):
  - Average Flow Depth = 0.98″; Peak Flow Depth = 1.61″
  - Average 'WW' Flow Depth = 1.66″; Peak 'WW' Flow Depth = 2.65″
- Site 2 (8″ VCP Sewer):
  - Average Flow Depth = 1.39″; Peak Flow Depth = 2.16″
  - Average 'WW' Flow Depth = 2.45″; Peak 'WW' Flow Depth = 3.65″

3.0 CONCLUSIONS

3.1 Existing COP Sewer Facilities in Morse Avenue and Cypress Point Drive

Based on the results of the sewer flow monitoring, along with the theoretical proposed average and peak sewerage generation rates, the study shows that both existing COP-owned 8" VCP sewer lines within Morse Avenue and Cypress Point Drive would be within capacity and can adequately handle the additional wastewater flows associated with the proposed development.

The table below shows the existing condition capacity data of the existing 8" VCP sewer line within Morse Avenue and Cypress Point Drive which drain from existing manholes SMH:4546 and SMH: 4545, respectively, and discharge into SMH: 4111.

EXISTING CONDITION - SEWER CAPACITY SUMMARY

SEWER MONITORING LOCATION	SEGMENT		PIPE		CAPACITY		EXIST. AVERAGE		EXIST. PEAK		% CAPACITY	
	FROM MH#	TO MH#	SIZE (in)	SLOPE (ft/ft)	1/2 FULL [<12"] (cfs)	3/4 FULL [>12"] (cfs)	DAILY FLOW (cfs)	FLOW DEPTH (in)	DAILY FLOW (cfs)	FLOW DEPTH (in)	AVERAGE DAILY FLOW	PEAK DAILY FLOW
Site 1 SMH	4146	4145	8	0.0170	0.72	1.34	0.0285	0.86	0.0706	1.29	3.94	9.77
Site 2 SMH	4145	4111	8	0.0048	0.38	0.71	0.0345	1.24	0.0694	1.71	9.01	18.13

EXISTING CONDITION 'WET WEATHER' - SEWER CAPACITY SUMMARY

SEWER MONITORING LOCATION	SEGMENT		PIPE		CAPACITY		EXIST. AVERAGE		EXIST. PEAK		% CAPACITY	
	FROM MH#	TO MH#	SIZE (in)	SLOPE (ft/ft)	1/2 FULL [<12"] (cfs)	3/4 FULL [>12"] (cfs)	DAILY FLOW (cfs)	FLOW DEPTH (in)	DAILY FLOW (cfs)	FLOW DEPTH (in)	AVERAGE DAILY FLOW	PEAK DAILY FLOW
Site 1 SMH	4146	4145	8	0.0170	0.72	1.34	0.1140	1.60	0.2824	2.46	15.77	39.07
Site 2 SMH	4145	4111	8	0.0048	0.38	0.71	0.1380	2.36	0.2776	3.36	36.05	72.52

The table below shows the proposed condition capacity data of the existing 8" VCP sewer line within Morse Avenue and Cypress Point Drive which drain from existing manholes SMH:4546 and SMH: 4545, respectively, and discharge into SMH: 4111.

PROPOSED CONDITION - SEWER CAPACITY SUMMARY

SEWER MONITORING LOCATION	SEGMENT		PIPE		CAPACITY		EXIST. AVERAGE		EXIST. PEAK		% CAPACITY	
	FROM MH#	TO MH#	SIZE (in)	SLOPE (ft/ft)	1/2 FULL [<12"] (cfs)	3/4 FULL [>12"] (cfs)	DAILY FLOW (cfs)	FLOW DEPTH (in)	DAILY FLOW (cfs)	FLOW DEPTH (in)	AVERAGE DAILY FLOW	PEAK DAILY FLOW
Site 1 SMH	4146	4145	8	0.0170	0.72	1.34	0.0386	0.98	0.1161	1.61	5.34	16.06
Site 2 SMH	4145	4111	8	0.0048	0.38	0.71	0.0446	1.39	0.1149	2.16	11.65	30.02

PROPOSED CONDITION 'WET WEATHER' - SEWER CAPACITY SUMMARY

SEWER MONITORING LOCATION	SEGMENT		PIPE		CAPACITY		EXIST. AVERAGE		EXIST. PEAK		% CAPACITY	
	FROM MH#	TO MH#	SIZE (in)	SLOPE (ft/ft)	1/2 FULL [<12"] (cfs)	3/4 FULL [>12"] (cfs)	DAILY FLOW (cfs)	FLOW DEPTH (in)	DAILY FLOW (cfs)	FLOW DEPTH (in)	AVERAGE DAILY FLOW	PEAK DAILY FLOW
Site 1 SMH	4146	4145	8	0.0170	0.72	1.34	0.1241	1.66	0.3279	2.65	17.17	45.36
Site 2 SMH	4145	4111	8	0.0048	0.38	0.71	0.1481	2.45	0.3231	3.65	38.69	84.41

3.2 Recommendations for Capacity Expansion

Per the above findings, no potential for inadequate capacity has been identified within the existing COP-owned sewer facilities. Therefore, no recommendations for upsizing have been made as part of this study.

4.0 APPENDICES

Appendix 1 – Site Plan & Location Map

Appendix 2 – Sewer Atlas Maps

Appendix 3 – Sewer As-Built Plans

Appendix 4 – Kutter Flow Depth Calculations - Existing Condition

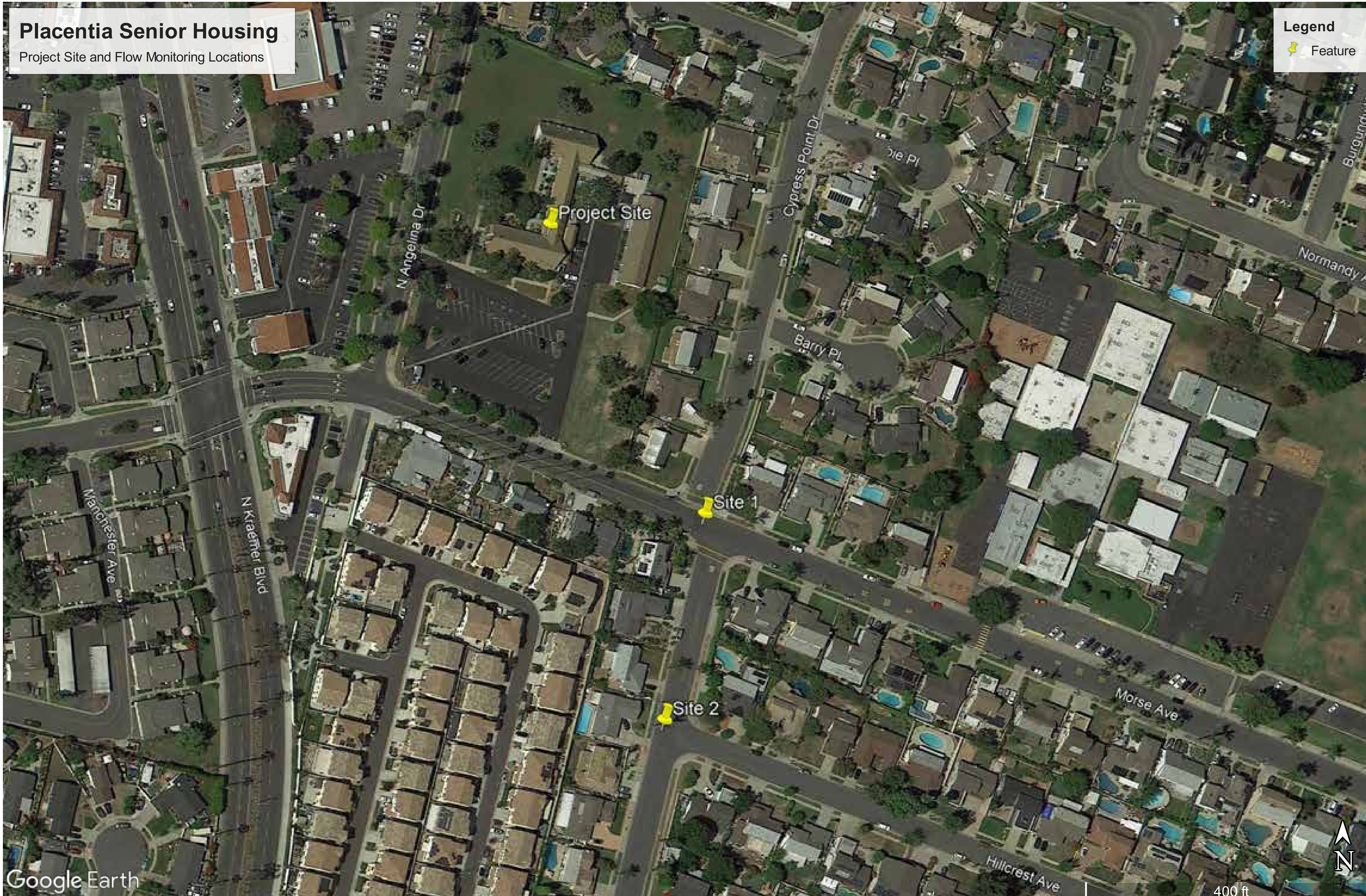
Appendix 5 – Kutter Flow Depth Calculations - Proposed Condition

Appendix 6 – Utility Systems Science & Software - Sewer Monitoring Data

Appendix 7 – City of Placentia Study Guidelines

Appendix 1

Site Plan & Location Map



Placentia Senior Housing
Project Site and Flow Monitoring Locations
Legend
Feature
Project Site
Site 1
Site 2
N Angelina Dr
Cypress Point Dr
Barry Pl
Normandy Ave
Burgundy Way
N Kraemer Blvd
Manchester Ave
Morse Ave
Hillcrest Ave
Google Earth
400 ft
N

ABBREVATIONS

AC	ASPHALT CONCRETE	OHW	OVERHEAD WIRE
ACRE	AC	MWS	MODULAR WETLAND SYSTEM
APPROX.	APPROXIMATE		
BLDG.	BUILDING	NAP	NOT A PART
BW	BACK OF WALK	PL	PROPERTY LINE
CB	CATCH BASIN	PROP.	PROPOSED
C&G	CURB & GUTTER	R/W	RIGHT-OF-WAY
CLR.	CLEARANCE	SD	STORM DRAIN
DWY	DRIVEWAY	SF	SQUARE FEET
ESMT.	EASEMENT	SS	SANITARY SEWER
EXIST.	EXISTING	SW	SIDEWALK
FF	FINISHED FLOOR	TC	TOP OF CURB
FL	FLOW LINE	TYP.	TYPICAL
FS	FINISHED SURFACE		
HYD	HYDRANT		

LEGEND

	EXISTING PROPERTY LINE
	EXISTING CENTERLINE
	EXISTING EASEMENT LINE
(XX.XX) (XX.XX)	EXISTING ELEVATION
	PROPOSED BUILDING OUTLINE
XX.XX XX.XX	PROPOSED ELEVATION

rrm design group

RRM Design Group

10 E. Figueroa St., Suite 1
Santa Barbara, CA 93101

Tel: 805.963.8283
Fax: 805.963.8184
www.rrmdesign.com

NATIONAL COMMUNITY CORE RENAISSANCE

9421 Haven Avenue
Rancho Cucamonga, CA 91730
Tel: 949.394.7996 Fax: 909.483.6524

FUSCOE ENGINEERING

16795 Von Karman, Suite 100
Irvine, California 92606
tel 949.474.1960 ◦ fax 949.474.5315
www.fuscoe.com

Placentia Senior Housing

A.P.N. 340-273-25

1314 N. Angelina Drive, Placentia CA 92870

SITE PLAN - IMPROVEMENTS

20' 0' 10' 20'

SCALE: 1" = 20'

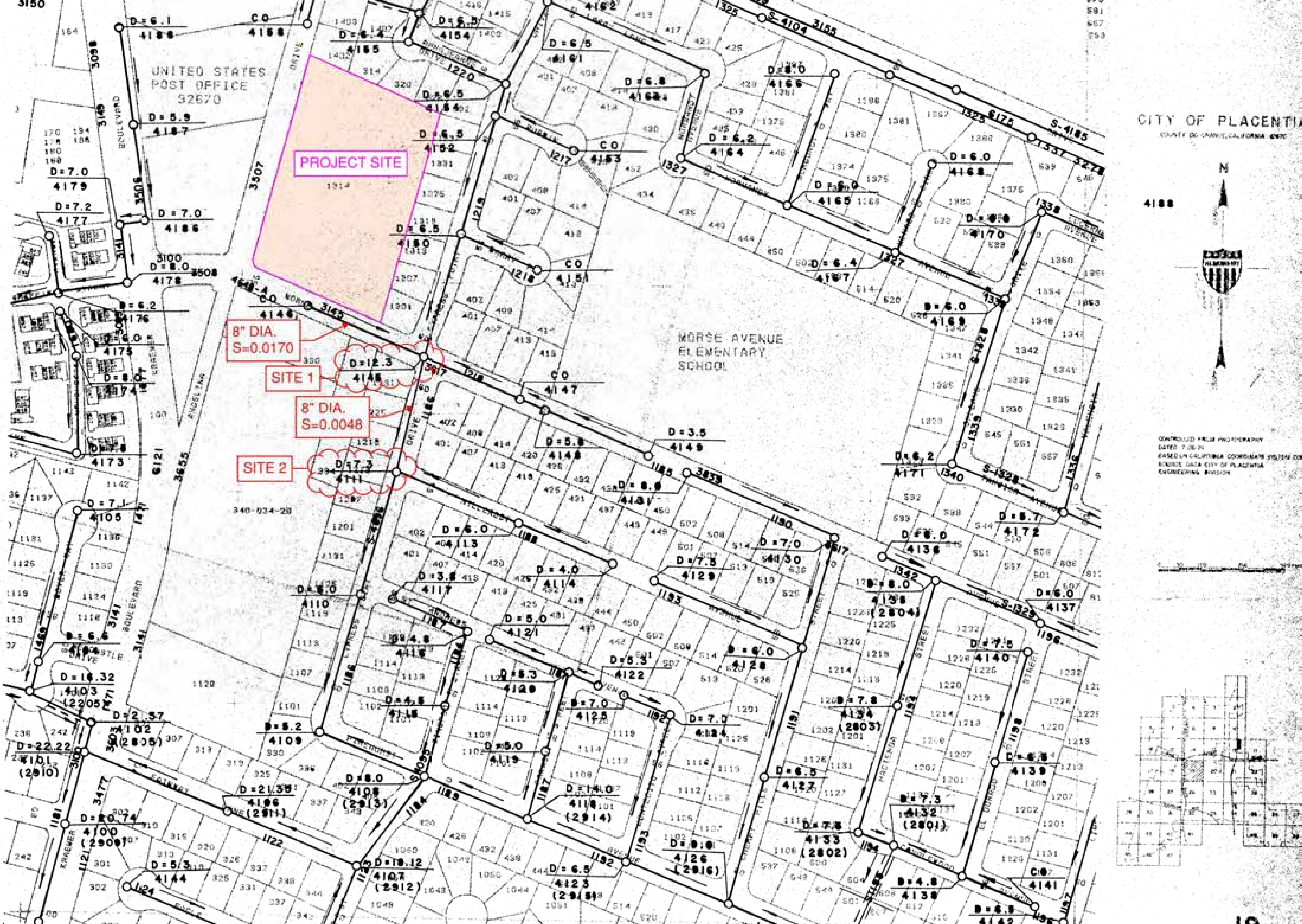
C2

03/30/2020

F:\PROJECTS\1653\010\PLANS\ENTITLEMENTS\SCHEMATIC PLANS\1653-010ET02M.DWG (03-30-20 1:15:18PM) Plotted by: Greg Alford

Appendix 2

Sewer Atlas Maps


UNITED STATES POST OFFICE
32570
PROJECT SITE
8" DIA.
S=0.0170
SITE 1
D=12.3
4145
8" DIA.
S=0.0048
SITE 2
D=7.3
4111
MORSE AVENUE ELEMENTARY SCHOOL
CITY OF PLACENTIA
N

Appendix 3

Sewer As-Built Plans

CONSTRUCTION NOTES:

1. CONST. 8" V.C.P. SEWER MAIN PER O.C.S.D. STD. S-41-I.
2. CONST. 8" C.I.P. SEWER PER O.C.S.D. STD. S-41-I. (LAY WYE FLAT) SEE PROFILE SHEET 1.
3. CONNECT TO EXIST. MANHOLE.
4. CONST. PRECAST CONCRETE SHALLOW MANHOLE PER A.P.W.A. STD. 201-0.
5. PROTECT IN PLACE.
6. REMOVE PORTIONS INTERFERING WITH NEW CONSTRUCTION.
7. CONST. 6" V.C.P. SEWER LATERAL PER O.C.S.D. STD. S-43-3

9/30/93
James J. Brennan

AS – BUILT

REVISIONS				
DATE	DWN BY	NO	DESCRIPTION	APPR BY

REFERENCES

Bench Mark: 2G 26 76

ABOUT 400 FEET NORTH ALONG KREAMER BOULEVARD. FROM IT'S INTERSECTION WITH YORBA LINDA BOULEVARD, TO A CATCH BASIN ON THE EAST SIDE OF KREAMER: 43.0 FEET EAST FROM THE CENTERLINE OF KREAMER BOULEVARD: 196.5 FEET SOUTH FROM THE CENTERLINE OF CIMARRON AVENUE: 78.0 FEET NORTH OF THE SOUTH END OF THE CONCRETE SIDEWALK, AND SOUTHWEST CORNER OF A 9 FEET HIGH BLOCK FENCE: SET ON THE TOP OF THE SOUTHWEST CORNER OF A 5.5 FOOT CONCRETE CATCH BASIN.

ELEV. 303.099 (1976)

Standard Plans: O.C.E.M.A. STD. PLANS (1986)

Utility Plans:

Sewer Plans:

Prepared under supervision of JAMES J. BRENNAN Date 7/26/91
R.C.E. 20801 EXPIRATION DATE: 9/30/93
Drawn by: R.M.
Checked by: J.J.B.
Recommended:
APPROVED: ROBERT E. HODSON
9/9/91 Robert E. Hodson
CITY ENGINEER R.C.E. No. 27939
EXPIRES: 3/31/94

SEWER IMPROVEMENT PLAN

FOR

MORSE AVENUE

FROM 40' EAST OF ANGELINA DRIVE TO 183' EAST OF ANGELINA DRIVE

CITY OF PLACENTIA

DRAWING NO 4217

SHEET 6 OF 6

184 A-E

CASH CONTRACT NO. 5

SHEET 2 OF 8

Appendix 4

Kutter Flow Depth Calculations - Existing Conditions

SITE 1 (MORSE AVE. MH) - EXISTING AVERAGE FLOW

SMH: 4146 to 4145

GIVEN:

Qgiven=	**0.0285** cfs	***<== Discharge***
n=	**0.013**	***<== Roughness coefficient***
S=	**0.0170**	***<== Slope V:H***
r=	**0.333** ft	***<== Radius***
d=	8.000 in	

TRIAL DEPTH:

h=	**0.859** in	***<== Vary this depth to get Q_{assume} = Q_{given}***
	0.072 ft	

CACULATIONS:

beta=	38.26 degree		
R=	0.045 ft		
C=	50.963		
V=	1.414 ft/sec		
A=	0.020 sq-ft		
Q_{assume}=	0.0285 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.72 cfs**	**$Q_{3/4full}$ =**	**1.34 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0% **<======= OK**
Flow Depth (h) =	**0.859 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**21.48%**
$Q_{capacity}$ =	**0.723 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**3.94%**

($Q_{halffull}$ =	0.72 **cfs)**	**($Q_{3/4full}$ =**	1.34 **cfs)**
$beta_{halffull}$=	90.000 degree	$beta_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full=}$	0.201 ft
$C_{halffull}$ =	77.728 ft	$C_{3/4full=}$	81.878 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full=}$	0.281 sq-ft
$V_{halffull}$ =	4.142 ft/sec	$V_{3/4full=}$	4.788 ft/sec

SITE 1 (MORSE AVE. MH) - EXISTING PEAK FLOW

SMH: 4146 to 4145

GIVEN:

Qgiven=	**0.0706**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0170**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**1.286**	in	***<== Vary this depth to get Q_{assume} = Q_{given}***
	0.107	ft	

CACULATIONS:

beta=	47.26	degree
R=	0.066	ft
C=	58.116	
V=	1.946	ft/sec
A=	0.036	sq-ft
Q_{assume}=	0.0706	cfs
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ = 0.500 ft**
$Q_{halffull}$ =	**0.72 cfs**	**$Q_{3/4full}$ = 1.34 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0%	**<======= OK**
Flow Depth (h) =	**1.286 in**	
$d_{capacity}$ =	**0.333 ft**	
Capacity $h_{flowdepth}/d_{capacity}$ =	**32.14%**	
$Q_{capacity}$ =	**0.723 cfs**	
Capacity $Q_{given}/Q_{capacity}$ =	**9.77%**	

($Q_{halffull}$ =	0.72 **cfs)**	**($Q_{3/4full}$ =**	1.34 **cfs)**
beta $_{halffull}$=	90.000 degree	beta $_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.728 ft	$C_{3/4full}$=	81.878 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	4.142 ft/sec	$V_{3/4full}$=	4.788 ft/sec

SITE 1 (MORSE AVE. MH) - EXISTING AVERAGE 'WW' FLOW

SMH: 4146 to 4145

GIVEN:

Qgiven=	**0.1140**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0170**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**1.600**	in	***<== Vary this depth to get $Q_{assume} = Q_{given}$***
	0.133	ft	

CACULATIONS:

beta=	53.12 degree		
R=	0.080 ft		
C=	62.082		
V=	2.295 ft/sec		
A=	0.050 sq-ft		
Q_{assume}=	0.1140 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.72 cfs**	**$Q_{3/4full}$ =**	**1.34 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0% **<======= OK**
Flow Depth (h) =	**1.600 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**39.99%**
$Q_{capacity}$ =	**0.723 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**15.77%**

($Q_{halffull}$ =	0.72 **cfs)**	**($Q_{3/4full}$ =**	1.34 **cfs)**
$beta_{halffull}$=	90.000 degree	$beta_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.728 ft	$C_{3/4full}$=	81.878 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	4.142 ft/sec	$V_{3/4full}$=	4.788 ft/sec

SITE 1 (MORSE AVE. MH) - EXISTING PEAK 'WW' FLOW

SMH: 4146 to 4145

GIVEN:

Qgiven=	**0.2824**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0170**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**2.458**	in	***<== Vary this depth to get Q_{assume} = Q_{given}***
	0.205	ft	

CACULATIONS:

beta=	67.32 degree		
R=	0.116 ft		
C=	69.807		
V=	3.103 ft/sec		
A=	0.091 sq-ft		
Q_{assume}=	0.2824 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.72 cfs**	**$Q_{3/4full}$ =**	**1.34 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0% **<======= OK**
Flow Depth (h) =	**2.458 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**61.45%**
$Q_{capacity}$ =	**0.723 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**39.07%**

($Q_{halffull}$ =	0.72 **cfs)**	**($Q_{3/4full}$ =**	1.34 **cfs)**
$beta_{halffull}$=	90.000 degree	$beta_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.728 ft	$C_{3/4full}$=	81.878 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	4.142 ft/sec	$V_{3/4full}$=	4.788 ft/sec

SITE 2 (CYPRESS PT. DR. MH) - EXISTING AVERAGE FLOW

SMH: 4145 to 4111

GIVEN:

Qgiven=	**0.0345** cfs	***<== Discharge***
n=	**0.013**	***<== Roughness coefficient***
S=	**0.0048**	***<== Slope V:H***
r=	**0.333** ft	***<== Radius***
d=	8.000 in	

TRIAL DEPTH:

h=	**1.240** in	***<== Vary this depth to get Q_{assume} = Q_{given}***
	0.103 ft	

CACULATIONS:

beta=	46.37 degree		
R=	0.064 ft		
C=	57.206		
V=	1.001 ft/sec		
A=	0.034 sq-ft		
Q_{assume}=	0.0345 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.38 cfs**	**$Q_{3/4full}$ =**	**0.71 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0% **<======= OK**
Flow Depth (h) =	**1.240 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**31.00%**
$Q_{capacity}$ =	**0.383 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**9.01%**

($Q_{halffull}$ =	0.38 **cfs)**	**($Q_{3/4full}$ =**	0.71 **cfs)**
$beta_{halffull}$=	90.000 degree	$beta_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.464 ft	$C_{3/4full}$=	81.618 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	2.193 ft/sec	$V_{3/4full}$=	2.536 ft/sec

SITE 2 (CYPRESS PT. DR. MH) - EXISTING PEAK FLOW

SMH: 4145 to 4111

GIVEN:

Qgiven=	**0.0694**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0048**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**1.707**	in	***<== Vary this depth to get Q_{assume} = Q_{given}***
	0.142	ft	

CACULATIONS:

beta=	55.02 degree		
R=	0.085 ft		
C=	63.000		
V=	1.274 ft/sec		
A=	0.055 sq-ft		
Q_{assume}=	0.0694 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.38 cfs**	**$Q_{3/4full}$ =**	**0.71 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0% **<======= OK**
Flow Depth (h) =	**1.707 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**42.68%**
$Q_{capacity}$ =	**0.383 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**18.13%**

($Q_{halffull}$ =	0.38 **cfs)**	**($Q_{3/4full}$ =**	0.71 **cfs)**
beta $_{halffull}$=	90.000 degree	beta $_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.464 ft	$C_{3/4full}$=	81.618 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	2.193 ft/sec	$V_{3/4full}$=	2.536 ft/sec

SITE 2 (CYPRESS PT. DR. MH) - EXISTING AVERAGE 'WW' FLOW

SMH: 4145 to 4111

GIVEN:

Qgiven=	**0.1380**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0048**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**2.364**	in	***<== Vary this depth to get $Q_{assume} = Q_{given}$***
	0.197	ft	

CACULATIONS:

beta=	65.86 degree		
R=	0.113 ft		
C=	68.854		
V=	1.600 ft/sec		
A=	0.086 sq-ft		
Q_{assume}=	0.1380 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.38 cfs**	**$Q_{3/4full}$ =**	**0.71 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0% **<======= OK**
Flow Depth (h) =	**2.364 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**59.10%**
$Q_{capacity}$ =	**0.383 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**36.05%**

($Q_{halffull}$ =	0.38 **cfs)**	**($Q_{3/4full}$ =**	0.71 **cfs)**
$beta_{halffull}$=	90.000 degree	$beta_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.464 ft	$C_{3/4full}$=	81.618 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	2.193 ft/sec	$V_{3/4full}$=	2.536 ft/sec

SITE 2 (CYPRESS PT. DR. MH) - EXISTING PEAK 'WW' FLOW

SMH: 4145 to 4111

GIVEN:

Qgiven=	**0.2776**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0048**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**3.362**	in	***<== Vary this depth to get Q_{assume} = Q_{given}***
	0.280	ft	

CACULATIONS:

beta=	80.81 degree			
R=	0.148 ft			
C=	74.802			
V=	1.994 ft/sec			
A=	0.139 sq-ft			
Q_{assume}=	0.2776 cfs			
$d_{0.5}$ =	**0.333 ft**		**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.38 cfs**		**$Q_{3/4full}$ =**	**0.71 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0% **<======= OK**
Flow Depth (h) =	**3.362 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**84.04%**
$Q_{capacity}$ =	**0.383 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**72.52%**

($Q_{halffull}$ =	0.38 **cfs)**	**($Q_{3/4full}$ =**	0.71 **cfs)**
beta $_{halffull}$=	90.000 degree	beta $_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.464 ft	$C_{3/4full}$=	81.618 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	2.193 ft/sec	$V_{3/4full}$=	2.536 ft/sec

Appendix 5

Kutter Flow Depth Calculations - Proposed Condition

SITE 1 (MORSE AVE. MH) - PROPOSED AVERAGE FLOW

SMH: 4146 to 4145

GIVEN:

Qgiven=	**0.0386**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0170**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**0.982**	in	***<== Vary this depth to get Q_{assume} = Q_{given}***
	0.082	ft	

CACULATIONS:

beta=	41.02 degree		
R=	0.051 ft		
C=	53.302		
V=	1.575 ft/sec		
A=	0.025 sq-ft		
Q_{assume}=	0.0386 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.72 cfs**	**$Q_{3/4full}$ =**	**1.34 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %= 0% **<======= OK**

Flow Depth (h) =	**0.982 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**24.55%**
$Q_{capacity}$ =	**0.723 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**5.34%**

($Q_{halffull}$ =	0.72 **cfs)**	**($Q_{3/4full}$ =**	1.34 **cfs)**
$beta_{halffull}$=	90.000 degree	$beta_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.728 ft	$C_{3/4full}$=	81.878 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	4.142 ft/sec	$V_{3/4full}$=	4.788 ft/sec

SITE 1 (MORSE AVE. MH) - PROPOSED PEAK FLOW

SMH: 4146 to 4145

GIVEN:

Qgiven=	**0.1161**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0170**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**1.613**	in	***<== Vary this depth to get Q_{assume} = Q_{given}***
	0.134	ft	

CACULATIONS:

beta=	53.36 degree			
R=	0.081 ft			
C=	62.235			
V=	2.309 ft/sec			
A=	0.050 sq-ft			
Q_{assume}=	0.1161 cfs			
$d_{0.5}$ =	**0.333 ft**		**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.72 cfs**		**$Q_{3/4full}$ =**	**1.34 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %= 0% **<======= OK**

Flow Depth (h) =	**1.613 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**40.33%**
$Q_{capacity}$ =	**0.723 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**16.06%**

($Q_{halffull}$ =	0.72 **cfs)**	**($Q_{3/4full}$ =**	1.34 **cfs)**
$beta_{halffull}$=	90.000 degree	$beta_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.728 ft	$C_{3/4full}$=	81.878 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	4.142 ft/sec	$V_{3/4full}$=	4.788 ft/sec

SITE 1 (MORSE AVE. MH) - PROPOSED AVERAGE 'WW' FLOW

SMH: 4146 to 4145

GIVEN:

Qgiven=	**0.1241**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0170**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**1.664**	in	***<== Vary this depth to get Q_{assume} = Q_{given}***
	0.139	ft	

CACULATIONS:

beta=	54.26 degree		
R=	0.083 ft		
C=	62.796		
V=	2.362 ft/sec		
A=	0.053 sq-ft		
Q_{assume}=	0.1241 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.72 cfs**	**$Q_{3/4full}$ =**	**1.34 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0% **<======= OK**
Flow Depth (h) =	**1.664 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**41.59%**
$Q_{capacity}$ =	**0.723 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**17.17%**

($Q_{halffull}$ =	0.72 **cfs)**	**($Q_{3/4full}$ =**	1.34 **cfs)**
$beta_{halffull}$=	90.000 degree	$beta_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.728 ft	$C_{3/4full}$=	81.878 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	4.142 ft/sec	$V_{3/4full}$=	4.788 ft/sec

SITE 1 (MORSE AVE. MH) - PROPOSED PEAK 'WW' FLOW

SMH: 4146 to 4145

GIVEN:

Qgiven=	**0.3279**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0170**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**2.646**	in	***<== Vary this depth to get Q_{assume} = Q_{given}***
	0.220	ft	

CACULATIONS:

beta=	70.21 degree		
R=	0.123 ft		
C=	71.087		
V=	3.255 ft/sec		
A=	0.101 sq-ft		
Q_{assume}=	0.3279 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.72 cfs**	**$Q_{3/4full}$ =**	**1.34 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0%	**<======= OK**
Flow Depth (h) =	**2.646 in**	
$d_{capacity}$ =	**0.333 ft**	
Capacity $h_{flowdepth}/d_{capacity}$ =	**66.14%**	
$Q_{capacity}$ =	**0.723 cfs**	
Capacity $Q_{given}/Q_{capacity}$ =	**45.36%**	

($Q_{halffull}$ =	0.72 **cfs)**	**($Q_{3/4full}$ =**	1.34 **cfs)**
beta $_{halffull}$=	90.000 degree	beta $_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.728 ft	$C_{3/4full}$=	81.878 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	4.142 ft/sec	$V_{3/4full}$=	4.788 ft/sec

SITE 2 (CYPRESS PT. DR. MH) - PROPOSED AVERAGE FLOW

SMH: 4145 to 4111

GIVEN:

Qgiven=	**0.0446**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0048**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**1.393**	in	***<== Vary this depth to get Q_{assume} = Q_{given}***
	0.116	ft	

CACULATIONS:

beta=	49.33 degree		
R=	0.071 ft		
C=	59.308		
V=	1.095 ft/sec		
A=	0.041 sq-ft		
Q_{assume}=	0.0446 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.38 cfs**	**$Q_{3/4full}$ =**	**0.71 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0% **<======= OK**
Flow Depth (h) =	**1.393 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**34.83%**
$Q_{capacity}$ =	**0.383 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**11.65%**

($Q_{halffull}$ =	0.38 **cfs)**	**($Q_{3/4full}$ =**	0.71 **cfs)**
$beta_{halffull}$=	90.000 degree	$beta_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.464 ft	$C_{3/4full}$=	81.618 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	2.193 ft/sec	$V_{3/4full}$=	2.536 ft/sec

SITE 2 (CYPRESS PT. DR. MH) - PROPOSED PEAK FLOW

SMH: 4145 to 4111

GIVEN:

Qgiven=	**0.1149**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0048**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**2.164**	in	***<== Vary this depth to get $Q_{assume} = Q_{given}$***
	0.180	ft	

CACULATIONS:

beta=	62.68 degree		
R=	0.105 ft		
C=	67.283		
V=	1.507 ft/sec		
A=	0.076 sq-ft		
Q_{assume}=	0.1149 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.38 cfs**	**$Q_{3/4full}$ =**	**0.71 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %= 0% **<======= OK**

Flow Depth (h) = 2.164 in

$d_{capacity}$ = 0.333 ft

Capacity $h_{flowdepth}/d_{capacity}$ = 54.10%

$Q_{capacity}$ = 0.383 cfs

Capacity $Q_{given}/Q_{capacity}$ = 30.02%

($Q_{halffull}$ =	0.38 **cfs)**	**($Q_{3/4full}$ =**	0.71 **cfs)**
$beta_{halffull}$=	90.000 degree	$beta_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.464 ft	$C_{3/4full}$=	81.618 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	2.193 ft/sec	$V_{3/4full}$=	2.536 ft/sec

SITE 2 (CYPRESS PT. DR. MH) - PROPOSED AVERAGE 'WW' FLOW

SMH: 4145 to 4111

GIVEN:

Qgiven=	**0.1481**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0048**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**2.447**	in	***<== Vary this depth to get $Q_{assume} = Q_{given}$***
	0.204	ft	

CACULATIONS:

beta=	67.15 degree		
R=	0.116 ft		
C=	69.458		
V=	1.637 ft/sec		
A=	0.090 sq-ft		
Q_{assume}=	0.1481 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.38 cfs**	**$Q_{3/4full}$ =**	**0.71 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0% **<======= OK**
Flow Depth (h) =	**2.447 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**61.16%**
$Q_{capacity}$ =	**0.383 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**38.69%**

($Q_{halffull}$ =	0.38 **cfs)**	**($Q_{3/4full}$ =**	0.71 **cfs)**
$beta_{halffull}$=	90.000 degree	$beta_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.464 ft	$C_{3/4full}$=	81.618 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	2.193 ft/sec	$V_{3/4full}$=	2.536 ft/sec

SITE 2 (CYPRESS PT. DR. MH) - PROPOSED PEAK 'WW' FLOW

SMH: 4145 to 4111

GIVEN:

Qgiven=	**0.3231**	cfs	***<== Discharge***
n=	**0.013**		***<== Roughness coefficient***
S=	**0.0048**		***<== Slope V:H***
r=	**0.333**	ft	***<== Radius***
d=	8.000	in	

TRIAL DEPTH:

h=	**3.646**	in	***<== Vary this depth to get $Q_{assume} = Q_{given}$***
	0.304	ft	

CACULATIONS:

beta=	84.92 degree		
R=	0.157 ft		
C=	76.061		
V=	2.086 ft/sec		
A=	0.155 sq-ft		
Q_{assume}=	0.3231 cfs		
$d_{0.5}$ =	**0.333 ft**	**$d_{0.75}$ =**	**0.500 ft**
$Q_{halffull}$ =	**0.38 cfs**	**$Q_{3/4full}$ =**	**0.71 cfs**

RESULT:

(Qgiven-Qassume) / Qgiven %=	0% **<======= OK**
Flow Depth (h) =	**3.646 in**
$d_{capacity}$ =	**0.333 ft**
Capacity $h_{flowdepth}/d_{capacity}$ =	**91.15%**
$Q_{capacity}$ =	**0.383 cfs**
Capacity $Q_{given}/Q_{capacity}$ =	**84.41%**

($Q_{halffull}$ =	0.38 **cfs)**	**($Q_{3/4full}$ =**	0.71 **cfs)**
$beta_{halffull}$=	90.000 degree	$beta_{3/4full}$=	120.00 degree
$R_{halffull}$ =	0.167 ft	$R_{3/4full}$=	0.201 ft
$C_{halffull}$ =	77.464 ft	$C_{3/4full}$=	81.618 ft
$A_{halffull}$ =	0.175 sq-ft	$A_{3/4full}$=	0.281 sq-ft
$V_{halffull}$ =	2.193 ft/sec	$V_{3/4full}$=	2.536 ft/sec

Appendix 6

Utility Systems Science & Software - Sewer Monitoring Data

Utility Systems Science and Software

SITE 1
SMH: 4145

Report Date: 06/29/2020
Customer: US3
Group: 1413 Angelina Project
Site: 2020.06 Morse MH

Statistics for 2020.06 Morse MH: 06/09/2020 thru 06/24/2020

	Flow (GPM)			Flow (MGD)			Velocity (FPS)			Level (inches)				
Date	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Total Gal**	**Rain**
6/9/20	9.95	17.31	4.17	0.01	0.02	0.01	0.93	1.36	0.59	0.95	1.25	0.73	14,323	
6/10/20	11.03	20.00	5.11	0.02	0.03	0.01	0.94	1.34	0.50	1.01	1.39	0.67	15,884	
6/11/20	9.03	20.27	1.46	0.01	0.03	0.00	0.87	1.24	0.65	0.91	1.39	0.32	13,005	
6/12/20	10.64	27.51	1.26	0.02	0.04	0.00	0.88	1.60	0.47	1.00	1.52	0.38	15,322	
6/13/20	9.95	24.03	2.52	0.01	0.03	0.00	0.85	1.38	0.44	0.97	1.52	0.52	14,325	
6/14/20	9.53	16.70	1.86	0.01	0.02	0.00	0.86	1.23	0.54	0.97	1.41	0.45	13,724	
Week:	**10.02**	**27.51**	**1.26**	**0.01**	**0.04**	**0.00**	**0.89**	**1.60**	**0.44**	**0.97**	**1.52**	**0.32**	**86,583**	
6/15/20	10.40	21.27	3.04	0.01	0.03	0.00	0.90	1.64	0.46	1.00	1.29	0.59	14,981	
6/16/20	9.71	21.90	3.70	0.01	0.03	0.01	0.92	1.65	0.55	0.95	1.42	0.59	13,978	
6/17/20	9.94	25.23	2.48	0.01	0.04	0.00	0.87	1.29	0.51	0.98	1.56	0.53	14,309	
6/18/20	7.86	15.31	2.00	0.01	0.02	0.00	0.81	1.18	0.49	0.88	1.21	0.46	11,323	
6/19/20	10.15	22.26	1.29	0.01	0.03	0.00	0.94	1.29	0.56	0.92	1.41	0.25	14,609	
6/20/20	12.81	31.67	4.98	0.02	0.05	0.01	0.97	1.31	0.58	1.08	1.88	0.77	18,452	
6/21/20	8.71	18.20	2.68	0.01	0.03	0.00	0.86	1.34	0.53	0.90	1.23	0.45	12,549	
Week:	**9.94**	**31.67**	**1.29**	**0.01**	**0.05**	**0.00**	**0.89**	**1.65**	**0.46**	**0.96**	**1.88**	**0.25**	**100,201**	
6/22/20	10.11	21.27	2.60	0.01	0.03	0.00	0.88	1.38	0.58	0.97	1.43	0.50	14,555	
6/23/20	10.69	23.07	4.99	0.02	0.03	0.01	0.92	1.37	0.59	1.01	1.57	0.78	15,393	
6/24/20	9.56	23.87	2.96	0.01	0.03	0.00	0.90	1.35	0.48	0.91	1.43	0.56	13,772	
Week:	**10.12**	**23.87**	**2.60**	**0.01**	**0.03**	**0.00**	**0.90**	**1.38**	**0.48**	**0.96**	**1.57**	**0.50**	**43,719**	
Totals:	**10.00**	**31.67**	**1.26**	**0.01**	**0.05**	**0.00**	**0.89**	**1.65**	**0.44**	**0.96**	**1.88**	**0.25**	**230,503**	

ADF = 0.0285 cfs
PDF = 0.0706 cfs

Utility Systems Science and Software

SITE 1
SMH: 4145

Report Date: 06/29/2020
Customer: US3
Group: 1413 Angelina Project
Site: 2020.06 Morse MH

Data for 2020.06 Morse MH:
06/09/2020 thru 06/24/2020

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/09 10:34	1.18	16.51	1.14
2020/06/09 10:39	0.96	13.05	1.22
2020/06/09 10:44	1.04	15.24	1.26
2020/06/09 10:49	1.09	17.31	1.36
2020/06/09 10:54	1.04	14.73	1.22
2020/06/09 10:59	1.04	14.73	1.22
2020/06/09 11:04	1.04	13.50	1.12
2020/06/09 11:09	1.04	13.50	1.12
2020/06/09 11:14	1.03	13.24	1.12
2020/06/09 11:19	1.04	13.65	1.13
2020/06/09 11:24	1.02	13.13	1.13
2020/06/09 11:29	1.02	13.13	1.13
2020/06/09 11:34	1.18	16.37	1.13
2020/06/09 11:39	1.25	16.85	1.07
2020/06/09 11:44	1.18	13.73	0.95
2020/06/09 11:49	1.18	13.73	0.95
2020/06/09 11:54	1.04	11.96	0.99
2020/06/09 11:59	0.89	9.50	0.99
2020/06/09 12:04	0.89	9.50	0.99
2020/06/09 12:09	0.86	9.07	0.99
2020/06/09 12:14	0.86	8.77	0.96
2020/06/09 12:19	0.92	9.60	0.96
2020/06/09 12:24	0.95	10.03	0.96
2020/06/09 12:29	0.95	9.64	0.92
2020/06/09 12:34	1.03	10.91	0.92
2020/06/09 12:39	1.03	12.33	1.04
2020/06/09 12:44	1.13	13.29	0.99
2020/06/09 12:49	1.13	12.43	0.92
2020/06/09 12:54	1.16	12.79	0.92
2020/06/09 12:59	1.16	13.15	0.94
2020/06/09 13:04	1.16	13.15	0.94
2020/06/09 13:09	1.00	10.70	0.94
2020/06/09 13:14	0.98	11.89	1.09
2020/06/09 13:19	0.96	11.64	1.09
2020/06/09 13:24	0.92	10.91	1.09
2020/06/09 13:29	0.91	9.74	1.00
2020/06/09 13:34	0.84	8.67	1.00
2020/06/09 13:39	0.84	8.58	0.99
2020/06/09 13:44	0.84	8.58	0.99

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/09 13:49	0.89	9.43	0.99
2020/06/09 13:54	0.93	10.21	1.00
2020/06/09 13:59	0.99	11.11	1.00
2020/06/09 14:04	1.02	12.55	1.08
2020/06/09 14:09	1.02	12.55	1.08
2020/06/09 14:14	0.96	11.62	1.09
2020/06/09 14:19	0.96	11.57	1.08
2020/06/09 14:24	0.95	10.19	0.98
2020/06/09 14:29	0.89	8.88	0.93
2020/06/09 14:34	0.81	7.69	0.93
2020/06/09 14:39	0.81	6.86	0.83
2020/06/09 14:44	0.81	6.45	0.78
2020/06/09 14:49	0.81	6.86	0.83
2020/06/09 14:54	0.82	6.94	0.82
2020/06/09 14:59	0.85	7.29	0.82
2020/06/09 15:04	0.88	7.28	0.78
2020/06/09 15:09	0.88	7.37	0.79
2020/06/09 15:14	0.88	7.37	0.79
2020/06/09 15:19	0.93	6.56	0.64
2020/06/09 15:24	1.11	10.43	0.79
2020/06/09 15:29	1.06	9.68	0.79
2020/06/09 15:34	1.06	10.59	0.86
2020/06/09 15:39	1.06	10.90	0.89
2020/06/09 15:44	1.00	10.07	0.89
2020/06/09 15:49	0.91	8.68	0.89
2020/06/09 15:54	0.91	8.68	0.89
2020/06/09 15:59	0.89	7.23	0.76
2020/06/09 16:04	0.91	7.39	0.76
2020/06/09 16:09	0.98	9.63	0.88
2020/06/09 16:14	1.00	10.03	0.88
2020/06/09 16:19	1.00	10.03	0.88
2020/06/09 16:24	1.00	10.34	0.91
2020/06/09 16:29	1.00	10.03	0.88
2020/06/09 16:34	0.98	8.58	0.79
2020/06/09 16:39	0.92	7.49	0.75
2020/06/09 16:44	0.86	6.84	0.75
2020/06/09 16:49	0.86	6.84	0.75
2020/06/09 16:54	0.86	8.83	0.97
2020/06/09 16:59	1.00	10.98	0.97
2020/06/09 17:04	1.00	11.51	1.01
2020/06/09 17:09	1.00	11.51	1.01
2020/06/09 17:14	1.03	11.98	1.01
2020/06/09 17:19	1.00	11.51	1.01
2020/06/09 17:24	1.00	11.51	1.01
2020/06/09 17:29	1.09	14.35	1.12

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/09 21:19	0.98	8.62	0.79
2020/06/09 21:24	0.98	8.62	0.79
2020/06/09 21:29	0.98	8.62	0.79
2020/06/09 21:34	1.02	9.52	0.82
2020/06/09 21:39	1.02	11.17	0.96
2020/06/09 21:44	1.02	11.17	0.96
2020/06/09 21:49	0.92	8.22	0.82
2020/06/09 21:54	0.85	8.76	0.98
2020/06/09 21:59	0.79	5.91	0.73
2020/06/09 22:04	0.79	5.75	0.71
2020/06/09 22:09	0.79	5.75	0.71
2020/06/09 22:14	0.78	6.11	0.78
2020/06/09 22:19	0.85	6.92	0.78
2020/06/09 22:24	0.89	8.76	0.92
2020/06/09 22:29	0.85	8.88	1.00
2020/06/09 22:34	0.85	8.88	1.00
2020/06/09 22:39	0.85	8.88	1.00
2020/06/09 22:44	0.78	7.83	0.99
2020/06/09 22:49	0.78	6.90	0.88
2020/06/09 22:54	0.74	6.36	0.88
2020/06/09 22:59	0.74	6.36	0.88
2020/06/09 23:04	0.78	6.90	0.88
2020/06/09 23:09	0.74	6.36	0.88
2020/06/09 23:14	0.73	5.88	0.83
2020/06/09 23:19	0.73	5.88	0.83
2020/06/09 23:24	0.74	6.04	0.83
2020/06/09 23:29	0.73	5.88	0.83
2020/06/09 23:34	0.73	6.28	0.89
2020/06/09 23:39	0.73	6.28	0.89
2020/06/09 23:44	0.73	6.47	0.92
2020/06/09 23:49	0.73	4.17	0.59
2020/06/09 23:54	0.73	6.95	0.98
2020/06/09 23:59	0.74	4.29	0.59
2020/06/10 00:04	0.85	6.88	0.77
2020/06/10 00:09	0.85	6.88	0.77
2020/06/10 00:14	0.74	6.54	0.90
2020/06/10 00:19	0.74	6.54	0.90
2020/06/10 00:24	0.75	6.91	0.93
2020/06/10 00:29	0.71	6.35	0.93
2020/06/10 00:34	0.75	6.91	0.93
2020/06/10 00:39	0.78	7.29	0.93
2020/06/10 00:44	0.79	9.46	1.17
2020/06/10 00:49	0.79	7.10	0.88
2020/06/10 00:54	0.81	8.08	0.98
2020/06/10 00:59	0.81	7.28	0.88

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/09 17:34	1.09	15.12	1.19
2020/06/09 17:39	1.03	14.01	1.19
2020/06/09 17:44	1.04	11.32	0.94
2020/06/09 17:49	1.03	13.60	1.15
2020/06/09 17:54	1.00	13.07	1.15
2020/06/09 17:59	1.00	10.67	0.94
2020/06/09 18:04	0.98	9.98	0.92
2020/06/09 18:09	0.95	9.57	0.92
2020/06/09 18:14	0.91	8.21	0.84
2020/06/09 18:19	0.95	8.70	0.83
2020/06/09 18:24	0.91	8.21	0.84
2020/06/09 18:29	0.91	8.14	0.83
2020/06/09 18:34	0.95	8.77	0.84
2020/06/09 18:39	0.99	10.90	0.98
2020/06/09 18:44	1.04	11.80	0.98
2020/06/09 18:49	1.07	12.26	0.98
2020/06/09 18:54	1.10	12.72	0.98
2020/06/09 18:59	1.10	12.78	0.98
2020/06/09 19:04	1.07	11.19	0.89
2020/06/09 19:09	1.06	12.08	0.98
2020/06/09 19:14	0.98	10.72	0.98
2020/06/09 19:19	0.95	11.08	1.06
2020/06/09 19:24	0.95	11.85	1.13
2020/06/09 19:29	0.95	11.85	1.13
2020/06/09 19:34	0.95	11.08	1.06
2020/06/09 19:39	0.95	9.99	0.96
2020/06/09 19:44	0.95	9.00	0.86
2020/06/09 19:49	0.95	8.42	0.81
2020/06/09 19:54	0.95	8.42	0.81
2020/06/09 19:59	0.95	8.42	0.81
2020/06/09 20:04	0.95	8.94	0.86
2020/06/09 20:09	1.00	9.72	0.86
2020/06/09 20:14	1.00	9.72	0.86
2020/06/09 20:19	1.03	9.92	0.84
2020/06/09 20:24	1.03	9.92	0.84
2020/06/09 20:29	0.95	8.68	0.83
2020/06/09 20:34	0.92	8.24	0.82
2020/06/09 20:39	0.92	8.24	0.82
2020/06/09 20:44	0.92	10.40	1.04
2020/06/09 20:49	0.93	6.52	0.64
2020/06/09 20:54	1.00	6.89	0.61
2020/06/09 20:59	1.14	12.34	0.90
2020/06/09 21:04	1.17	12.78	0.90
2020/06/09 21:09	1.17	11.23	0.79
2020/06/09 21:14	1.14	10.85	0.79

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 04:49	1.09	12.93	1.01
2020/06/10 04:54	1.09	12.47	0.98
2020/06/10 04:59	1.09	12.42	0.97
2020/06/10 05:04	1.09	12.42	0.97
2020/06/10 05:09	1.03	5.94	0.50
2020/06/10 05:14	1.13	13.12	0.97
2020/06/10 05:19	1.13	13.62	1.01
2020/06/10 05:24	1.20	16.55	1.13
2020/06/10 05:29	1.13	15.17	1.13
2020/06/10 05:34	1.13	15.75	1.17
2020/06/10 05:39	1.04	13.57	1.13
2020/06/10 05:44	1.04	10.84	0.90
2020/06/10 05:49	1.03	10.60	0.90
2020/06/10 05:54	1.02	6.44	0.56
2020/06/10 05:59	1.03	6.57	0.56
2020/06/10 06:04	1.04	6.70	0.56
2020/06/10 06:09	1.18	8.65	0.60
2020/06/10 06:14	1.23	9.32	0.61
2020/06/10 06:19	1.23	9.32	0.61
2020/06/10 06:24	1.23	13.46	0.89
2020/06/10 06:29	0.73	6.84	0.97
2020/06/10 06:34	0.73	6.84	0.97
2020/06/10 06:39	0.73	6.60	0.93
2020/06/10 06:44	0.74	6.78	0.93
2020/06/10 06:49	0.79	7.54	0.93
2020/06/10 06:54	0.95	9.76	0.93
2020/06/10 06:59	1.13	14.01	1.04
2020/06/10 07:04	1.17	14.76	1.04
2020/06/10 07:09	1.17	14.76	1.04
2020/06/10 07:14	1.17	14.76	1.04
2020/06/10 07:19	1.04	11.22	0.93
2020/06/10 07:24	1.04	11.22	0.93
2020/06/10 07:29	1.04	13.09	1.09
2020/06/10 07:34	1.02	10.79	0.93
2020/06/10 07:39	1.03	10.73	0.91
2020/06/10 07:44	1.03	10.97	0.93
2020/06/10 07:49	1.02	10.76	0.93
2020/06/10 07:54	1.02	10.52	0.91
2020/06/10 07:59	1.03	10.97	0.93
2020/06/10 08:04	1.20	15.68	1.07
2020/06/10 08:09	1.20	15.68	1.07
2020/06/10 08:14	1.20	19.35	1.32
2020/06/10 08:19	1.20	19.35	1.32
2020/06/10 08:24	1.21	17.93	1.20
2020/06/10 08:29	1.32	16.47	0.97

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 01:04	0.78	7.42	0.94
2020/06/10 01:09	0.78	6.98	0.89
2020/06/10 01:14	0.78	6.98	0.89
2020/06/10 01:19	0.75	5.93	0.80
2020/06/10 01:24	0.78	6.26	0.80
2020/06/10 01:29	0.78	6.26	0.80
2020/06/10 01:34	0.86	7.26	0.80
2020/06/10 01:39	0.89	7.61	0.80
2020/06/10 01:44	0.98	6.33	0.58
2020/06/10 01:49	0.91	8.64	0.88
2020/06/10 01:54	0.91	5.68	0.58
2020/06/10 01:59	0.91	5.68	0.58
2020/06/10 02:04	0.86	5.31	0.58
2020/06/10 02:09	0.85	5.11	0.57
2020/06/10 02:14	0.85	5.11	0.57
2020/06/10 02:19	0.85	5.56	0.62
2020/06/10 02:24	0.88	5.83	0.62
2020/06/10 02:29	0.88	6.15	0.66
2020/06/10 02:34	0.88	6.15	0.66
2020/06/10 02:39	0.89	6.53	0.68
2020/06/10 02:44	0.89	6.53	0.68
2020/06/10 02:49	0.89	7.24	0.76
2020/06/10 02:54	0.89	6.53	0.68
2020/06/10 02:59	0.91	7.40	0.76
2020/06/10 03:04	0.93	8.83	0.86
2020/06/10 03:09	1.00	10.09	0.89
2020/06/10 03:14	1.00	10.09	0.89
2020/06/10 03:19	1.03	10.50	0.89
2020/06/10 03:24	1.03	9.98	0.84
2020/06/10 03:29	1.02	9.79	0.84
2020/06/10 03:34	1.09	10.53	0.83
2020/06/10 03:39	1.09	10.77	0.84
2020/06/10 03:44	1.09	10.53	0.83
2020/06/10 03:49	1.03	9.92	0.84
2020/06/10 03:54	1.03	9.75	0.83
2020/06/10 03:59	0.98	8.38	0.77
2020/06/10 04:04	0.95	8.04	0.77
2020/06/10 04:09	0.92	7.32	0.73
2020/06/10 04:14	0.92	7.32	0.73
2020/06/10 04:19	0.92	8.94	0.89
2020/06/10 04:24	0.92	10.15	1.01
2020/06/10 04:29	0.91	9.98	1.02
2020/06/10 04:34	0.98	11.12	1.02
2020/06/10 04:39	0.98	11.05	1.01
2020/06/10 04:44	1.09	13.02	1.02

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 08:34	1.35	16.97	0.97
2020/06/10 08:39	1.35	16.97	0.97
2020/06/10 08:44	1.35	20.00	1.14
2020/06/10 08:49	1.32	16.47	0.97
2020/06/10 08:54	1.31	16.54	0.99
2020/06/10 08:59	1.23	15.04	0.99
2020/06/10 09:04	1.16	13.82	0.99
2020/06/10 09:09	1.04	11.30	0.94
2020/06/10 09:14	1.02	10.87	0.94
2020/06/10 09:19	1.04	11.30	0.94
2020/06/10 09:24	1.00	10.60	0.93
2020/06/10 09:29	1.00	10.60	0.93
2020/06/10 09:34	1.04	12.30	1.02
2020/06/10 09:39	1.07	12.77	1.02
2020/06/10 09:44	1.11	12.36	0.93
2020/06/10 09:49	1.11	11.87	0.90
2020/06/10 09:54	1.07	11.23	0.90
2020/06/10 09:59	1.07	9.65	0.77
2020/06/10 10:04	1.07	11.23	0.90
2020/06/10 10:09	1.07	9.65	0.77
2020/06/10 10:14	1.09	15.33	1.20
2020/06/10 10:19	1.09	11.09	0.87
2020/06/10 10:24	1.09	11.93	0.94
2020/06/10 10:29	0.89	8.95	0.94
2020/06/10 10:34	0.89	9.20	0.96
2020/06/10 10:39	0.89	9.20	0.96
2020/06/10 10:44	0.92	9.62	0.96
2020/06/10 10:49	0.92	9.62	0.96
2020/06/10 10:54	0.92	9.30	0.93
2020/06/10 10:59	0.92	9.30	0.93
2020/06/10 11:04	0.89	8.89	0.93
2020/06/10 11:09	0.89	10.51	1.10
2020/06/10 11:14	0.92	10.99	1.10
2020/06/10 11:19	0.95	11.48	1.10
2020/06/10 11:24	0.95	10.71	1.02
2020/06/10 11:29	0.96	10.23	0.96
2020/06/10 11:34	0.99	8.97	0.81
2020/06/10 11:39	0.99	8.97	0.81
2020/06/10 11:44	0.98	8.79	0.81
2020/06/10 11:49	0.98	9.12	0.84
2020/06/10 11:54	0.92	8.86	0.89
2020/06/10 11:59	0.89	8.47	0.89
2020/06/10 12:04	0.89	8.47	0.89
2020/06/10 12:09	0.89	9.03	0.94
2020/06/10 12:14	0.84	8.21	0.94

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 12:19	0.84	6.92	0.80
2020/06/10 12:24	0.89	7.61	0.80
2020/06/10 12:29	0.86	7.26	0.80
2020/06/10 12:34	0.85	6.74	0.76
2020/06/10 12:39	0.85	7.09	0.80
2020/06/10 12:44	0.86	6.90	0.76
2020/06/10 12:49	0.85	6.74	0.76
2020/06/10 12:54	0.85	6.74	0.76
2020/06/10 12:59	0.88	8.94	0.96
2020/06/10 13:04	1.04	11.65	0.97
2020/06/10 13:09	1.13	13.80	1.02
2020/06/10 13:14	1.17	14.86	1.05
2020/06/10 13:19	1.17	14.86	1.05
2020/06/10 13:24	1.16	14.61	1.05
2020/06/10 13:29	1.16	14.66	1.05
2020/06/10 13:34	1.16	14.66	1.05
2020/06/10 13:39	1.16	15.80	1.13
2020/06/10 13:44	1.23	17.69	1.16
2020/06/10 13:49	1.23	17.86	1.18
2020/06/10 13:54	1.31	19.64	1.18
2020/06/10 13:59	1.23	17.69	1.16
2020/06/10 14:04	1.23	15.79	1.04
2020/06/10 14:09	1.23	15.65	1.03
2020/06/10 14:14	1.28	16.68	1.03
2020/06/10 14:19	1.23	15.44	1.02
2020/06/10 14:24	1.23	15.12	1.00
2020/06/10 14:29	1.18	14.38	1.00
2020/06/10 14:34	1.13	13.41	1.00
2020/06/10 14:39	1.07	12.47	1.00
2020/06/10 14:44	1.06	12.11	0.99
2020/06/10 14:49	1.06	14.31	1.16
2020/06/10 14:54	1.07	13.10	1.05
2020/06/10 14:59	1.16	16.26	1.16
2020/06/10 15:04	1.16	14.61	1.05
2020/06/10 15:09	1.16	15.66	1.12
2020/06/10 15:14	1.16	15.66	1.12
2020/06/10 15:19	1.16	15.66	1.12
2020/06/10 15:24	1.10	14.58	1.12
2020/06/10 15:29	1.06	13.78	1.12
2020/06/10 15:34	1.04	12.83	1.06
2020/06/10 15:39	1.00	10.84	0.95
2020/06/10 15:44	1.00	12.09	1.06
2020/06/10 15:49	0.99	10.62	0.95
2020/06/10 15:54	0.99	11.84	1.06
2020/06/10 15:59	1.00	9.68	0.85

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 19:49	1.03	10.00	0.85
2020/06/10 19:54	1.11	11.19	0.85
2020/06/10 19:59	1.13	13.56	1.01
2020/06/10 20:04	1.14	13.81	1.01
2020/06/10 20:09	1.13	14.27	1.06
2020/06/10 20:14	1.13	14.27	1.06
2020/06/10 20:19	1.10	11.60	0.89
2020/06/10 20:24	1.09	11.39	0.89
2020/06/10 20:29	1.09	15.14	1.19
2020/06/10 20:34	1.09	15.61	1.22
2020/06/10 20:39	1.20	17.98	1.22
2020/06/10 20:44	1.21	18.28	1.22
2020/06/10 20:49	1.21	18.28	1.22
2020/06/10 20:54	1.21	15.59	1.04
2020/06/10 20:59	1.04	11.82	0.98
2020/06/10 21:04	0.99	11.61	1.04
2020/06/10 21:09	0.99	12.55	1.13
2020/06/10 21:14	1.04	12.58	1.04
2020/06/10 21:19	0.99	10.91	0.98
2020/06/10 21:24	1.09	12.51	0.98
2020/06/10 21:29	1.09	12.16	0.95
2020/06/10 21:34	1.02	10.98	0.95
2020/06/10 21:39	0.95	8.67	0.83
2020/06/10 21:44	0.95	9.69	0.93
2020/06/10 21:49	0.91	9.07	0.93
2020/06/10 21:54	0.91	9.07	0.93
2020/06/10 21:59	0.91	9.07	0.93
2020/06/10 22:04	0.91	9.54	0.98
2020/06/10 22:09	1.03	15.79	1.34
2020/06/10 22:14	1.38	19.63	1.09
2020/06/10 22:19	1.38	19.63	1.09
2020/06/10 22:24	1.39	19.91	1.09
2020/06/10 22:29	1.39	15.75	0.86
2020/06/10 22:34	1.39	15.75	0.86
2020/06/10 22:39	1.32	14.63	0.86
2020/06/10 22:44	1.32	15.89	0.94
2020/06/10 22:49	1.10	13.15	1.01
2020/06/10 22:54	1.07	12.67	1.01
2020/06/10 22:59	1.07	12.67	1.01
2020/06/10 23:04	1.02	11.73	1.01
2020/06/10 23:09	1.00	11.49	1.01
2020/06/10 23:14	1.00	11.34	1.00
2020/06/10 23:19	1.00	9.81	0.86
2020/06/10 23:24	1.00	11.34	1.00
2020/06/10 23:29	0.84	7.84	0.90

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 16:04	1.00	11.09	0.98
2020/06/10 16:09	0.96	8.94	0.84
2020/06/10 16:14	1.00	11.09	0.98
2020/06/10 16:19	0.96	10.42	0.98
2020/06/10 16:24	0.93	10.39	1.02
2020/06/10 16:29	0.93	10.39	1.02
2020/06/10 16:34	0.93	10.39	1.02
2020/06/10 16:39	0.93	9.86	0.96
2020/06/10 16:44	0.93	9.07	0.89
2020/06/10 16:49	0.93	8.06	0.79
2020/06/10 16:54	0.92	7.89	0.79
2020/06/10 16:59	0.89	7.55	0.79
2020/06/10 17:04	0.89	7.54	0.79
2020/06/10 17:09	0.89	7.55	0.79
2020/06/10 17:14	0.89	7.55	0.79
2020/06/10 17:19	0.89	7.55	0.79
2020/06/10 17:24	0.89	8.51	0.89
2020/06/10 17:29	0.98	10.19	0.94
2020/06/10 17:34	1.02	10.84	0.94
2020/06/10 17:39	1.07	12.98	1.04
2020/06/10 17:44	1.07	12.98	1.04
2020/06/10 17:49	1.07	12.98	1.04
2020/06/10 17:54	1.02	12.01	1.04
2020/06/10 17:59	0.99	11.37	1.02
2020/06/10 18:04	0.91	9.02	0.92
2020/06/10 18:09	0.86	7.78	0.85
2020/06/10 18:14	0.95	9.63	0.92
2020/06/10 18:19	0.95	8.90	0.85
2020/06/10 18:24	0.95	8.87	0.85
2020/06/10 18:29	0.95	8.87	0.85
2020/06/10 18:34	0.99	10.31	0.93
2020/06/10 18:39	0.99	10.31	0.93
2020/06/10 18:44	1.09	12.60	0.99
2020/06/10 18:49	1.11	13.56	1.02
2020/06/10 18:54	1.14	14.80	1.08
2020/06/10 18:59	1.18	15.63	1.08
2020/06/10 19:04	1.18	15.63	1.08
2020/06/10 19:09	1.18	15.63	1.08
2020/06/10 19:14	1.14	14.80	1.08
2020/06/10 19:19	1.00	11.81	1.04
2020/06/10 19:24	1.00	9.59	0.84
2020/06/10 19:29	1.00	9.59	0.84
2020/06/10 19:34	1.03	9.98	0.84
2020/06/10 19:39	1.03	9.98	0.84
2020/06/10 19:44	1.03	9.98	0.84

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 23:34	0.84	7.52	0.86
2020/06/10 23:39	0.71	6.18	0.90
2020/06/10 23:44	0.70	6.52	0.98
2020/06/10 23:49	0.67	6.14	0.98
2020/06/10 23:54	0.67	6.74	1.07
2020/06/10 23:59	0.67	6.74	1.07
2020/06/11 00:04	0.68	6.94	1.07
2020/06/11 00:09	0.68	6.10	0.94
2020/06/11 00:14	0.68	5.98	0.92
2020/06/11 00:19	0.70	6.16	0.92
2020/06/11 00:24	0.70	6.16	0.92
2020/06/11 00:29	0.70	5.51	0.83
2020/06/11 00:34	0.67	5.07	0.81
2020/06/11 00:39	0.67	5.07	0.81
2020/06/11 00:44	0.67	5.07	0.81
2020/06/11 00:49	0.59	4.06	0.79
2020/06/11 00:54	0.59	3.96	0.77
2020/06/11 00:59	0.59	4.06	0.79
2020/06/11 01:04	0.56	3.99	0.83
2020/06/11 01:09	0.56	3.78	0.79
2020/06/11 01:14	0.53	3.42	0.77
2020/06/11 01:19	0.53	3.26	0.73
2020/06/11 01:24	0.52	2.98	0.70
2020/06/11 01:29	0.42	2.11	0.67
2020/06/11 01:34	0.38	1.88	0.70
2020/06/11 01:39	0.38	1.88	0.70
2020/06/11 01:44	0.38	1.88	0.70
2020/06/11 01:49	0.36	1.75	0.69
2020/06/11 01:54	0.36	1.75	0.69
2020/06/11 01:59	0.36	1.75	0.69
2020/06/11 02:04	0.35	1.65	0.69
2020/06/11 02:09	0.35	1.65	0.69
2020/06/11 02:14	0.32	1.46	0.69
2020/06/11 02:19	0.32	1.61	0.75
2020/06/11 02:24	0.32	1.49	0.70
2020/06/11 02:29	0.42	2.21	0.70
2020/06/11 02:34	0.45	2.42	0.70
2020/06/11 02:39	0.45	2.42	0.70
2020/06/11 02:44	0.42	2.21	0.70
2020/06/11 02:49	0.42	2.23	0.71
2020/06/11 02:54	0.42	2.23	0.71
2020/06/11 02:59	0.42	2.16	0.69
2020/06/11 03:04	0.48	2.60	0.69
2020/06/11 03:09	0.50	2.80	0.68
2020/06/11 03:14	0.52	2.81	0.66

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 03:19	0.53	2.93	0.66
2020/06/11 03:24	0.56	3.27	0.68
2020/06/11 03:29	0.56	3.76	0.78
2020/06/11 03:34	0.56	3.84	0.80
2020/06/11 03:39	0.50	3.28	0.80
2020/06/11 03:44	0.50	3.25	0.79
2020/06/11 03:49	0.49	3.11	0.79
2020/06/11 03:54	0.49	3.11	0.79
2020/06/11 03:59	0.49	3.11	0.79
2020/06/11 04:04	0.54	3.57	0.77
2020/06/11 04:09	0.60	4.12	0.77
2020/06/11 04:14	0.60	4.12	0.77
2020/06/11 04:19	0.60	3.84	0.72
2020/06/11 04:24	0.60	3.84	0.72
2020/06/11 04:29	0.66	4.72	0.77
2020/06/11 04:34	0.60	4.30	0.80
2020/06/11 04:39	0.66	5.07	0.83
2020/06/11 04:44	0.60	4.45	0.83
2020/06/11 04:49	0.60	4.30	0.80
2020/06/11 04:54	0.57	4.00	0.80
2020/06/11 04:59	0.59	4.14	0.80
2020/06/11 05:04	0.59	3.80	0.74
2020/06/11 05:09	0.60	3.93	0.74
2020/06/11 05:14	0.68	4.77	0.74
2020/06/11 05:19	0.68	4.77	0.74
2020/06/11 05:24	0.68	4.77	0.74
2020/06/11 05:29	0.68	4.70	0.73
2020/06/11 05:34	0.79	5.77	0.71
2020/06/11 05:39	0.78	5.62	0.71
2020/06/11 05:44	0.78	5.30	0.67
2020/06/11 05:49	0.82	5.72	0.67
2020/06/11 05:54	0.79	5.87	0.73
2020/06/11 05:59	0.78	5.72	0.73
2020/06/11 06:04	0.70	4.87	0.73
2020/06/11 06:09	0.64	4.69	0.80
2020/06/11 06:14	0.56	3.82	0.80
2020/06/11 06:19	0.56	3.82	0.80
2020/06/11 06:24	0.64	5.02	0.85
2020/06/11 06:29	0.71	5.80	0.84
2020/06/11 06:34	0.86	7.76	0.85
2020/06/11 06:39	0.86	7.76	0.85
2020/06/11 06:44	0.86	7.71	0.84
2020/06/11 06:49	0.81	6.43	0.78
2020/06/11 06:54	0.81	6.43	0.78
2020/06/11 06:59	0.78	6.11	0.78

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 10:49	1.03	12.74	1.08
2020/06/11 10:54	0.99	12.00	1.08
2020/06/11 10:59	0.98	11.53	1.06
2020/06/11 11:04	0.99	11.77	1.06
2020/06/11 11:09	0.99	10.45	0.94
2020/06/11 11:14	0.98	9.28	0.85
2020/06/11 11:19	0.89	7.66	0.80
2020/06/11 11:24	0.98	8.73	0.80
2020/06/11 11:29	0.98	8.73	0.80
2020/06/11 11:34	1.07	11.91	0.95
2020/06/11 11:39	1.18	15.12	1.05
2020/06/11 11:44	1.18	15.12	1.05
2020/06/11 11:49	1.18	15.12	1.05
2020/06/11 11:54	1.20	13.50	0.92
2020/06/11 11:59	1.17	13.05	0.92
2020/06/11 12:04	1.17	13.05	0.92
2020/06/11 12:09	1.20	15.01	1.02
2020/06/11 12:14	1.21	15.27	1.02
2020/06/11 12:19	1.21	15.27	1.02
2020/06/11 12:24	1.21	15.27	1.02
2020/06/11 12:29	1.21	15.96	1.07
2020/06/11 12:34	1.20	14.67	1.00
2020/06/11 12:39	1.06	11.88	0.97
2020/06/11 12:44	1.06	11.47	0.93
2020/06/11 12:49	0.89	8.17	0.85
2020/06/11 12:54	0.89	8.17	0.85
2020/06/11 12:59	0.89	7.93	0.83
2020/06/11 13:04	0.95	8.93	0.85
2020/06/11 13:09	1.13	13.27	0.98
2020/06/11 13:14	1.13	13.27	0.98
2020/06/11 13:19	1.13	11.18	0.83
2020/06/11 13:24	1.04	9.81	0.81
2020/06/11 13:29	1.04	9.81	0.81
2020/06/11 13:34	1.04	9.81	0.81
2020/06/11 13:39	1.11	12.67	0.96
2020/06/11 13:44	1.11	12.67	0.96
2020/06/11 13:49	1.13	12.90	0.96
2020/06/11 13:54	1.11	12.61	0.95
2020/06/11 13:59	1.09	12.11	0.95
2020/06/11 14:04	1.00	10.78	0.95
2020/06/11 14:09	1.00	9.50	0.84
2020/06/11 14:14	1.00	9.50	0.84
2020/06/11 14:19	0.92	8.62	0.86
2020/06/11 14:24	0.95	9.00	0.86
2020/06/11 14:29	0.95	8.58	0.82

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 07:04	0.81	7.00	0.84
2020/06/11 07:09	0.85	9.21	1.03
2020/06/11 07:14	0.89	9.88	1.03
2020/06/11 07:19	0.89	8.08	0.84
2020/06/11 07:24	0.98	10.00	0.92
2020/06/11 07:29	0.98	10.00	0.92
2020/06/11 07:34	1.04	11.05	0.92
2020/06/11 07:39	1.09	12.16	0.95
2020/06/11 07:44	1.10	14.12	1.09
2020/06/11 07:49	1.14	14.90	1.09
2020/06/11 07:54	1.14	14.90	1.09
2020/06/11 07:59	1.14	14.90	1.09
2020/06/11 08:04	1.25	17.05	1.09
2020/06/11 08:09	1.25	16.25	1.04
2020/06/11 08:14	1.25	12.84	0.82
2020/06/11 08:19	1.13	13.95	1.04
2020/06/11 08:24	1.13	13.95	1.04
2020/06/11 08:29	1.13	13.97	1.04
2020/06/11 08:34	1.21	15.49	1.04
2020/06/11 08:39	1.39	19.71	1.08
2020/06/11 08:44	1.39	20.27	1.11
2020/06/11 08:49	1.21	16.13	1.08
2020/06/11 08:54	1.10	14.31	1.10
2020/06/11 08:59	1.03	13.02	1.10
2020/06/11 09:04	1.03	12.72	1.08
2020/06/11 09:09	1.03	12.72	1.08
2020/06/11 09:14	1.14	13.18	0.96
2020/06/11 09:19	1.14	13.09	0.95
2020/06/11 09:24	1.18	13.89	0.96
2020/06/11 09:29	1.14	13.96	1.02
2020/06/11 09:34	1.13	12.95	0.96
2020/06/11 09:39	1.11	11.98	0.91
2020/06/11 09:44	1.04	10.52	0.87
2020/06/11 09:49	0.99	9.72	0.87
2020/06/11 09:54	0.99	9.41	0.85
2020/06/11 09:59	0.99	9.41	0.85
2020/06/11 10:04	0.99	9.86	0.89
2020/06/11 10:09	1.03	10.47	0.89
2020/06/11 10:14	1.03	10.42	0.88
2020/06/11 10:19	1.04	10.67	0.89
2020/06/11 10:24	1.03	10.63	0.90
2020/06/11 10:29	1.04	10.62	0.88
2020/06/11 10:34	1.07	12.98	1.04
2020/06/11 10:39	1.07	13.86	1.11
2020/06/11 10:44	1.00	12.57	1.11

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 14:34	0.93	8.40	0.82
2020/06/11 14:39	0.93	8.40	0.82
2020/06/11 14:44	0.93	7.39	0.72
2020/06/11 14:49	0.92	8.22	0.82
2020/06/11 14:54	0.92	9.05	0.91
2020/06/11 14:59	1.03	11.08	0.94
2020/06/11 15:04	1.03	10.95	0.93
2020/06/11 15:09	1.03	10.95	0.93
2020/06/11 15:14	1.03	10.95	0.93
2020/06/11 15:19	0.99	9.76	0.88
2020/06/11 15:24	0.93	8.40	0.82
2020/06/11 15:29	0.89	7.86	0.82
2020/06/11 15:34	0.82	6.98	0.82
2020/06/11 15:39	0.82	6.98	0.82
2020/06/11 15:44	0.88	7.68	0.82
2020/06/11 15:49	0.86	7.75	0.85
2020/06/11 15:54	0.86	8.13	0.89
2020/06/11 15:59	0.88	7.93	0.85
2020/06/11 16:04	0.88	8.38	0.90
2020/06/11 16:09	0.93	9.17	0.90
2020/06/11 16:14	0.93	9.17	0.90
2020/06/11 16:19	0.95	7.59	0.73
2020/06/11 16:24	0.95	8.01	0.77
2020/06/11 16:29	0.95	7.46	0.71
2020/06/11 16:34	1.07	8.94	0.71
2020/06/11 16:39	1.10	9.96	0.77
2020/06/11 16:44	1.10	9.96	0.77
2020/06/11 16:49	1.07	9.83	0.79
2020/06/11 16:54	1.14	12.00	0.87
2020/06/11 16:59	1.14	12.00	0.87
2020/06/11 17:04	1.03	10.34	0.87
2020/06/11 17:09	1.00	9.93	0.87
2020/06/11 17:14	1.11	12.01	0.91
2020/06/11 17:19	1.00	8.50	0.75
2020/06/11 17:24	1.00	8.50	0.75
2020/06/11 17:29	1.09	9.42	0.74
2020/06/11 17:34	1.09	10.86	0.85
2020/06/11 17:39	1.03	10.06	0.85
2020/06/11 17:44	1.03	10.06	0.85
2020/06/11 17:49	1.03	10.35	0.88
2020/06/11 17:54	1.03	10.91	0.92
2020/06/11 17:59	1.07	10.97	0.88
2020/06/11 18:04	1.09	8.97	0.70
2020/06/11 18:09	1.09	9.53	0.75
2020/06/11 18:14	1.09	8.97	0.70

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 18:19	1.07	8.77	0.70
2020/06/11 18:24	0.96	7.07	0.66
2020/06/11 18:29	0.93	6.77	0.66
2020/06/11 18:34	0.93	6.69	0.65
2020/06/11 18:39	0.93	6.77	0.66
2020/06/11 18:44	0.99	7.37	0.66
2020/06/11 18:49	1.06	12.52	1.02
2020/06/11 18:54	1.07	12.76	1.02
2020/06/11 18:59	1.07	12.76	1.02
2020/06/11 19:04	1.06	10.97	0.89
2020/06/11 19:09	0.96	9.53	0.89
2020/06/11 19:14	0.96	9.53	0.89
2020/06/11 19:19	0.96	9.53	0.89
2020/06/11 19:24	1.06	11.40	0.93
2020/06/11 19:29	1.11	12.39	0.94
2020/06/11 19:34	1.11	12.29	0.93
2020/06/11 19:39	1.17	13.18	0.93
2020/06/11 19:44	1.17	13.18	0.93
2020/06/11 19:49	1.16	14.97	1.07
2020/06/11 19:54	1.14	13.71	1.00
2020/06/11 19:59	1.14	13.71	1.00
2020/06/11 20:04	1.03	10.61	0.90
2020/06/11 20:09	1.02	10.41	0.90
2020/06/11 20:14	1.02	10.41	0.90
2020/06/11 20:19	1.02	10.41	0.90
2020/06/11 20:24	1.02	11.11	0.96
2020/06/11 20:29	1.06	12.13	0.99
2020/06/11 20:34	1.18	14.27	0.99
2020/06/11 20:39	1.18	14.27	0.99
2020/06/11 20:44	1.18	14.27	0.99
2020/06/11 20:49	1.17	14.02	0.99
2020/06/11 20:54	1.16	11.96	0.86
2020/06/11 20:59	1.16	14.61	1.05
2020/06/11 21:04	1.14	11.38	0.83
2020/06/11 21:09	1.14	14.24	1.04
2020/06/11 21:14	1.09	13.24	1.04
2020/06/11 21:19	1.10	15.95	1.23
2020/06/11 21:24	1.07	14.18	1.13
2020/06/11 21:29	0.92	11.34	1.13
2020/06/11 21:34	0.99	13.83	1.24
2020/06/11 21:39	0.99	12.61	1.13
2020/06/11 21:44	0.92	10.00	1.00
2020/06/11 21:49	0.93	10.22	1.00
2020/06/11 21:54	0.99	10.01	0.90
2020/06/11 21:59	1.02	9.20	0.79

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/12 01:49	0.50	2.60	0.63
2020/06/12 01:54	0.49	3.07	0.78
2020/06/12 01:59	0.46	2.82	0.78
2020/06/12 02:04	0.49	3.07	0.78
2020/06/12 02:09	0.50	3.70	0.90
2020/06/12 02:14	0.50	3.70	0.90
2020/06/12 02:19	0.60	3.88	0.73
2020/06/12 02:24	0.60	3.88	0.73
2020/06/12 02:29	0.60	3.88	0.73
2020/06/12 02:34	0.60	3.88	0.73
2020/06/12 02:39	0.60	4.19	0.78
2020/06/12 02:44	0.60	4.19	0.78
2020/06/12 02:49	0.57	3.96	0.80
2020/06/12 02:54	0.57	4.37	0.88
2020/06/12 02:59	0.57	3.96	0.80
2020/06/12 03:04	0.57	3.96	0.80
2020/06/12 03:09	0.57	3.96	0.80
2020/06/12 03:14	0.57	3.92	0.79
2020/06/12 03:19	0.54	3.64	0.79
2020/06/12 03:24	0.50	3.46	0.84
2020/06/12 03:29	0.46	2.92	0.81
2020/06/12 03:34	0.46	2.92	0.81
2020/06/12 03:39	0.46	2.92	0.81
2020/06/12 03:44	0.46	2.38	0.66
2020/06/12 03:49	0.46	2.38	0.66
2020/06/12 03:54	0.53	2.93	0.66
2020/06/12 03:59	0.53	2.63	0.59
2020/06/12 04:04	0.53	2.88	0.65
2020/06/12 04:09	0.49	2.55	0.65
2020/06/12 04:14	0.49	2.55	0.65
2020/06/12 04:19	0.49	2.55	0.65
2020/06/12 04:24	0.46	2.47	0.68
2020/06/12 04:29	0.46	2.47	0.68
2020/06/12 04:34	0.41	2.04	0.68
2020/06/12 04:39	0.41	1.58	0.53
2020/06/12 04:44	0.38	1.26	0.47
2020/06/12 04:49	0.38	1.26	0.47
2020/06/12 04:54	0.41	1.58	0.53
2020/06/12 04:59	0.42	2.36	0.75
2020/06/12 05:04	0.71	5.14	0.75
2020/06/12 05:09	0.71	5.14	0.75
2020/06/12 05:14	0.71	5.14	0.75
2020/06/12 05:19	0.63	4.28	0.75
2020/06/12 05:24	0.63	3.78	0.66
2020/06/12 05:29	0.63	4.48	0.78

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 22:04	1.02	9.20	0.79
2020/06/11 22:09	1.02	9.71	0.84
2020/06/11 22:14	1.03	9.59	0.81
2020/06/11 22:19	1.06	10.29	0.84
2020/06/11 22:24	1.13	11.81	0.88
2020/06/11 22:29	1.21	12.52	0.84
2020/06/11 22:34	1.21	12.68	0.85
2020/06/11 22:39	1.21	13.09	0.88
2020/06/11 22:44	1.07	10.63	0.85
2020/06/11 22:49	0.96	8.90	0.83
2020/06/11 22:54	0.96	9.06	0.85
2020/06/11 22:59	0.93	8.83	0.86
2020/06/11 23:04	0.93	8.83	0.86
2020/06/11 23:09	0.99	10.15	0.91
2020/06/11 23:14	1.04	10.99	0.91
2020/06/11 23:19	1.06	11.20	0.91
2020/06/11 23:24	1.06	11.20	0.91
2020/06/11 23:29	1.06	11.08	0.90
2020/06/11 23:34	0.99	9.67	0.87
2020/06/11 23:39	0.99	9.67	0.87
2020/06/11 23:44	0.89	7.17	0.75
2020/06/11 23:49	0.78	5.09	0.65
2020/06/11 23:54	0.78	5.09	0.65
2020/06/11 23:59	0.78	5.09	0.65
2020/06/12 00:04	0.81	8.02	0.97
2020/06/12 00:09	0.89	9.26	0.97
2020/06/12 00:14	0.89	9.26	0.97
2020/06/12 00:19	0.89	7.34	0.77
2020/06/12 00:24	0.81	6.36	0.77
2020/06/12 00:29	0.67	4.68	0.74
2020/06/12 00:34	0.59	3.31	0.64
2020/06/12 00:39	0.56	3.08	0.64
2020/06/12 00:44	0.56	3.80	0.79
2020/06/12 00:49	0.56	3.08	0.64
2020/06/12 00:54	0.54	3.42	0.74
2020/06/12 00:59	0.54	3.42	0.74
2020/06/12 01:04	0.56	3.04	0.63
2020/06/12 01:09	0.74	4.20	0.58
2020/06/12 01:14	0.74	4.20	0.58
2020/06/12 01:19	0.74	4.20	0.58
2020/06/12 01:24	0.59	2.99	0.58
2020/06/12 01:29	0.53	2.81	0.63
2020/06/12 01:34	0.53	3.59	0.81
2020/06/12 01:39	0.52	3.46	0.81
2020/06/12 01:44	0.50	3.20	0.78

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/12 05:34	0.63	4.48	0.78
2020/06/12 05:39	0.61	4.34	0.78
2020/06/12 05:44	0.64	4.12	0.70
2020/06/12 05:49	0.67	4.39	0.70
2020/06/12 05:54	0.88	6.54	0.70
2020/06/12 05:59	0.96	7.80	0.73
2020/06/12 06:04	0.96	7.80	0.73
2020/06/12 06:09	0.96	8.82	0.83
2020/06/12 06:14	0.99	9.20	0.83
2020/06/12 06:19	0.96	7.80	0.73
2020/06/12 06:24	0.91	6.21	0.63
2020/06/12 06:29	0.99	7.06	0.63
2020/06/12 06:34	0.99	7.06	0.63
2020/06/12 06:39	1.14	14.80	1.08
2020/06/12 06:44	1.34	23.49	1.36
2020/06/12 06:49	1.34	25.33	1.47
2020/06/12 06:54	1.34	27.51	1.60
2020/06/12 06:59	1.31	25.40	1.52
2020/06/12 07:04	1.31	25.40	1.52
2020/06/12 07:09	1.31	26.68	1.60
2020/06/12 07:14	1.35	26.58	1.52
2020/06/12 07:19	1.35	26.58	1.52
2020/06/12 07:24	1.36	26.75	1.51
2020/06/12 07:29	1.36	20.88	1.18
2020/06/12 07:34	1.25	14.65	0.93
2020/06/12 07:39	0.98	7.89	0.72
2020/06/12 07:44	0.95	7.52	0.72
2020/06/12 07:49	0.89	6.92	0.72
2020/06/12 07:54	0.89	6.92	0.72
2020/06/12 07:59	0.89	6.88	0.72
2020/06/12 08:04	0.89	7.66	0.80
2020/06/12 08:09	0.91	9.92	1.01
2020/06/12 08:14	0.92	10.14	1.01
2020/06/12 08:19	0.96	8.88	0.83
2020/06/12 08:24	0.96	10.82	1.01
2020/06/12 08:29	0.96	10.82	1.01
2020/06/12 08:34	1.00	14.78	1.30
2020/06/12 08:39	1.21	19.45	1.30
2020/06/12 08:44	1.21	19.45	1.30
2020/06/12 08:49	1.34	14.29	0.83
2020/06/12 08:54	1.34	14.29	0.83
2020/06/12 08:59	1.28	13.44	0.83
2020/06/12 09:04	1.28	16.64	1.03
2020/06/12 09:09	1.28	16.64	1.03
2020/06/12 09:14	1.25	16.81	1.07

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/12 09:19	1.16	14.34	1.03
2020/06/12 09:24	1.07	12.64	1.01
2020/06/12 09:29	1.07	12.64	1.01
2020/06/12 09:34	1.16	14.09	1.01
2020/06/12 09:39	1.20	14.55	0.99
2020/06/12 09:44	1.20	14.83	1.01
2020/06/12 09:49	1.20	16.28	1.11
2020/06/12 09:54	1.20	16.37	1.11
2020/06/12 09:59	1.20	16.53	1.12
2020/06/12 10:04	1.16	16.93	1.21
2020/06/12 10:09	1.16	15.70	1.12
2020/06/12 10:14	1.21	16.81	1.12
2020/06/12 10:19	1.24	17.11	1.11
2020/06/12 10:24	1.24	17.11	1.11
2020/06/12 10:29	1.24	17.11	1.11
2020/06/12 10:34	1.24	17.22	1.12
2020/06/12 10:39	1.21	16.66	1.12
2020/06/12 10:44	1.21	16.66	1.12
2020/06/12 10:49	1.17	13.73	0.97
2020/06/12 10:54	1.17	13.56	0.95
2020/06/12 10:59	1.10	11.15	0.86
2020/06/12 11:04	1.09	8.44	0.66
2020/06/12 11:09	1.09	8.44	0.66
2020/06/12 11:14	1.09	8.44	0.66
2020/06/12 11:19	1.27	15.28	0.96
2020/06/12 11:24	1.27	15.28	0.96
2020/06/12 11:29	1.27	15.28	0.96
2020/06/12 11:34	1.27	15.28	0.96
2020/06/12 11:39	1.14	9.12	0.66
2020/06/12 11:44	1.03	7.85	0.66
2020/06/12 11:49	1.10	9.51	0.73
2020/06/12 11:54	1.14	11.94	0.87
2020/06/12 11:59	1.14	10.66	0.78
2020/06/12 12:04	1.16	12.15	0.87
2020/06/12 12:09	1.17	12.37	0.87
2020/06/12 12:14	1.17	14.74	1.04
2020/06/12 12:19	1.16	15.20	1.09
2020/06/12 12:24	1.16	15.93	1.14
2020/06/12 12:29	1.11	14.41	1.09
2020/06/12 12:34	1.10	14.15	1.09
2020/06/12 12:39	1.07	8.94	0.71
2020/06/12 12:44	1.03	8.44	0.71
2020/06/12 12:49	1.03	8.44	0.71
2020/06/12 12:54	1.03	9.09	0.77
2020/06/12 12:59	1.29	12.65	0.77

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/12 16:49	0.99	11.00	0.99
2020/06/12 16:54	0.96	8.97	0.84
2020/06/12 16:59	0.96	8.97	0.84
2020/06/12 17:04	0.96	9.46	0.89
2020/06/12 17:09	1.16	12.36	0.89
2020/06/12 17:14	1.16	12.10	0.87
2020/06/12 17:19	1.16	12.10	0.87
2020/06/12 17:24	1.20	12.43	0.85
2020/06/12 17:29	1.20	12.43	0.85
2020/06/12 17:34	1.20	12.73	0.87
2020/06/12 17:39	1.31	15.49	0.93
2020/06/12 17:44	1.31	15.65	0.94
2020/06/12 17:49	1.31	15.74	0.94
2020/06/12 17:54	1.09	14.12	1.11
2020/06/12 17:59	1.09	12.02	0.94
2020/06/12 18:04	1.09	11.96	0.94
2020/06/12 18:09	1.09	11.96	0.94
2020/06/12 18:14	1.09	11.82	0.93
2020/06/12 18:19	1.11	10.34	0.78
2020/06/12 18:24	1.11	10.34	0.78
2020/06/12 18:29	1.11	10.34	0.78
2020/06/12 18:34	1.23	12.83	0.84
2020/06/12 18:39	1.23	12.83	0.84
2020/06/12 18:44	1.21	12.62	0.84
2020/06/12 18:49	1.20	12.41	0.84
2020/06/12 18:54	1.20	10.07	0.69
2020/06/12 18:59	1.10	8.90	0.69
2020/06/12 19:04	1.07	9.35	0.75
2020/06/12 19:09	1.06	10.59	0.86
2020/06/12 19:14	1.06	9.18	0.75
2020/06/12 19:19	1.07	10.80	0.86
2020/06/12 19:24	1.04	10.62	0.88
2020/06/12 19:29	1.06	10.83	0.88
2020/06/12 19:34	1.06	9.85	0.80
2020/06/12 19:39	1.03	9.48	0.80
2020/06/12 19:44	1.03	9.48	0.80
2020/06/12 19:49	1.06	9.85	0.80
2020/06/12 19:54	1.16	11.19	0.80
2020/06/12 19:59	1.39	19.91	1.09
2020/06/12 20:04	1.50	24.17	1.19
2020/06/12 20:09	1.52	24.49	1.19
2020/06/12 20:14	1.52	21.68	1.05
2020/06/12 20:19	1.52	21.68	1.05
2020/06/12 20:24	1.50	21.32	1.05
2020/06/12 20:29	1.41	18.37	0.99

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/12 13:04	1.29	12.65	0.77
2020/06/12 13:09	1.32	11.81	0.70
2020/06/12 13:14	1.29	11.45	0.70
2020/06/12 13:19	1.31	11.63	0.70
2020/06/12 13:24	1.31	13.31	0.80
2020/06/12 13:29	1.31	14.04	0.84
2020/06/12 13:34	1.31	14.04	0.84
2020/06/12 13:39	1.34	13.72	0.80
2020/06/12 13:44	1.34	13.67	0.79
2020/06/12 13:49	1.31	13.26	0.79
2020/06/12 13:54	1.28	12.86	0.79
2020/06/12 13:59	1.28	14.41	0.89
2020/06/12 14:04	1.28	14.41	0.89
2020/06/12 14:09	1.28	14.41	0.89
2020/06/12 14:14	1.27	14.19	0.89
2020/06/12 14:19	1.23	9.16	0.60
2020/06/12 14:24	1.17	8.56	0.60
2020/06/12 14:29	1.17	8.45	0.59
2020/06/12 14:34	1.10	7.73	0.59
2020/06/12 14:39	1.10	7.73	0.59
2020/06/12 14:44	1.13	10.12	0.75
2020/06/12 14:49	1.10	8.73	0.67
2020/06/12 14:54	1.13	10.12	0.75
2020/06/12 14:59	1.18	10.85	0.75
2020/06/12 15:04	1.18	13.25	0.92
2020/06/12 15:09	1.36	16.27	0.92
2020/06/12 15:14	1.39	16.75	0.92
2020/06/12 15:19	1.39	15.75	0.86
2020/06/12 15:24	1.36	15.30	0.86
2020/06/12 15:29	1.16	11.52	0.83
2020/06/12 15:34	1.16	11.52	0.83
2020/06/12 15:39	1.11	12.58	0.95
2020/06/12 15:44	1.11	13.78	1.04
2020/06/12 15:49	1.13	14.03	1.04
2020/06/12 15:54	1.13	15.04	1.12
2020/06/12 15:59	1.11	13.78	1.04
2020/06/12 16:04	1.10	11.06	0.85
2020/06/12 16:09	1.07	10.66	0.85
2020/06/12 16:14	1.02	9.87	0.85
2020/06/12 16:19	1.03	10.06	0.85
2020/06/12 16:24	1.03	10.60	0.90
2020/06/12 16:29	1.03	11.69	0.99
2020/06/12 16:34	1.03	11.69	0.99
2020/06/12 16:39	1.03	11.69	0.99
2020/06/12 16:44	1.02	10.39	0.90

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/12 20:34	1.24	14.04	0.91
2020/06/12 20:39	1.21	14.81	0.99
2020/06/12 20:44	1.18	13.13	0.91
2020/06/12 20:49	1.18	13.13	0.91
2020/06/12 20:54	1.17	11.06	0.78
2020/06/12 20:59	1.17	15.54	1.09
2020/06/12 21:04	1.17	15.66	1.10
2020/06/12 21:09	1.13	14.86	1.10
2020/06/12 21:14	1.09	12.49	0.98
2020/06/12 21:19	1.09	14.07	1.10
2020/06/12 21:24	1.09	12.84	1.01
2020/06/12 21:29	1.09	12.84	1.01
2020/06/12 21:34	1.21	16.52	1.11
2020/06/12 21:39	1.21	16.52	1.11
2020/06/12 21:44	1.21	15.04	1.01
2020/06/12 21:49	1.10	14.08	1.08
2020/06/12 21:54	1.10	10.35	0.80
2020/06/12 21:59	1.09	10.16	0.80
2020/06/12 22:04	1.03	9.41	0.80
2020/06/12 22:09	1.03	11.46	0.97
2020/06/12 22:14	1.03	7.77	0.66
2020/06/12 22:19	0.95	9.14	0.87
2020/06/12 22:24	0.95	8.71	0.83
2020/06/12 22:29	0.95	9.14	0.87
2020/06/12 22:34	1.04	10.54	0.87
2020/06/12 22:39	1.04	10.54	0.87
2020/06/12 22:44	1.04	11.77	0.98
2020/06/12 22:49	1.04	12.18	1.01
2020/06/12 22:54	1.04	11.77	0.98
2020/06/12 22:59	1.03	9.59	0.81
2020/06/12 23:04	1.03	12.82	1.08
2020/06/12 23:09	1.03	10.76	0.91
2020/06/12 23:14	0.95	8.48	0.81
2020/06/12 23:19	0.92	9.11	0.91
2020/06/12 23:24	0.89	8.71	0.91
2020/06/12 23:29	0.89	8.71	0.91
2020/06/12 23:34	0.89	8.59	0.90
2020/06/12 23:39	0.88	8.40	0.90
2020/06/12 23:44	0.84	7.70	0.88
2020/06/12 23:49	0.84	7.59	0.87
2020/06/12 23:54	0.84	7.16	0.82
2020/06/12 23:59	0.84	6.52	0.75
2020/06/13 00:04	0.84	6.19	0.71
2020/06/13 00:09	0.88	5.57	0.60
2020/06/13 00:14	0.88	6.65	0.71

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 00:19	0.88	6.65	0.71
2020/06/13 00:24	0.81	6.03	0.73
2020/06/13 00:29	0.79	5.88	0.73
2020/06/13 00:34	0.73	5.14	0.73
2020/06/13 00:39	0.79	5.85	0.72
2020/06/13 00:44	0.81	6.00	0.72
2020/06/13 00:49	0.89	6.91	0.72
2020/06/13 00:54	0.95	7.56	0.72
2020/06/13 00:59	0.95	8.02	0.77
2020/06/13 01:04	0.89	7.71	0.81
2020/06/13 01:09	0.89	8.47	0.89
2020/06/13 01:14	0.79	7.45	0.92
2020/06/13 01:19	0.75	6.89	0.92
2020/06/13 01:24	0.75	6.89	0.92
2020/06/13 01:29	0.75	6.75	0.91
2020/06/13 01:34	0.74	4.92	0.68
2020/06/13 01:39	0.70	4.51	0.68
2020/06/13 01:44	0.64	4.00	0.68
2020/06/13 01:49	0.63	3.25	0.57
2020/06/13 01:54	0.57	2.83	0.57
2020/06/13 01:59	0.57	2.83	0.57
2020/06/13 02:04	0.57	2.83	0.57
2020/06/13 02:09	0.66	3.46	0.57
2020/06/13 02:14	0.67	3.67	0.59
2020/06/13 02:19	0.71	4.02	0.59
2020/06/13 02:24	0.71	4.02	0.59
2020/06/13 02:29	0.68	3.39	0.52
2020/06/13 02:34	0.68	3.79	0.59
2020/06/13 02:39	0.71	3.49	0.51
2020/06/13 02:44	0.71	3.29	0.48
2020/06/13 02:49	0.73	3.19	0.45
2020/06/13 02:54	0.73	3.38	0.48
2020/06/13 02:59	0.71	3.13	0.46
2020/06/13 03:04	0.71	3.02	0.44
2020/06/13 03:09	0.73	3.22	0.46
2020/06/13 03:14	0.75	3.57	0.48
2020/06/13 03:19	0.77	3.90	0.51
2020/06/13 03:24	0.77	3.93	0.51
2020/06/13 03:29	0.75	4.28	0.57
2020/06/13 03:34	0.68	4.08	0.63
2020/06/13 03:39	0.63	3.36	0.59
2020/06/13 03:44	0.63	3.60	0.63
2020/06/13 03:49	0.63	3.60	0.63
2020/06/13 03:54	0.61	3.25	0.59
2020/06/13 03:59	0.63	3.28	0.57

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 04:04	0.63	2.93	0.51
2020/06/13 04:09	0.60	2.66	0.50
2020/06/13 04:14	0.59	2.57	0.50
2020/06/13 04:19	0.59	2.65	0.51
2020/06/13 04:24	0.56	2.52	0.52
2020/06/13 04:29	0.54	2.52	0.54
2020/06/13 04:34	0.54	2.89	0.62
2020/06/13 04:39	0.54	2.94	0.63
2020/06/13 04:44	0.56	3.82	0.80
2020/06/13 04:49	0.56	3.82	0.80
2020/06/13 04:54	0.60	4.25	0.80
2020/06/13 04:59	0.60	3.93	0.73
2020/06/13 05:04	0.56	3.53	0.73
2020/06/13 05:09	0.52	2.70	0.63
2020/06/13 05:14	0.52	3.15	0.73
2020/06/13 05:19	0.52	3.37	0.79
2020/06/13 05:24	0.73	6.14	0.87
2020/06/13 05:29	0.73	7.22	1.02
2020/06/13 05:34	0.73	7.22	1.02
2020/06/13 05:39	0.71	7.01	1.02
2020/06/13 05:44	0.71	6.70	0.98
2020/06/13 05:49	0.71	5.74	0.84
2020/06/13 05:54	1.14	10.51	0.77
2020/06/13 05:59	1.14	9.94	0.73
2020/06/13 06:04	1.14	9.78	0.71
2020/06/13 06:09	0.73	5.03	0.71
2020/06/13 06:14	0.70	3.45	0.52
2020/06/13 06:19	0.68	3.35	0.52
2020/06/13 06:24	0.68	3.35	0.52
2020/06/13 06:29	0.70	4.68	0.70
2020/06/13 06:34	0.70	4.68	0.70
2020/06/13 06:39	0.68	4.70	0.73
2020/06/13 06:44	0.68	4.70	0.73
2020/06/13 06:49	0.68	4.70	0.73
2020/06/13 06:54	0.68	3.25	0.50
2020/06/13 06:59	0.70	4.19	0.63
2020/06/13 07:04	0.71	3.24	0.47
2020/06/13 07:09	0.73	4.44	0.63
2020/06/13 07:14	0.73	4.44	0.63
2020/06/13 07:19	0.73	5.15	0.73
2020/06/13 07:24	0.81	6.04	0.73
2020/06/13 07:29	0.81	6.04	0.73
2020/06/13 07:34	0.81	6.04	0.73
2020/06/13 07:39	0.84	7.66	0.88
2020/06/13 07:44	0.84	7.66	0.88

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 07:49	0.93	9.55	0.93
2020/06/13 07:54	0.93	9.76	0.95
2020/06/13 07:59	0.93	9.55	0.93
2020/06/13 08:04	0.91	9.14	0.93
2020/06/13 08:09	0.93	8.26	0.81
2020/06/13 08:14	0.93	8.26	0.81
2020/06/13 08:19	0.93	8.26	0.81
2020/06/13 08:24	0.96	11.76	1.10
2020/06/13 08:29	1.10	14.31	1.10
2020/06/13 08:34	0.98	14.34	1.32
2020/06/13 08:39	0.98	12.01	1.10
2020/06/13 08:44	1.10	14.24	1.10
2020/06/13 08:49	1.11	14.50	1.10
2020/06/13 08:54	0.98	11.95	1.10
2020/06/13 08:59	1.13	10.23	0.76
2020/06/13 09:04	1.13	10.23	0.76
2020/06/13 09:09	1.14	14.99	1.09
2020/06/13 09:14	1.25	12.09	0.77
2020/06/13 09:19	1.28	12.48	0.77
2020/06/13 09:24	1.34	18.28	1.06
2020/06/13 09:29	1.34	14.33	0.83
2020/06/13 09:34	1.34	13.27	0.77
2020/06/13 09:39	1.28	13.48	0.83
2020/06/13 09:44	1.23	16.13	1.06
2020/06/13 09:49	1.23	12.64	0.83
2020/06/13 09:54	1.23	12.68	0.83
2020/06/13 09:59	1.42	15.97	0.85
2020/06/13 10:04	1.46	16.65	0.85
2020/06/13 10:09	1.46	16.65	0.85
2020/06/13 10:14	1.48	19.28	0.97
2020/06/13 10:19	1.48	20.81	1.05
2020/06/13 10:24	1.46	20.53	1.05
2020/06/13 10:29	1.45	21.33	1.10
2020/06/13 10:34	1.45	20.25	1.05
2020/06/13 10:39	1.45	20.25	1.05
2020/06/13 10:44	1.42	19.04	1.01
2020/06/13 10:49	1.42	19.04	1.01
2020/06/13 10:54	1.39	18.51	1.01
2020/06/13 10:59	1.39	20.67	1.13
2020/06/13 11:04	1.39	20.87	1.14
2020/06/13 11:09	1.46	22.38	1.14
2020/06/13 11:14	1.50	24.03	1.18
2020/06/13 11:19	1.50	23.30	1.14
2020/06/13 11:24	1.50	23.11	1.13
2020/06/13 11:29	1.52	23.42	1.13

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 11:34	1.50	23.11	1.13
2020/06/13 11:39	1.49	20.84	1.04
2020/06/13 11:44	1.49	20.73	1.03
2020/06/13 11:49	1.49	20.31	1.01
2020/06/13 11:54	1.35	17.64	1.01
2020/06/13 11:59	1.27	15.94	1.00
2020/06/13 12:04	1.17	13.50	0.95
2020/06/13 12:09	1.16	12.33	0.88
2020/06/13 12:14	1.16	13.26	0.95
2020/06/13 12:19	1.17	13.01	0.92
2020/06/13 12:24	1.17	12.54	0.88
2020/06/13 12:29	1.16	12.79	0.92
2020/06/13 12:34	1.14	12.56	0.92
2020/06/13 12:39	1.14	12.56	0.92
2020/06/13 12:44	1.14	12.71	0.93
2020/06/13 12:49	1.18	14.29	0.99
2020/06/13 12:54	1.20	14.53	0.99
2020/06/13 12:59	1.21	14.77	0.99
2020/06/13 13:04	1.21	16.27	1.09
2020/06/13 13:09	1.21	16.27	1.09
2020/06/13 13:14	1.17	13.61	0.96
2020/06/13 13:19	1.13	11.56	0.86
2020/06/13 13:24	1.06	10.46	0.85
2020/06/13 13:29	0.99	8.82	0.79
2020/06/13 13:34	0.98	9.28	0.85
2020/06/13 13:39	0.98	9.22	0.85
2020/06/13 13:44	0.95	8.84	0.85
2020/06/13 13:49	0.98	9.15	0.84
2020/06/13 13:54	1.00	9.53	0.84
2020/06/13 13:59	1.00	9.53	0.84
2020/06/13 14:04	1.00	9.53	0.84
2020/06/13 14:09	1.10	10.94	0.84
2020/06/13 14:14	1.10	10.94	0.84
2020/06/13 14:19	1.10	10.94	0.84
2020/06/13 14:24	1.10	12.46	0.96
2020/06/13 14:29	1.10	10.71	0.82
2020/06/13 14:34	1.10	9.96	0.77
2020/06/13 14:39	1.07	10.32	0.82
2020/06/13 14:44	1.06	9.84	0.80
2020/06/13 14:49	1.04	9.65	0.80
2020/06/13 14:54	1.02	10.68	0.92
2020/06/13 14:59	1.02	11.47	0.99
2020/06/13 15:04	0.99	10.31	0.93
2020/06/13 15:09	1.02	11.47	0.99
2020/06/13 15:14	1.02	12.86	1.11

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 15:19	1.21	16.58	1.11
2020/06/13 15:24	1.21	16.58	1.11
2020/06/13 15:29	1.21	16.58	1.11
2020/06/13 15:34	1.17	15.35	1.08
2020/06/13 15:39	1.14	13.47	0.98
2020/06/13 15:44	1.03	11.15	0.94
2020/06/13 15:49	0.95	9.11	0.87
2020/06/13 15:54	1.11	11.05	0.83
2020/06/13 15:59	1.03	9.17	0.78
2020/06/13 16:04	0.95	7.95	0.76
2020/06/13 16:09	0.92	7.61	0.76
2020/06/13 16:14	1.03	8.99	0.76
2020/06/13 16:19	1.03	8.99	0.76
2020/06/13 16:24	1.00	10.36	0.91
2020/06/13 16:29	1.03	10.78	0.91
2020/06/13 16:34	1.03	11.15	0.94
2020/06/13 16:39	1.03	11.15	0.94
2020/06/13 16:44	1.03	12.50	1.06
2020/06/13 16:49	1.11	12.48	0.94
2020/06/13 16:54	1.14	14.50	1.06
2020/06/13 16:59	1.14	16.76	1.22
2020/06/13 17:04	1.14	14.50	1.06
2020/06/13 17:09	1.14	16.76	1.22
2020/06/13 17:14	1.11	18.25	1.38
2020/06/13 17:19	1.07	15.30	1.22
2020/06/13 17:24	1.06	12.85	1.05
2020/06/13 17:29	0.95	9.80	0.94
2020/06/13 17:34	0.95	8.50	0.81
2020/06/13 17:39	0.95	8.50	0.81
2020/06/13 17:44	1.02	8.31	0.72
2020/06/13 17:49	1.02	8.31	0.72
2020/06/13 17:54	1.02	8.75	0.76
2020/06/13 17:59	1.02	9.59	0.83
2020/06/13 18:04	0.99	9.21	0.83
2020/06/13 18:09	0.99	9.21	0.83
2020/06/13 18:14	0.99	9.86	0.89
2020/06/13 18:19	0.99	11.40	1.02
2020/06/13 18:24	1.09	11.88	0.93
2020/06/13 18:29	1.09	11.30	0.89
2020/06/13 18:34	1.07	11.09	0.89
2020/06/13 18:39	1.06	10.63	0.87
2020/06/13 18:44	1.06	10.63	0.87
2020/06/13 18:49	0.93	8.50	0.83
2020/06/13 18:54	0.92	8.66	0.87
2020/06/13 18:59	0.92	9.78	0.98

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 19:04	0.92	9.78	0.98
2020/06/13 19:09	1.10	12.85	0.99
2020/06/13 19:14	1.17	14.61	1.03
2020/06/13 19:19	1.17	14.61	1.03
2020/06/13 19:24	1.17	14.61	1.03
2020/06/13 19:29	1.10	13.37	1.03
2020/06/13 19:34	0.99	11.45	1.03
2020/06/13 19:39	0.89	9.37	0.98
2020/06/13 19:44	0.89	9.37	0.98
2020/06/13 19:49	0.82	9.09	1.07
2020/06/13 19:54	0.81	8.86	1.07
2020/06/13 19:59	0.81	8.68	1.05
2020/06/13 20:04	0.81	8.68	1.05
2020/06/13 20:09	0.89	8.80	0.92
2020/06/13 20:14	0.99	9.58	0.86
2020/06/13 20:19	1.02	9.98	0.86
2020/06/13 20:24	1.02	9.98	0.86
2020/06/13 20:29	1.03	10.18	0.86
2020/06/13 20:34	1.03	10.27	0.87
2020/06/13 20:39	1.02	10.07	0.87
2020/06/13 20:44	1.00	8.92	0.79
2020/06/13 20:49	1.02	8.91	0.77
2020/06/13 20:54	1.02	8.91	0.77
2020/06/13 20:59	1.02	8.91	0.77
2020/06/13 21:04	1.03	10.39	0.88
2020/06/13 21:09	1.06	11.47	0.93
2020/06/13 21:14	1.06	15.17	1.23
2020/06/13 21:19	1.06	15.17	1.23
2020/06/13 21:24	1.07	15.46	1.23
2020/06/13 21:29	1.09	15.33	1.20
2020/06/13 21:34	1.13	14.21	1.05
2020/06/13 21:39	1.13	14.21	1.05
2020/06/13 21:44	1.13	13.58	1.01
2020/06/13 21:49	1.03	11.75	0.99
2020/06/13 21:54	0.88	9.30	0.99
2020/06/13 21:59	0.81	6.28	0.76
2020/06/13 22:04	0.81	5.89	0.71
2020/06/13 22:09	0.77	5.40	0.70
2020/06/13 22:14	0.77	5.40	0.70
2020/06/13 22:19	0.81	5.89	0.71
2020/06/13 22:24	0.82	6.03	0.71
2020/06/13 22:29	0.91	7.66	0.78
2020/06/13 22:34	1.00	10.26	0.90
2020/06/13 22:39	1.00	10.26	0.90
2020/06/13 22:44	1.00	10.26	0.90

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 22:49	1.02	10.47	0.90
2020/06/13 22:54	1.00	7.98	0.70
2020/06/13 22:59	0.93	7.19	0.70
2020/06/13 23:04	1.02	10.49	0.91
2020/06/13 23:09	1.02	10.61	0.92
2020/06/13 23:14	1.02	12.57	1.08
2020/06/13 23:19	1.02	12.57	1.08
2020/06/13 23:24	1.02	14.15	1.22
2020/06/13 23:29	1.04	13.07	1.08
2020/06/13 23:34	1.04	11.24	0.93
2020/06/13 23:39	1.00	9.86	0.87
2020/06/13 23:44	1.00	10.59	0.93
2020/06/13 23:49	1.04	11.24	0.93
2020/06/13 23:54	1.03	11.02	0.93
2020/06/13 23:59	1.03	8.99	0.76
2020/06/14 00:04	1.03	10.01	0.85
2020/06/14 00:09	1.03	9.28	0.79
2020/06/14 00:14	1.03	8.99	0.76
2020/06/14 00:19	1.03	9.22	0.78
2020/06/14 00:24	1.03	9.22	0.78
2020/06/14 00:29	0.99	8.68	0.78
2020/06/14 00:34	0.89	7.46	0.78
2020/06/14 00:39	0.81	7.60	0.92
2020/06/14 00:44	0.81	7.78	0.94
2020/06/14 00:49	0.81	7.78	0.94
2020/06/14 00:54	0.85	8.18	0.92
2020/06/14 00:59	1.02	9.20	0.79
2020/06/14 01:04	1.03	9.38	0.79
2020/06/14 01:09	1.14	10.89	0.79
2020/06/14 01:14	1.03	9.75	0.83
2020/06/14 01:19	1.03	10.81	0.91
2020/06/14 01:24	0.84	8.42	0.97
2020/06/14 01:29	0.77	7.41	0.97
2020/06/14 01:34	0.71	6.28	0.91
2020/06/14 01:39	0.66	5.45	0.90
2020/06/14 01:44	0.66	5.20	0.85
2020/06/14 01:49	0.63	4.86	0.85
2020/06/14 01:54	0.57	4.18	0.84
2020/06/14 01:59	0.56	3.59	0.75
2020/06/14 02:04	0.53	2.89	0.65
2020/06/14 02:09	0.48	2.03	0.54
2020/06/14 02:14	0.45	1.86	0.54
2020/06/14 02:19	0.45	1.86	0.54
2020/06/14 02:24	0.45	1.97	0.57
2020/06/14 02:29	0.59	3.30	0.64

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/14 02:34	0.63	4.30	0.75
2020/06/14 02:39	0.63	4.54	0.79
2020/06/14 02:44	0.63	5.60	0.98
2020/06/14 02:49	0.63	4.97	0.87
2020/06/14 02:54	0.66	5.97	0.98
2020/06/14 02:59	0.68	6.64	1.03
2020/06/14 03:04	0.74	7.45	1.03
2020/06/14 03:09	0.78	7.84	1.00
2020/06/14 03:14	0.81	8.50	1.03
2020/06/14 03:19	0.81	10.18	1.23
2020/06/14 03:24	0.81	8.25	1.00
2020/06/14 03:29	0.81	8.03	0.97
2020/06/14 03:34	0.81	7.83	0.94
2020/06/14 03:39	0.81	6.35	0.77
2020/06/14 03:44	0.71	5.26	0.77
2020/06/14 03:49	0.71	5.26	0.77
2020/06/14 03:54	0.71	5.26	0.77
2020/06/14 03:59	0.68	4.96	0.77
2020/06/14 04:04	0.67	4.09	0.65
2020/06/14 04:09	0.64	3.84	0.65
2020/06/14 04:14	0.64	3.84	0.65
2020/06/14 04:19	0.64	3.74	0.63
2020/06/14 04:24	0.61	3.51	0.63
2020/06/14 04:29	0.61	3.83	0.69
2020/06/14 04:34	0.61	3.83	0.69
2020/06/14 04:39	0.61	3.84	0.69
2020/06/14 04:44	0.61	4.36	0.79
2020/06/14 04:49	0.63	4.50	0.79
2020/06/14 04:54	0.63	4.45	0.78
2020/06/14 04:59	0.63	4.66	0.82
2020/06/14 05:04	0.57	3.88	0.78
2020/06/14 05:09	0.56	3.24	0.67
2020/06/14 05:14	0.56	3.24	0.67
2020/06/14 05:19	0.56	3.10	0.65
2020/06/14 05:24	0.54	2.99	0.65
2020/06/14 05:29	0.56	3.58	0.74
2020/06/14 05:34	0.56	3.58	0.74
2020/06/14 05:39	0.56	3.10	0.65
2020/06/14 05:44	0.54	2.73	0.59
2020/06/14 05:49	0.53	2.63	0.59
2020/06/14 05:54	0.53	2.57	0.58
2020/06/14 05:59	0.53	2.63	0.59
2020/06/14 06:04	0.54	2.86	0.62
2020/06/14 06:09	0.54	3.19	0.69
2020/06/14 06:14	0.56	3.31	0.69

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/14 06:19	0.56	3.41	0.71
2020/06/14 06:24	0.64	4.21	0.71
2020/06/14 06:29	0.68	4.63	0.72
2020/06/14 06:34	0.79	6.09	0.75
2020/06/14 06:39	0.79	6.17	0.76
2020/06/14 06:44	0.96	8.15	0.76
2020/06/14 06:49	0.96	8.15	0.76
2020/06/14 06:54	0.88	7.90	0.84
2020/06/14 06:59	0.86	7.56	0.83
2020/06/14 07:04	0.88	8.65	0.93
2020/06/14 07:09	0.88	9.42	1.01
2020/06/14 07:14	0.89	9.64	1.01
2020/06/14 07:19	0.98	11.02	1.01
2020/06/14 07:24	1.04	12.18	1.01
2020/06/14 07:29	1.13	13.58	1.01
2020/06/14 07:34	1.18	13.75	0.95
2020/06/14 07:39	1.18	13.75	0.95
2020/06/14 07:44	1.20	13.88	0.94
2020/06/14 07:49	1.18	13.65	0.94
2020/06/14 07:54	1.18	13.17	0.91
2020/06/14 07:59	1.18	13.17	0.91
2020/06/14 08:04	1.29	15.00	0.91
2020/06/14 08:09	1.18	13.17	0.91
2020/06/14 08:14	1.11	12.48	0.94
2020/06/14 08:19	1.07	12.14	0.97
2020/06/14 08:24	1.07	11.81	0.94
2020/06/14 08:29	1.07	10.02	0.80
2020/06/14 08:34	1.10	12.60	0.97
2020/06/14 08:39	1.16	11.18	0.80
2020/06/14 08:44	1.16	10.27	0.74
2020/06/14 08:49	1.16	10.27	0.74
2020/06/14 08:54	1.16	11.83	0.85
2020/06/14 08:59	1.18	12.24	0.85
2020/06/14 09:04	1.23	13.41	0.88
2020/06/14 09:09	1.23	13.41	0.88
2020/06/14 09:14	1.23	15.58	1.03
2020/06/14 09:19	1.23	15.58	1.03
2020/06/14 09:24	1.00	10.00	0.88
2020/06/14 09:29	1.00	10.00	0.88
2020/06/14 09:34	1.00	11.54	1.02
2020/06/14 09:39	1.03	11.52	0.98
2020/06/14 09:44	1.11	12.90	0.98
2020/06/14 09:49	1.11	12.90	0.98
2020/06/14 09:54	1.11	12.90	0.98
2020/06/14 09:59	1.07	8.82	0.70

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/14 10:04	1.07	8.51	0.68
2020/06/14 10:09	1.07	8.82	0.70
2020/06/14 10:14	1.10	7.83	0.60
2020/06/14 10:19	1.10	7.83	0.60
2020/06/14 10:24	1.11	7.98	0.60
2020/06/14 10:29	1.11	9.61	0.73
2020/06/14 10:34	1.36	9.84	0.55
2020/06/14 10:39	1.41	13.46	0.73
2020/06/14 10:44	1.41	13.46	0.73
2020/06/14 10:49	1.41	14.96	0.81
2020/06/14 10:54	1.35	14.12	0.81
2020/06/14 10:59	1.09	10.60	0.83
2020/06/14 11:04	0.98	8.91	0.82
2020/06/14 11:09	0.98	8.89	0.82
2020/06/14 11:14	0.98	8.91	0.82
2020/06/14 11:19	1.09	10.60	0.83
2020/06/14 11:24	1.09	10.42	0.82
2020/06/14 11:29	1.09	10.70	0.84
2020/06/14 11:34	1.17	12.74	0.90
2020/06/14 11:39	1.18	12.96	0.90
2020/06/14 11:44	1.18	12.96	0.90
2020/06/14 11:49	1.18	12.96	0.90
2020/06/14 11:54	1.18	13.10	0.91
2020/06/14 11:59	1.13	9.09	0.67
2020/06/14 12:04	1.13	9.09	0.67
2020/06/14 12:09	1.13	9.09	0.67
2020/06/14 12:14	1.14	10.64	0.78
2020/06/14 12:19	1.14	10.64	0.78
2020/06/14 12:24	1.14	10.81	0.79
2020/06/14 12:29	1.07	10.06	0.80
2020/06/14 12:34	1.07	11.52	0.92
2020/06/14 12:39	1.06	12.45	1.01
2020/06/14 12:44	1.06	12.45	1.01
2020/06/14 12:49	1.10	11.96	0.92
2020/06/14 12:54	1.11	11.98	0.91
2020/06/14 12:59	1.11	11.72	0.89
2020/06/14 13:04	1.11	11.72	0.89
2020/06/14 13:09	1.00	9.68	0.85
2020/06/14 13:14	1.00	9.68	0.85
2020/06/14 13:19	1.00	8.87	0.78
2020/06/14 13:24	1.09	9.97	0.78
2020/06/14 13:29	1.09	9.97	0.78
2020/06/14 13:34	1.09	9.97	0.78
2020/06/14 13:39	1.03	9.23	0.78
2020/06/14 13:44	1.00	9.68	0.85

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/14 13:49	1.00	9.68	0.85
2020/06/14 13:54	0.95	7.94	0.76
2020/06/14 13:59	0.95	7.94	0.76
2020/06/14 14:04	0.96	8.11	0.76
2020/06/14 14:09	1.00	8.62	0.76
2020/06/14 14:14	1.03	8.68	0.73
2020/06/14 14:19	1.10	9.55	0.73
2020/06/14 14:24	1.10	9.55	0.73
2020/06/14 14:29	1.10	11.28	0.87
2020/06/14 14:34	1.00	10.15	0.89
2020/06/14 14:39	1.00	10.40	0.92
2020/06/14 14:44	1.00	10.70	0.94
2020/06/14 14:49	1.03	11.13	0.94
2020/06/14 14:54	1.10	11.90	0.92
2020/06/14 14:59	1.16	10.81	0.77
2020/06/14 15:04	1.16	10.81	0.77
2020/06/14 15:09	1.21	11.49	0.77
2020/06/14 15:14	1.21	11.57	0.77
2020/06/14 15:19	1.21	11.68	0.78
2020/06/14 15:24	1.13	13.19	0.98
2020/06/14 15:29	1.03	11.57	0.98
2020/06/14 15:34	0.99	10.94	0.98
2020/06/14 15:39	0.99	10.90	0.98
2020/06/14 15:44	0.99	12.39	1.11
2020/06/14 15:49	0.89	8.99	0.94
2020/06/14 15:54	0.89	9.25	0.97
2020/06/14 15:59	0.89	8.59	0.90
2020/06/14 16:04	0.89	9.25	0.97
2020/06/14 16:09	0.89	7.76	0.81
2020/06/14 16:14	0.93	8.30	0.81
2020/06/14 16:19	1.13	10.29	0.76
2020/06/14 16:24	1.24	12.53	0.81
2020/06/14 16:29	1.24	11.79	0.76
2020/06/14 16:34	1.24	11.43	0.74
2020/06/14 16:39	1.10	9.39	0.72
2020/06/14 16:44	1.10	9.62	0.74
2020/06/14 16:49	1.06	9.09	0.74
2020/06/14 16:54	0.99	9.38	0.84
2020/06/14 16:59	0.99	9.38	0.84
2020/06/14 17:04	0.99	9.64	0.87
2020/06/14 17:09	1.21	16.68	1.12
2020/06/14 17:14	1.28	14.04	0.87
2020/06/14 17:19	1.28	13.64	0.84
2020/06/14 17:24	1.28	13.86	0.86
2020/06/14 17:29	1.28	13.86	0.86

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/14 17:34	1.28	13.86	0.86
2020/06/14 17:39	1.28	14.70	0.91
2020/06/14 17:44	1.28	16.15	1.00
2020/06/14 17:49	1.29	16.70	1.01
2020/06/14 17:54	1.29	16.70	1.01
2020/06/14 17:59	1.29	14.93	0.91
2020/06/14 18:04	1.09	12.95	1.01
2020/06/14 18:09	1.09	13.37	1.05
2020/06/14 18:14	1.09	11.30	0.89
2020/06/14 18:19	1.09	9.85	0.77
2020/06/14 18:24	1.09	10.02	0.79
2020/06/14 18:29	1.00	8.76	0.77
2020/06/14 18:34	1.00	8.50	0.75
2020/06/14 18:39	1.00	8.31	0.73
2020/06/14 18:44	0.99	8.33	0.75
2020/06/14 18:49	0.99	8.24	0.74
2020/06/14 18:54	0.98	8.16	0.75
2020/06/14 18:59	0.95	8.70	0.83
2020/06/14 19:04	0.95	11.09	1.06
2020/06/14 19:09	0.93	10.86	1.06
2020/06/14 19:14	0.89	10.30	1.08
2020/06/14 19:19	0.89	10.16	1.06
2020/06/14 19:24	0.93	10.73	1.05
2020/06/14 19:29	0.93	10.73	1.05
2020/06/14 19:34	1.02	12.63	1.09
2020/06/14 19:39	1.17	14.90	1.05
2020/06/14 19:44	1.18	14.68	1.02
2020/06/14 19:49	1.18	14.68	1.02
2020/06/14 19:54	1.18	14.25	0.99
2020/06/14 19:59	1.18	14.01	0.97
2020/06/14 20:04	1.17	14.00	0.99
2020/06/14 20:09	1.17	14.00	0.99
2020/06/14 20:14	1.03	11.65	0.99
2020/06/14 20:19	1.02	11.09	0.96
2020/06/14 20:24	1.03	12.85	1.09
2020/06/14 20:29	1.03	12.85	1.09
2020/06/14 20:34	1.03	12.93	1.09
2020/06/14 20:39	1.04	13.19	1.09
2020/06/14 20:44	1.04	13.19	1.09
2020/06/14 20:49	1.13	14.75	1.09
2020/06/14 20:54	1.13	14.47	1.07
2020/06/14 20:59	1.13	12.43	0.92
2020/06/14 21:04	1.07	11.43	0.91
2020/06/14 21:09	1.03	10.79	0.91
2020/06/14 21:14	1.03	10.79	0.91

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/14 21:19	1.07	10.85	0.87
2020/06/14 21:24	1.07	10.63	0.85
2020/06/14 21:29	1.07	10.63	0.85
2020/06/14 21:34	1.16	12.94	0.93
2020/06/14 21:39	1.07	11.61	0.93
2020/06/14 21:44	1.06	11.62	0.95
2020/06/14 21:49	1.00	10.84	0.95
2020/06/14 21:54	0.99	10.53	0.95
2020/06/14 21:59	0.99	10.53	0.95
2020/06/14 22:04	0.98	11.98	1.10
2020/06/14 22:09	0.95	11.34	1.08
2020/06/14 22:14	0.95	11.34	1.08
2020/06/14 22:19	0.89	10.38	1.08
2020/06/14 22:24	0.89	10.93	1.14
2020/06/14 22:29	0.89	10.38	1.08
2020/06/14 22:34	0.89	9.29	0.97
2020/06/14 22:39	0.89	8.12	0.85
2020/06/14 22:44	0.89	9.29	0.97
2020/06/14 22:49	0.86	8.87	0.97
2020/06/14 22:54	0.86	8.39	0.92
2020/06/14 22:59	0.88	9.90	1.06
2020/06/14 23:04	0.92	10.59	1.06
2020/06/14 23:09	0.88	9.90	1.06
2020/06/14 23:14	0.92	9.99	1.00
2020/06/14 23:19	0.92	9.99	1.00
2020/06/14 23:24	0.92	9.56	0.96
2020/06/14 23:29	0.92	8.46	0.85
2020/06/14 23:34	0.92	8.07	0.81
2020/06/14 23:39	0.88	7.54	0.81
2020/06/14 23:44	0.86	7.36	0.81
2020/06/14 23:49	0.84	8.64	0.99
2020/06/14 23:54	0.84	8.64	0.99
2020/06/14 23:59	0.84	8.94	1.03
2020/06/15 00:04	0.84	9.42	1.08
2020/06/15 00:09	0.92	10.28	1.03
2020/06/15 00:14	0.92	10.83	1.08
2020/06/15 00:19	0.93	11.07	1.08
2020/06/15 00:24	0.93	9.61	0.94
2020/06/15 00:29	0.96	10.03	0.94
2020/06/15 00:34	0.98	11.23	1.03
2020/06/15 00:39	0.96	8.88	0.83
2020/06/15 00:44	0.95	9.49	0.91
2020/06/15 00:49	0.95	9.49	0.91
2020/06/15 00:54	0.95	9.49	0.91
2020/06/15 00:59	0.93	9.28	0.91

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 04:49	0.70	3.53	0.53
2020/06/15 04:54	0.70	3.64	0.55
2020/06/15 04:59	0.71	3.87	0.56
2020/06/15 05:04	0.71	3.87	0.56
2020/06/15 05:09	0.77	4.32	0.56
2020/06/15 05:14	0.77	4.32	0.56
2020/06/15 05:19	0.77	4.36	0.57
2020/06/15 05:24	0.77	5.36	0.70
2020/06/15 05:29	0.78	5.98	0.76
2020/06/15 05:34	0.92	7.60	0.76
2020/06/15 05:39	0.92	7.87	0.79
2020/06/15 05:44	0.92	8.08	0.81
2020/06/15 05:49	0.91	9.00	0.92
2020/06/15 05:54	0.89	9.38	0.98
2020/06/15 05:59	0.85	9.79	1.10
2020/06/15 06:04	0.75	8.25	1.11
2020/06/15 06:09	0.66	6.68	1.10
2020/06/15 06:14	0.66	6.73	1.11
2020/06/15 06:19	0.66	6.77	1.11
2020/06/15 06:24	0.74	8.08	1.11
2020/06/15 06:29	0.79	9.44	1.17
2020/06/15 06:34	0.91	12.98	1.33
2020/06/15 06:39	0.92	14.48	1.45
2020/06/15 06:44	1.06	17.78	1.45
2020/06/15 06:49	1.06	17.83	1.45
2020/06/15 06:54	0.96	15.49	1.45
2020/06/15 06:59	1.10	21.27	1.64
2020/06/15 07:04	0.96	15.49	1.45
2020/06/15 07:09	0.96	8.25	0.77
2020/06/15 07:14	1.00	8.78	0.77
2020/06/15 07:19	1.00	11.14	0.98
2020/06/15 07:24	1.00	10.48	0.92
2020/06/15 07:29	1.00	11.14	0.98
2020/06/15 07:34	1.00	11.14	0.98
2020/06/15 07:39	1.03	11.59	0.98
2020/06/15 07:44	1.17	13.11	0.92
2020/06/15 07:49	1.21	13.69	0.92
2020/06/15 07:54	1.21	13.56	0.91
2020/06/15 07:59	1.21	13.69	0.92
2020/06/15 08:04	1.28	14.70	0.91
2020/06/15 08:09	1.13	12.34	0.92
2020/06/15 08:14	1.10	11.22	0.86
2020/06/15 08:19	1.13	11.64	0.86
2020/06/15 08:24	1.13	11.38	0.84
2020/06/15 08:29	1.11	10.23	0.77

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 01:04	0.93	9.28	0.91
2020/06/15 01:09	0.89	8.74	0.91
2020/06/15 01:14	0.81	7.57	0.91
2020/06/15 01:19	0.81	6.93	0.84
2020/06/15 01:24	0.75	5.05	0.68
2020/06/15 01:29	0.68	5.41	0.84
2020/06/15 01:34	0.68	5.41	0.84
2020/06/15 01:39	0.66	4.97	0.82
2020/06/15 01:44	0.61	4.51	0.82
2020/06/15 01:49	0.60	4.36	0.82
2020/06/15 01:54	0.59	4.04	0.78
2020/06/15 01:59	0.59	4.04	0.78
2020/06/15 02:04	0.59	3.63	0.70
2020/06/15 02:09	0.66	4.77	0.78
2020/06/15 02:14	0.81	6.49	0.78
2020/06/15 02:19	0.81	6.54	0.79
2020/06/15 02:24	0.88	6.57	0.70
2020/06/15 02:29	0.88	5.57	0.60
2020/06/15 02:34	0.77	4.29	0.56
2020/06/15 02:39	0.73	3.95	0.56
2020/06/15 02:44	0.73	3.78	0.54
2020/06/15 02:49	0.70	3.04	0.46
2020/06/15 02:54	0.70	3.04	0.46
2020/06/15 02:59	0.70	3.04	0.46
2020/06/15 03:04	0.68	3.47	0.54
2020/06/15 03:09	0.68	3.47	0.54
2020/06/15 03:14	0.68	3.47	0.54
2020/06/15 03:19	0.67	3.36	0.54
2020/06/15 03:24	0.67	3.36	0.54
2020/06/15 03:29	0.67	3.36	0.54
2020/06/15 03:34	0.70	3.75	0.56
2020/06/15 03:39	0.70	3.36	0.50
2020/06/15 03:44	0.70	3.33	0.50
2020/06/15 03:49	0.70	3.36	0.50
2020/06/15 03:54	0.70	3.36	0.50
2020/06/15 03:59	0.68	3.26	0.50
2020/06/15 04:04	0.68	3.22	0.50
2020/06/15 04:09	0.68	3.47	0.54
2020/06/15 04:14	0.70	3.32	0.50
2020/06/15 04:19	0.75	3.71	0.50
2020/06/15 04:24	0.81	4.12	0.50
2020/06/15 04:29	0.81	4.23	0.51
2020/06/15 04:34	0.81	4.23	0.51
2020/06/15 04:39	0.81	4.39	0.53
2020/06/15 04:44	0.71	3.64	0.53

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 08:34	1.11	10.23	0.77
2020/06/15 08:39	1.21	12.62	0.84
2020/06/15 08:44	1.21	12.62	0.84
2020/06/15 08:49	1.21	12.82	0.86
2020/06/15 08:54	1.28	15.62	0.96
2020/06/15 08:59	1.28	14.61	0.90
2020/06/15 09:04	1.21	13.26	0.89
2020/06/15 09:09	1.21	13.48	0.90
2020/06/15 09:14	1.28	15.26	0.94
2020/06/15 09:19	1.23	13.71	0.90
2020/06/15 09:24	1.23	13.48	0.89
2020/06/15 09:29	1.23	13.46	0.89
2020/06/15 09:34	1.17	11.80	0.83
2020/06/15 09:39	1.17	11.80	0.83
2020/06/15 09:44	1.17	11.80	0.83
2020/06/15 09:49	1.21	13.67	0.91
2020/06/15 09:54	1.28	14.81	0.91
2020/06/15 09:59	1.28	14.81	0.91
2020/06/15 10:04	1.27	14.58	0.91
2020/06/15 10:09	1.21	14.79	0.99
2020/06/15 10:14	1.21	12.41	0.83
2020/06/15 10:19	1.06	10.53	0.86
2020/06/15 10:24	1.06	10.53	0.86
2020/06/15 10:29	1.06	10.21	0.83
2020/06/15 10:34	1.06	10.21	0.83
2020/06/15 10:39	1.06	10.53	0.86
2020/06/15 10:44	1.07	11.88	0.95
2020/06/15 10:49	1.07	11.88	0.95
2020/06/15 10:54	1.09	12.93	1.01
2020/06/15 10:59	1.21	15.14	1.01
2020/06/15 11:04	1.27	15.79	0.99
2020/06/15 11:09	1.29	14.46	0.88
2020/06/15 11:14	1.27	14.01	0.88
2020/06/15 11:19	1.21	13.13	0.88
2020/06/15 11:24	1.20	12.91	0.88
2020/06/15 11:29	1.04	10.77	0.89
2020/06/15 11:34	1.03	10.57	0.89
2020/06/15 11:39	1.03	13.29	1.12
2020/06/15 11:44	1.03	13.29	1.12
2020/06/15 11:49	1.03	10.29	0.87
2020/06/15 11:54	1.04	10.49	0.87
2020/06/15 11:59	1.10	11.96	0.92
2020/06/15 12:04	1.10	11.31	0.87
2020/06/15 12:09	1.10	11.31	0.87
2020/06/15 12:14	1.10	11.19	0.86

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 12:19	1.11	9.90	0.75
2020/06/15 12:24	1.11	9.90	0.75
2020/06/15 12:29	1.11	9.90	0.75
2020/06/15 12:34	1.11	9.92	0.75
2020/06/15 12:39	1.13	10.21	0.76
2020/06/15 12:44	1.13	10.66	0.79
2020/06/15 12:49	1.13	10.66	0.79
2020/06/15 12:54	1.13	11.03	0.82
2020/06/15 12:59	1.13	12.30	0.91
2020/06/15 13:04	1.13	12.93	0.96
2020/06/15 13:09	1.06	11.22	0.91
2020/06/15 13:14	1.06	10.98	0.89
2020/06/15 13:19	1.06	10.98	0.89
2020/06/15 13:24	1.07	9.97	0.80
2020/06/15 13:29	1.13	10.73	0.80
2020/06/15 13:34	1.18	11.51	0.80
2020/06/15 13:39	1.13	11.90	0.88
2020/06/15 13:44	1.18	13.43	0.93
2020/06/15 13:49	1.23	15.08	0.99
2020/06/15 13:54	1.18	13.87	0.96
2020/06/15 13:59	1.23	15.08	0.99
2020/06/15 14:04	1.23	16.06	1.06
2020/06/15 14:09	1.28	17.13	1.06
2020/06/15 14:14	1.17	13.63	0.96
2020/06/15 14:19	1.17	12.46	0.88
2020/06/15 14:24	1.10	9.73	0.75
2020/06/15 14:29	1.06	9.19	0.75
2020/06/15 14:34	1.06	10.78	0.88
2020/06/15 14:39	1.06	10.59	0.86
2020/06/15 14:44	1.03	11.57	0.98
2020/06/15 14:49	1.03	13.94	1.18
2020/06/15 14:54	0.98	13.32	1.22
2020/06/15 14:59	0.98	15.84	1.45
2020/06/15 15:04	0.98	15.84	1.45
2020/06/15 15:09	0.99	13.60	1.22
2020/06/15 15:14	0.99	12.97	1.17
2020/06/15 15:19	1.06	12.91	1.05
2020/06/15 15:24	1.06	12.21	0.99
2020/06/15 15:29	1.06	10.34	0.84
2020/06/15 15:34	1.06	9.38	0.76
2020/06/15 15:39	1.04	9.33	0.77
2020/06/15 15:44	0.98	7.22	0.66
2020/06/15 15:49	0.95	6.92	0.66
2020/06/15 15:54	0.95	8.09	0.77
2020/06/15 15:59	0.95	8.09	0.77

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 16:04	0.95	7.84	0.75
2020/06/15 16:09	0.95	7.84	0.75
2020/06/15 16:14	0.99	8.34	0.75
2020/06/15 16:19	1.09	9.27	0.73
2020/06/15 16:24	1.09	9.27	0.73
2020/06/15 16:29	1.09	8.99	0.70
2020/06/15 16:34	1.09	8.99	0.70
2020/06/15 16:39	1.09	8.30	0.65
2020/06/15 16:44	1.09	8.30	0.65
2020/06/15 16:49	1.07	8.15	0.65
2020/06/15 16:54	1.06	8.00	0.65
2020/06/15 16:59	1.06	7.91	0.64
2020/06/15 17:04	1.02	7.46	0.64
2020/06/15 17:09	1.02	7.46	0.64
2020/06/15 17:14	1.18	15.63	1.08
2020/06/15 17:19	1.18	15.63	1.08
2020/06/15 17:24	1.18	15.63	1.08
2020/06/15 17:29	1.18	11.65	0.81
2020/06/15 17:34	1.11	10.67	0.81
2020/06/15 17:39	1.07	10.09	0.81
2020/06/15 17:44	1.06	13.78	1.12
2020/06/15 17:49	1.03	13.57	1.15
2020/06/15 17:54	0.99	12.78	1.15
2020/06/15 17:59	0.99	12.58	1.13
2020/06/15 18:04	0.98	12.23	1.12
2020/06/15 18:09	0.98	12.32	1.13
2020/06/15 18:14	0.98	12.32	1.13
2020/06/15 18:19	1.03	13.76	1.16
2020/06/15 18:24	1.17	16.87	1.19
2020/06/15 18:29	1.17	16.87	1.19
2020/06/15 18:34	1.23	17.69	1.16
2020/06/15 18:39	1.29	16.20	0.98
2020/06/15 18:44	1.29	14.05	0.85
2020/06/15 18:49	1.28	13.44	0.83
2020/06/15 18:54	1.28	13.44	0.83
2020/06/15 18:59	1.28	14.77	0.91
2020/06/15 19:04	1.21	13.62	0.91
2020/06/15 19:09	1.13	12.66	0.94
2020/06/15 19:14	1.13	12.88	0.96
2020/06/15 19:19	1.07	12.19	0.97
2020/06/15 19:24	1.04	14.38	1.19
2020/06/15 19:29	1.02	13.83	1.19
2020/06/15 19:34	1.02	13.83	1.19
2020/06/15 19:39	1.02	13.83	1.19
2020/06/15 19:44	1.00	13.55	1.19

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 19:49	1.02	13.35	1.15
2020/06/15 19:54	1.07	11.73	0.94
2020/06/15 19:59	1.07	11.18	0.89
2020/06/15 20:04	1.07	11.73	0.94
2020/06/15 20:09	1.09	11.39	0.89
2020/06/15 20:14	1.09	11.19	0.88
2020/06/15 20:19	1.10	11.05	0.85
2020/06/15 20:24	1.20	12.85	0.87
2020/06/15 20:29	1.20	12.85	0.87
2020/06/15 20:34	1.20	12.85	0.87
2020/06/15 20:39	1.20	12.85	0.87
2020/06/15 20:44	1.17	12.42	0.87
2020/06/15 20:49	1.06	11.27	0.92
2020/06/15 20:54	1.06	11.27	0.92
2020/06/15 20:59	1.06	11.32	0.92
2020/06/15 21:04	1.06	11.27	0.92
2020/06/15 21:09	1.10	11.97	0.92
2020/06/15 21:14	1.11	12.19	0.92
2020/06/15 21:19	1.10	11.97	0.92
2020/06/15 21:24	1.06	13.83	1.13
2020/06/15 21:29	1.09	17.29	1.36
2020/06/15 21:34	1.09	17.29	1.36
2020/06/15 21:39	1.09	17.29	1.36
2020/06/15 21:44	1.09	9.64	0.76
2020/06/15 21:49	1.09	9.51	0.75
2020/06/15 21:54	1.20	10.96	0.75
2020/06/15 21:59	1.16	9.93	0.71
2020/06/15 22:04	1.16	9.93	0.71
2020/06/15 22:09	1.16	13.30	0.95
2020/06/15 22:14	1.09	12.16	0.95
2020/06/15 22:19	0.92	10.74	1.07
2020/06/15 22:24	0.91	11.48	1.17
2020/06/15 22:29	0.91	11.48	1.17
2020/06/15 22:34	0.91	11.48	1.17
2020/06/15 22:39	0.91	11.27	1.15
2020/06/15 22:44	0.89	10.81	1.13
2020/06/15 22:49	0.89	10.29	1.08
2020/06/15 22:54	0.82	9.14	1.08
2020/06/15 22:59	0.82	9.14	1.08
2020/06/15 23:04	0.82	9.79	1.15
2020/06/15 23:09	0.91	11.27	1.15
2020/06/15 23:14	0.91	12.23	1.25
2020/06/15 23:19	0.91	11.27	1.15
2020/06/15 23:24	0.86	10.27	1.12
2020/06/15 23:29	0.84	9.79	1.12

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 03:19	0.68	5.61	0.87
2020/06/16 03:24	0.68	5.61	0.87
2020/06/16 03:29	0.68	5.61	0.87
2020/06/16 03:34	0.68	5.61	0.87
2020/06/16 03:39	0.66	4.95	0.81
2020/06/16 03:44	0.70	6.25	0.94
2020/06/16 03:49	0.70	6.25	0.94
2020/06/16 03:54	0.70	5.94	0.89
2020/06/16 03:59	0.70	5.94	0.89
2020/06/16 04:04	0.71	6.12	0.89
2020/06/16 04:09	0.70	5.38	0.81
2020/06/16 04:14	0.71	5.54	0.81
2020/06/16 04:19	0.75	6.59	0.88
2020/06/16 04:24	0.75	6.59	0.88
2020/06/16 04:29	0.81	8.75	1.06
2020/06/16 04:34	0.81	8.88	1.07
2020/06/16 04:39	0.75	8.17	1.09
2020/06/16 04:44	0.78	9.18	1.17
2020/06/16 04:49	0.78	9.18	1.17
2020/06/16 04:54	0.78	9.18	1.17
2020/06/16 04:59	0.85	10.40	1.17
2020/06/16 05:04	0.85	6.37	0.71
2020/06/16 05:09	0.85	6.37	0.71
2020/06/16 05:14	0.98	7.69	0.71
2020/06/16 05:19	0.93	7.22	0.71
2020/06/16 05:24	0.93	8.05	0.79
2020/06/16 05:29	1.04	10.03	0.83
2020/06/16 05:34	1.04	10.03	0.83
2020/06/16 05:39	1.07	11.24	0.90
2020/06/16 05:44	1.09	13.51	1.06
2020/06/16 05:49	1.09	13.51	1.06
2020/06/16 05:54	1.09	13.51	1.06
2020/06/16 05:59	1.04	12.26	1.02
2020/06/16 06:04	1.04	12.26	1.02
2020/06/16 06:09	1.04	12.26	1.02
2020/06/16 06:14	1.00	11.04	0.97
2020/06/16 06:19	1.04	10.67	0.89
2020/06/16 06:24	1.11	14.70	1.11
2020/06/16 06:29	1.11	16.81	1.27
2020/06/16 06:34	1.10	20.00	1.54
2020/06/16 06:39	1.11	21.30	1.61
2020/06/16 06:44	1.11	21.90	1.65
2020/06/16 06:49	1.10	21.50	1.65
2020/06/16 06:54	1.10	21.50	1.65
2020/06/16 06:59	1.10	16.52	1.27

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 23:34	0.77	9.61	1.25
2020/06/15 23:39	0.77	8.55	1.12
2020/06/15 23:44	0.77	9.61	1.25
2020/06/15 23:49	0.84	11.31	1.30
2020/06/15 23:54	0.85	11.18	1.25
2020/06/15 23:59	0.85	11.59	1.30
2020/06/16 00:04	0.89	12.43	1.30
2020/06/16 00:09	0.85	10.11	1.13
2020/06/16 00:14	0.79	7.03	0.87
2020/06/16 00:19	0.79	7.03	0.87
2020/06/16 00:24	0.85	6.88	0.77
2020/06/16 00:29	0.85	6.88	0.77
2020/06/16 00:34	0.88	10.75	1.15
2020/06/16 00:39	0.89	11.00	1.15
2020/06/16 00:44	0.89	11.84	1.24
2020/06/16 00:49	0.88	11.57	1.24
2020/06/16 00:54	0.84	8.73	1.00
2020/06/16 00:59	0.75	7.48	1.00
2020/06/16 01:04	0.75	7.38	0.99
2020/06/16 01:09	0.74	7.18	0.99
2020/06/16 01:14	0.74	9.75	1.34
2020/06/16 01:19	0.74	9.75	1.34
2020/06/16 01:24	0.74	8.06	1.11
2020/06/16 01:29	0.73	7.84	1.11
2020/06/16 01:34	0.70	7.15	1.07
2020/06/16 01:39	0.66	5.10	0.84
2020/06/16 01:44	0.61	4.43	0.80
2020/06/16 01:49	0.61	4.43	0.80
2020/06/16 01:54	0.63	4.57	0.80
2020/06/16 01:59	0.63	4.57	0.80
2020/06/16 02:04	0.63	4.57	0.80
2020/06/16 02:09	0.64	4.67	0.79
2020/06/16 02:14	0.64	4.21	0.71
2020/06/16 02:19	0.67	4.49	0.71
2020/06/16 02:24	0.67	4.49	0.71
2020/06/16 02:29	0.67	4.49	0.71
2020/06/16 02:34	0.67	5.49	0.87
2020/06/16 02:39	0.67	6.42	1.02
2020/06/16 02:44	0.67	6.42	1.02
2020/06/16 02:49	0.66	6.07	1.00
2020/06/16 02:54	0.63	5.12	0.90
2020/06/16 02:59	0.63	5.12	0.90
2020/06/16 03:04	0.63	5.12	0.90
2020/06/16 03:09	0.66	5.45	0.90
2020/06/16 03:14	0.68	5.61	0.87

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 10:49	1.10	11.24	0.87
2020/06/16 10:54	1.11	12.23	0.92
2020/06/16 10:59	1.11	12.23	0.92
2020/06/16 11:04	1.11	12.23	0.92
2020/06/16 11:09	1.11	12.23	0.92
2020/06/16 11:14	1.07	12.16	0.97
2020/06/16 11:19	1.04	11.70	0.97
2020/06/16 11:24	1.04	11.07	0.92
2020/06/16 11:29	1.04	11.07	0.92
2020/06/16 11:34	0.99	10.22	0.92
2020/06/16 11:39	1.03	10.86	0.92
2020/06/16 11:44	1.03	10.86	0.92
2020/06/16 11:49	1.03	11.64	0.98
2020/06/16 11:54	0.96	10.51	0.98
2020/06/16 11:59	1.03	11.64	0.98
2020/06/16 12:04	1.06	12.10	0.98
2020/06/16 12:09	1.06	11.78	0.96
2020/06/16 12:14	1.06	10.07	0.82
2020/06/16 12:19	1.10	12.46	0.96
2020/06/16 12:24	1.10	10.65	0.82
2020/06/16 12:29	1.11	10.69	0.81
2020/06/16 12:34	1.09	10.46	0.82
2020/06/16 12:39	1.09	10.48	0.82
2020/06/16 12:44	1.09	10.30	0.81
2020/06/16 12:49	1.10	10.62	0.82
2020/06/16 12:54	1.10	10.67	0.82
2020/06/16 12:59	1.10	10.67	0.82
2020/06/16 13:04	1.10	11.76	0.91
2020/06/16 13:09	1.10	11.76	0.91
2020/06/16 13:14	1.02	10.49	0.91
2020/06/16 13:19	0.95	8.70	0.83
2020/06/16 13:24	0.95	6.41	0.61
2020/06/16 13:29	0.93	6.28	0.61
2020/06/16 13:34	0.95	8.70	0.83
2020/06/16 13:39	0.93	8.81	0.86
2020/06/16 13:44	0.92	8.63	0.86
2020/06/16 13:49	0.92	9.77	0.98
2020/06/16 13:54	0.92	8.63	0.86
2020/06/16 13:59	0.92	8.63	0.86
2020/06/16 14:04	1.00	9.76	0.86
2020/06/16 14:09	1.04	10.36	0.86
2020/06/16 14:14	1.04	10.36	0.86
2020/06/16 14:19	1.04	10.79	0.90
2020/06/16 14:24	0.95	9.36	0.90
2020/06/16 14:29	0.95	9.36	0.90

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 07:04	0.96	12.50	1.17
2020/06/16 07:09	0.96	12.05	1.13
2020/06/16 07:14	0.96	10.42	0.98
2020/06/16 07:19	0.92	9.77	0.98
2020/06/16 07:24	0.92	10.70	1.07
2020/06/16 07:29	0.92	9.77	0.98
2020/06/16 07:34	0.85	8.71	0.98
2020/06/16 07:39	0.81	7.17	0.87
2020/06/16 07:44	0.78	6.81	0.87
2020/06/16 07:49	0.78	6.81	0.87
2020/06/16 07:54	0.85	7.12	0.80
2020/06/16 07:59	0.95	11.22	1.07
2020/06/16 08:04	0.95	11.22	1.07
2020/06/16 08:09	0.98	11.68	1.07
2020/06/16 08:14	0.98	9.94	0.91
2020/06/16 08:19	0.95	9.53	0.91
2020/06/16 08:24	0.96	8.68	0.81
2020/06/16 08:29	0.98	8.86	0.81
2020/06/16 08:34	0.96	8.68	0.81
2020/06/16 08:39	0.95	8.50	0.81
2020/06/16 08:44	0.96	9.04	0.85
2020/06/16 08:49	1.03	10.01	0.85
2020/06/16 08:54	1.10	11.01	0.85
2020/06/16 08:59	1.38	15.25	0.85
2020/06/16 09:04	1.38	14.24	0.79
2020/06/16 09:09	1.13	9.57	0.71
2020/06/16 09:14	1.10	10.28	0.79
2020/06/16 09:19	1.06	8.72	0.71
2020/06/16 09:24	1.06	8.72	0.71
2020/06/16 09:29	1.04	11.15	0.93
2020/06/16 09:34	1.02	10.87	0.94
2020/06/16 09:39	1.02	10.87	0.94
2020/06/16 09:44	1.02	10.87	0.94
2020/06/16 09:49	1.02	9.15	0.79
2020/06/16 09:54	1.07	9.89	0.79
2020/06/16 09:59	1.11	10.45	0.79
2020/06/16 10:04	1.11	12.03	0.91
2020/06/16 10:09	1.07	12.93	1.03
2020/06/16 10:14	1.02	11.97	1.03
2020/06/16 10:19	1.02	11.97	1.03
2020/06/16 10:24	1.02	11.84	1.02
2020/06/16 10:29	1.02	10.20	0.88
2020/06/16 10:34	1.02	10.20	0.88
2020/06/16 10:39	1.06	10.63	0.87
2020/06/16 10:44	1.09	11.04	0.87

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 18:19	1.02	12.63	1.09
2020/06/16 18:24	1.02	12.63	1.09
2020/06/16 18:29	1.00	12.38	1.09
2020/06/16 18:34	1.00	12.38	1.09
2020/06/16 18:39	1.00	11.81	1.04
2020/06/16 18:44	1.02	11.52	0.99
2020/06/16 18:49	0.98	9.89	0.91
2020/06/16 18:54	1.03	10.73	0.91
2020/06/16 18:59	1.03	8.57	0.73
2020/06/16 19:04	0.99	9.98	0.90
2020/06/16 19:09	0.99	9.98	0.90
2020/06/16 19:14	1.00	10.18	0.90
2020/06/16 19:19	0.99	9.98	0.90
2020/06/16 19:24	0.92	8.97	0.90
2020/06/16 19:29	1.00	10.37	0.91
2020/06/16 19:34	1.00	10.37	0.91
2020/06/16 19:39	1.07	11.43	0.91
2020/06/16 19:44	1.13	12.14	0.90
2020/06/16 19:49	1.18	13.02	0.90
2020/06/16 19:54	1.18	11.21	0.78
2020/06/16 19:59	1.27	12.37	0.78
2020/06/16 20:04	1.28	12.57	0.78
2020/06/16 20:09	1.28	16.13	1.00
2020/06/16 20:14	1.42	19.64	1.05
2020/06/16 20:19	1.42	19.64	1.05
2020/06/16 20:24	1.42	19.64	1.05
2020/06/16 20:29	1.06	12.72	1.04
2020/06/16 20:34	1.04	11.00	0.91
2020/06/16 20:39	1.04	11.00	0.91
2020/06/16 20:44	1.04	11.00	0.91
2020/06/16 20:49	1.04	9.80	0.81
2020/06/16 20:54	1.04	9.80	0.81
2020/06/16 20:59	1.09	11.14	0.87
2020/06/16 21:04	1.09	11.14	0.87
2020/06/16 21:09	1.07	11.59	0.93
2020/06/16 21:14	1.07	11.59	0.93
2020/06/16 21:19	1.07	11.59	0.93
2020/06/16 21:24	0.96	10.91	1.02
2020/06/16 21:29	0.91	9.73	0.99
2020/06/16 21:34	0.89	9.51	0.99
2020/06/16 21:39	0.89	9.51	0.99
2020/06/16 21:44	0.88	8.88	0.95
2020/06/16 21:49	0.88	8.86	0.95
2020/06/16 21:54	0.84	7.95	0.91
2020/06/16 21:59	0.82	6.77	0.80

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 14:34	0.95	7.62	0.73
2020/06/16 14:39	1.06	8.96	0.73
2020/06/16 14:44	1.06	8.96	0.73
2020/06/16 14:49	1.06	9.99	0.81
2020/06/16 14:54	1.06	9.99	0.81
2020/06/16 14:59	1.17	14.06	0.99
2020/06/16 15:04	0.95	8.50	0.81
2020/06/16 15:09	1.06	10.21	0.83
2020/06/16 15:14	1.11	10.72	0.81
2020/06/16 15:19	1.06	10.21	0.83
2020/06/16 15:24	1.06	9.95	0.81
2020/06/16 15:29	1.07	10.40	0.83
2020/06/16 15:34	1.07	11.93	0.95
2020/06/16 15:39	1.06	12.01	0.98
2020/06/16 15:44	1.07	11.93	0.95
2020/06/16 15:49	1.07	12.60	1.01
2020/06/16 15:54	1.10	12.38	0.95
2020/06/16 15:59	1.10	13.08	1.01
2020/06/16 16:04	1.10	11.85	0.91
2020/06/16 16:09	1.06	11.15	0.91
2020/06/16 16:14	0.95	9.06	0.87
2020/06/16 16:19	0.91	6.69	0.68
2020/06/16 16:24	0.91	6.69	0.68
2020/06/16 16:29	0.91	6.69	0.68
2020/06/16 16:34	0.91	7.96	0.81
2020/06/16 16:39	0.91	7.96	0.81
2020/06/16 16:44	0.86	7.44	0.81
2020/06/16 16:49	0.86	7.43	0.81
2020/06/16 16:54	0.86	6.22	0.68
2020/06/16 16:59	1.13	9.18	0.68
2020/06/16 17:04	1.13	11.06	0.82
2020/06/16 17:09	1.13	11.06	0.82
2020/06/16 17:14	1.11	11.38	0.86
2020/06/16 17:19	1.11	11.85	0.90
2020/06/16 17:24	1.07	11.35	0.91
2020/06/16 17:29	1.03	10.71	0.91
2020/06/16 17:34	1.03	10.71	0.91
2020/06/16 17:39	1.03	10.71	0.91
2020/06/16 17:44	0.96	10.77	1.01
2020/06/16 17:49	0.96	10.77	1.01
2020/06/16 17:54	0.96	11.23	1.05
2020/06/16 17:59	0.96	12.05	1.13
2020/06/16 18:04	0.96	12.05	1.13
2020/06/16 18:09	0.96	11.36	1.06
2020/06/16 18:14	1.02	12.89	1.11

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 22:04	0.82	6.77	0.80
2020/06/16 22:09	0.93	8.02	0.78
2020/06/16 22:14	0.93	7.96	0.78
2020/06/16 22:19	0.95	8.32	0.80
2020/06/16 22:24	0.95	8.93	0.85
2020/06/16 22:29	0.95	8.65	0.83
2020/06/16 22:34	0.82	7.03	0.83
2020/06/16 22:39	0.82	7.03	0.83
2020/06/16 22:44	0.82	7.03	0.83
2020/06/16 22:49	0.82	6.60	0.78
2020/06/16 22:54	0.79	6.05	0.75
2020/06/16 22:59	0.77	4.41	0.58
2020/06/16 23:04	0.70	3.70	0.55
2020/06/16 23:09	0.70	3.70	0.55
2020/06/16 23:14	0.77	4.87	0.64
2020/06/16 23:19	0.81	5.27	0.64
2020/06/16 23:24	0.81	5.75	0.69
2020/06/16 23:29	0.81	7.53	0.91
2020/06/16 23:34	0.68	4.49	0.69
2020/06/16 23:39	0.68	5.89	0.91
2020/06/16 23:44	0.67	5.74	0.91
2020/06/16 23:49	0.59	4.72	0.91
2020/06/16 23:54	0.59	5.15	1.00
2020/06/16 23:59	0.61	5.51	1.00
2020/06/17 00:04	0.56	4.79	1.00
2020/06/17 00:09	0.56	3.03	0.63
2020/06/17 00:14	0.56	2.88	0.60
2020/06/17 00:19	0.56	2.88	0.60
2020/06/17 00:24	0.56	2.88	0.60
2020/06/17 00:29	0.73	5.40	0.76
2020/06/17 00:34	0.77	6.16	0.80
2020/06/17 00:39	0.82	6.82	0.80
2020/06/17 00:44	0.77	6.16	0.80
2020/06/17 00:49	0.77	5.86	0.76
2020/06/17 00:54	0.75	5.50	0.74
2020/06/17 00:59	0.75	5.46	0.73
2020/06/17 01:04	0.75	5.46	0.73
2020/06/17 01:09	0.75	4.91	0.66
2020/06/17 01:14	0.74	4.78	0.66
2020/06/17 01:19	0.74	4.72	0.65
2020/06/17 01:24	0.77	5.04	0.66
2020/06/17 01:29	0.77	5.27	0.69
2020/06/17 01:34	1.02	8.56	0.74
2020/06/17 01:39	1.07	10.90	0.87
2020/06/17 01:44	1.07	11.02	0.88

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/17 01:49	1.07	10.90	0.87
2020/06/17 01:54	1.03	12.11	1.02
2020/06/17 01:59	1.03	12.11	1.02
2020/06/17 02:04	1.03	10.47	0.89
2020/06/17 02:09	1.03	9.83	0.83
2020/06/17 02:14	1.03	9.72	0.82
2020/06/17 02:19	0.95	8.51	0.81
2020/06/17 02:24	0.89	4.90	0.51
2020/06/17 02:29	0.89	4.90	0.51
2020/06/17 02:34	0.89	4.90	0.51
2020/06/17 02:39	1.02	8.81	0.76
2020/06/17 02:44	1.02	8.81	0.76
2020/06/17 02:49	1.02	8.81	0.76
2020/06/17 02:54	0.95	7.33	0.70
2020/06/17 02:59	0.95	6.60	0.63
2020/06/17 03:04	0.95	6.60	0.63
2020/06/17 03:09	1.02	8.13	0.70
2020/06/17 03:14	1.02	9.82	0.85
2020/06/17 03:19	1.02	9.82	0.85
2020/06/17 03:24	0.88	7.92	0.85
2020/06/17 03:29	0.79	6.53	0.81
2020/06/17 03:34	0.73	5.07	0.72
2020/06/17 03:39	0.67	3.99	0.63
2020/06/17 03:44	0.54	2.94	0.63
2020/06/17 03:49	0.53	2.83	0.63
2020/06/17 03:54	0.53	2.83	0.63
2020/06/17 03:59	0.53	2.48	0.56
2020/06/17 04:04	0.53	3.17	0.71
2020/06/17 04:09	0.82	5.36	0.63
2020/06/17 04:14	0.85	5.62	0.63
2020/06/17 04:19	0.85	7.24	0.81
2020/06/17 04:24	0.82	6.89	0.81
2020/06/17 04:29	0.81	5.38	0.65
2020/06/17 04:34	0.81	5.38	0.65
2020/06/17 04:39	0.78	4.93	0.63
2020/06/17 04:44	0.77	4.46	0.58
2020/06/17 04:49	0.77	4.46	0.58
2020/06/17 04:54	0.77	4.31	0.56
2020/06/17 04:59	0.77	4.41	0.58
2020/06/17 05:04	0.77	4.46	0.58
2020/06/17 05:09	0.77	4.69	0.61
2020/06/17 05:14	0.81	5.06	0.61
2020/06/17 05:19	0.81	5.06	0.61
2020/06/17 05:24	0.82	5.33	0.63
2020/06/17 05:29	0.89	7.13	0.75

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/17 09:19	1.20	13.46	0.92
2020/06/17 09:24	1.20	11.93	0.81
2020/06/17 09:29	1.14	11.13	0.81
2020/06/17 09:34	1.07	10.16	0.81
2020/06/17 09:39	1.07	11.02	0.88
2020/06/17 09:44	1.07	11.74	0.94
2020/06/17 09:49	1.02	10.87	0.94
2020/06/17 09:54	1.02	10.87	0.94
2020/06/17 09:59	1.09	11.37	0.89
2020/06/17 10:04	1.10	10.92	0.84
2020/06/17 10:09	1.09	10.30	0.81
2020/06/17 10:14	1.09	10.72	0.84
2020/06/17 10:19	1.09	11.37	0.89
2020/06/17 10:24	1.02	11.28	0.97
2020/06/17 10:29	1.02	11.28	0.97
2020/06/17 10:34	1.02	11.62	1.00
2020/06/17 10:39	0.95	10.48	1.00
2020/06/17 10:44	0.95	10.81	1.03
2020/06/17 10:49	1.04	11.70	0.97
2020/06/17 10:54	0.93	8.48	0.83
2020/06/17 10:59	0.93	8.48	0.83
2020/06/17 11:04	0.93	8.69	0.85
2020/06/17 11:09	0.98	9.04	0.83
2020/06/17 11:14	0.98	9.27	0.85
2020/06/17 11:19	0.99	11.03	0.99
2020/06/17 11:24	0.99	11.28	1.01
2020/06/17 11:29	1.03	11.72	0.99
2020/06/17 11:34	1.03	12.51	1.06
2020/06/17 11:39	1.03	12.51	1.06
2020/06/17 11:44	0.98	11.54	1.06
2020/06/17 11:49	1.03	11.43	0.97
2020/06/17 11:54	1.03	10.63	0.90
2020/06/17 11:59	1.06	11.05	0.90
2020/06/17 12:04	1.09	11.47	0.90
2020/06/17 12:09	1.09	14.91	1.17
2020/06/17 12:14	1.07	14.63	1.17
2020/06/17 12:19	1.07	14.63	1.17
2020/06/17 12:24	1.07	13.67	1.09
2020/06/17 12:29	1.06	13.04	1.06
2020/06/17 12:34	1.06	10.86	0.88
2020/06/17 12:39	1.06	9.75	0.79
2020/06/17 12:44	1.02	9.20	0.79
2020/06/17 12:49	0.91	7.77	0.79
2020/06/17 12:54	0.91	8.06	0.82
2020/06/17 12:59	0.91	9.66	0.99

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/17 05:34	0.93	7.71	0.75
2020/06/17 05:39	0.93	8.82	0.86
2020/06/17 05:44	0.93	9.45	0.92
2020/06/17 05:49	0.93	9.45	0.92
2020/06/17 05:54	0.81	7.15	0.86
2020/06/17 05:59	0.71	5.84	0.85
2020/06/17 06:04	0.56	3.32	0.69
2020/06/17 06:09	0.56	3.32	0.69
2020/06/17 06:14	0.56	3.32	0.69
2020/06/17 06:19	0.71	4.74	0.69
2020/06/17 06:24	0.71	4.74	0.69
2020/06/17 06:29	0.78	7.02	0.89
2020/06/17 06:34	0.86	7.31	0.80
2020/06/17 06:39	0.88	5.52	0.59
2020/06/17 06:44	0.88	7.49	0.80
2020/06/17 06:49	0.96	9.51	0.89
2020/06/17 06:54	0.96	11.32	1.06
2020/06/17 06:59	0.96	11.32	1.06
2020/06/17 07:04	0.98	11.56	1.06
2020/06/17 07:09	0.98	8.37	0.77
2020/06/17 07:14	0.95	8.01	0.77
2020/06/17 07:19	0.89	7.21	0.75
2020/06/17 07:24	0.88	6.10	0.65
2020/06/17 07:29	0.88	6.16	0.66
2020/06/17 07:34	0.88	6.16	0.66
2020/06/17 07:39	0.86	6.02	0.66
2020/06/17 07:44	0.88	6.02	0.64
2020/06/17 07:49	0.91	6.45	0.66
2020/06/17 07:54	0.93	7.44	0.73
2020/06/17 07:59	1.03	8.94	0.76
2020/06/17 08:04	1.10	9.83	0.76
2020/06/17 08:09	1.10	10.74	0.83
2020/06/17 08:14	1.17	13.26	0.93
2020/06/17 08:19	1.17	13.95	0.98
2020/06/17 08:24	1.17	13.96	0.98
2020/06/17 08:29	1.17	13.96	0.98
2020/06/17 08:34	1.17	13.95	0.98
2020/06/17 08:39	1.17	13.95	0.98
2020/06/17 08:44	1.17	13.34	0.94
2020/06/17 08:49	1.18	13.57	0.94
2020/06/17 08:54	1.17	13.34	0.94
2020/06/17 08:59	1.11	12.74	0.96
2020/06/17 09:04	1.11	12.74	0.96
2020/06/17 09:09	1.20	14.41	0.98
2020/06/17 09:14	1.20	14.41	0.98

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/17 13:04	0.91	9.66	0.99
2020/06/17 13:09	1.00	11.60	1.02
2020/06/17 13:14	1.06	13.26	1.08
2020/06/17 13:19	1.06	14.09	1.15
2020/06/17 13:24	1.06	13.26	1.08
2020/06/17 13:29	1.06	13.88	1.13
2020/06/17 13:34	1.06	14.09	1.15
2020/06/17 13:39	1.06	13.88	1.13
2020/06/17 13:44	1.06	13.88	1.13
2020/06/17 13:49	1.09	14.42	1.13
2020/06/17 13:54	1.09	13.98	1.10
2020/06/17 13:59	1.11	14.50	1.10
2020/06/17 14:04	1.11	17.08	1.29
2020/06/17 14:09	1.13	15.89	1.18
2020/06/17 14:14	1.13	15.89	1.18
2020/06/17 14:19	1.13	15.89	1.18
2020/06/17 14:24	1.06	13.55	1.10
2020/06/17 14:29	0.89	10.55	1.10
2020/06/17 14:34	0.88	9.76	1.04
2020/06/17 14:39	0.88	9.76	1.04
2020/06/17 14:44	0.88	9.76	1.04
2020/06/17 14:49	0.88	8.59	0.92
2020/06/17 14:54	0.88	8.53	0.91
2020/06/17 14:59	0.88	8.41	0.90
2020/06/17 15:04	0.88	8.41	0.90
2020/06/17 15:09	0.85	8.02	0.90
2020/06/17 15:14	0.81	7.45	0.90
2020/06/17 15:19	0.81	7.45	0.90
2020/06/17 15:24	0.85	8.70	0.98
2020/06/17 15:29	0.89	8.83	0.92
2020/06/17 15:34	0.89	8.83	0.92
2020/06/17 15:39	0.89	8.83	0.92
2020/06/17 15:44	0.85	8.37	0.94
2020/06/17 15:49	0.85	8.37	0.94
2020/06/17 15:54	0.85	8.37	0.94
2020/06/17 15:59	0.86	8.57	0.94
2020/06/17 16:04	0.92	9.38	0.94
2020/06/17 16:09	0.92	11.58	1.16
2020/06/17 16:14	0.91	8.64	0.88
2020/06/17 16:19	0.89	9.35	0.98
2020/06/17 16:24	0.89	10.37	1.08
2020/06/17 16:29	0.85	9.66	1.08
2020/06/17 16:34	0.81	8.98	1.08
2020/06/17 16:39	0.81	9.00	1.09
2020/06/17 16:44	0.85	9.80	1.10

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/17 16:49	1.31	18.36	1.10
2020/06/17 16:54	1.41	20.35	1.10
2020/06/17 16:59	1.41	22.57	1.22
2020/06/17 17:04	1.31	20.35	1.22
2020/06/17 17:09	1.23	15.02	0.99
2020/06/17 17:14	1.23	15.02	0.99
2020/06/17 17:19	1.20	14.49	0.99
2020/06/17 17:24	1.16	13.23	0.95
2020/06/17 17:29	1.11	12.19	0.92
2020/06/17 17:34	1.10	11.17	0.86
2020/06/17 17:39	1.10	11.17	0.86
2020/06/17 17:44	1.10	11.17	0.86
2020/06/17 17:49	1.16	13.19	0.94
2020/06/17 17:54	1.20	14.79	1.01
2020/06/17 17:59	1.41	18.65	1.01
2020/06/17 18:04	1.41	18.65	1.01
2020/06/17 18:09	1.41	13.84	0.75
2020/06/17 18:14	1.41	13.84	0.75
2020/06/17 18:19	1.41	13.84	0.75
2020/06/17 18:24	1.41	21.04	1.14
2020/06/17 18:29	1.53	23.78	1.14
2020/06/17 18:34	1.56	25.23	1.17
2020/06/17 18:39	1.56	24.40	1.14
2020/06/17 18:44	1.56	17.35	0.81
2020/06/17 18:49	1.56	17.11	0.80
2020/06/17 18:54	1.56	16.97	0.79
2020/06/17 18:59	1.31	12.71	0.76
2020/06/17 19:04	1.27	12.13	0.76
2020/06/17 19:09	1.27	11.56	0.73
2020/06/17 19:14	1.27	11.56	0.73
2020/06/17 19:19	1.27	12.13	0.76
2020/06/17 19:24	1.27	13.01	0.82
2020/06/17 19:29	1.27	12.24	0.77
2020/06/17 19:34	1.16	11.96	0.86
2020/06/17 19:39	1.16	12.54	0.90
2020/06/17 19:44	1.04	10.82	0.90
2020/06/17 19:49	1.04	9.28	0.77
2020/06/17 19:54	1.09	11.86	0.93
2020/06/17 19:59	1.17	13.03	0.92
2020/06/17 20:04	1.17	10.94	0.77
2020/06/17 20:09	1.17	13.03	0.92
2020/06/17 20:14	1.17	13.03	0.92
2020/06/17 20:19	1.14	10.51	0.77
2020/06/17 20:24	1.14	10.51	0.77
2020/06/17 20:29	1.14	14.07	1.03

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/17 20:34	1.11	10.14	0.77
2020/06/17 20:39	1.11	12.61	0.95
2020/06/17 20:44	1.16	13.30	0.95
2020/06/17 20:49	1.16	13.30	0.95
2020/06/17 20:54	1.20	14.00	0.95
2020/06/17 20:59	1.24	15.06	0.98
2020/06/17 21:04	1.24	15.06	0.98
2020/06/17 21:09	1.23	17.65	1.16
2020/06/17 21:14	1.20	17.07	1.16
2020/06/17 21:19	1.20	14.06	0.96
2020/06/17 21:24	1.16	13.36	0.96
2020/06/17 21:29	1.13	12.90	0.96
2020/06/17 21:34	1.13	12.90	0.96
2020/06/17 21:39	0.91	9.46	0.97
2020/06/17 21:44	0.91	10.33	1.06
2020/06/17 21:49	0.91	11.13	1.14
2020/06/17 21:54	1.00	12.91	1.14
2020/06/17 21:59	1.00	11.99	1.06
2020/06/17 22:04	1.00	11.62	1.02
2020/06/17 22:09	1.00	11.62	1.02
2020/06/17 22:14	0.95	6.83	0.65
2020/06/17 22:19	0.89	6.21	0.65
2020/06/17 22:24	0.75	4.85	0.65
2020/06/17 22:29	0.75	6.67	0.89
2020/06/17 22:34	0.75	5.89	0.79
2020/06/17 22:39	0.75	5.89	0.79
2020/06/17 22:44	0.75	5.89	0.79
2020/06/17 22:49	0.84	6.07	0.70
2020/06/17 22:54	0.84	6.07	0.70
2020/06/17 22:59	0.86	6.37	0.70
2020/06/17 23:04	0.89	8.71	0.91
2020/06/17 23:09	0.89	8.71	0.91
2020/06/17 23:14	0.89	8.71	0.91
2020/06/17 23:19	0.75	5.65	0.76
2020/06/17 23:24	0.71	4.15	0.60
2020/06/17 23:29	0.68	3.91	0.60
2020/06/17 23:34	0.63	4.32	0.76
2020/06/17 23:39	0.57	3.45	0.69
2020/06/17 23:44	0.57	3.80	0.76
2020/06/17 23:49	0.57	3.80	0.76
2020/06/17 23:54	0.57	3.80	0.76
2020/06/17 23:59	0.61	3.83	0.69
2020/06/18 00:04	0.77	4.56	0.59
2020/06/18 00:09	0.77	4.56	0.59
2020/06/18 00:14	0.77	4.56	0.59

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 00:19	0.73	3.71	0.53
2020/06/18 00:24	0.71	3.61	0.53
2020/06/18 00:29	0.66	3.48	0.57
2020/06/18 00:34	0.66	3.48	0.57
2020/06/18 00:39	0.60	3.05	0.57
2020/06/18 00:44	0.60	3.05	0.57
2020/06/18 00:49	0.60	2.98	0.56
2020/06/18 00:54	0.60	2.98	0.56
2020/06/18 00:59	0.56	2.68	0.56
2020/06/18 01:04	0.54	2.62	0.57
2020/06/18 01:09	0.53	2.52	0.57
2020/06/18 01:14	0.53	2.52	0.57
2020/06/18 01:19	0.53	2.60	0.58
2020/06/18 01:24	0.53	2.42	0.54
2020/06/18 01:29	0.49	2.14	0.54
2020/06/18 01:34	0.46	2.00	0.55
2020/06/18 01:39	0.46	2.12	0.59
2020/06/18 01:44	0.46	2.10	0.58
2020/06/18 01:49	0.48	2.21	0.59
2020/06/18 01:54	0.48	2.21	0.59
2020/06/18 01:59	0.48	2.19	0.58
2020/06/18 02:04	0.46	2.10	0.58
2020/06/18 02:09	0.46	2.08	0.58
2020/06/18 02:14	0.46	2.06	0.57
2020/06/18 02:19	0.56	2.77	0.58
2020/06/18 02:24	0.64	3.16	0.54
2020/06/18 02:29	0.64	3.16	0.54
2020/06/18 02:34	0.64	3.15	0.53
2020/06/18 02:39	0.61	3.01	0.55
2020/06/18 02:44	0.61	3.01	0.55
2020/06/18 02:49	0.60	2.94	0.55
2020/06/18 02:54	0.60	3.40	0.64
2020/06/18 02:59	0.61	3.52	0.64
2020/06/18 03:04	0.63	3.63	0.64
2020/06/18 03:09	0.74	5.43	0.75
2020/06/18 03:14	0.77	5.75	0.75
2020/06/18 03:19	0.77	5.75	0.75
2020/06/18 03:24	0.77	5.73	0.75
2020/06/18 03:29	0.85	4.36	0.49
2020/06/18 03:34	0.77	3.75	0.49
2020/06/18 03:39	0.75	3.65	0.49
2020/06/18 03:44	0.75	4.30	0.58
2020/06/18 03:49	0.70	4.17	0.62
2020/06/18 03:54	0.67	3.99	0.64
2020/06/18 03:59	0.66	3.87	0.64

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 07:49	0.77	5.65	0.74
2020/06/18 07:54	0.79	5.96	0.74
2020/06/18 07:59	0.84	7.17	0.82
2020/06/18 08:04	1.09	15.03	1.18
2020/06/18 08:09	1.09	15.03	1.18
2020/06/18 08:14	1.10	15.31	1.18
2020/06/18 08:19	1.09	14.36	1.13
2020/06/18 08:24	1.00	12.79	1.13
2020/06/18 08:29	0.99	11.19	1.01
2020/06/18 08:34	0.99	9.76	0.88
2020/06/18 08:39	0.99	8.91	0.80
2020/06/18 08:44	0.99	9.76	0.88
2020/06/18 08:49	1.13	10.79	0.80
2020/06/18 08:54	1.18	11.57	0.80
2020/06/18 08:59	1.18	13.19	0.91
2020/06/18 09:04	1.21	13.77	0.92
2020/06/18 09:09	1.18	13.19	0.91
2020/06/18 09:14	1.17	12.97	0.91
2020/06/18 09:19	1.17	12.97	0.91
2020/06/18 09:24	1.17	14.08	0.99
2020/06/18 09:29	1.06	11.25	0.92
2020/06/18 09:34	1.04	11.40	0.95
2020/06/18 09:39	0.92	9.47	0.95
2020/06/18 09:44	0.85	8.17	0.92
2020/06/18 09:49	0.85	8.17	0.92
2020/06/18 09:54	0.84	7.11	0.82
2020/06/18 09:59	0.84	7.11	0.82
2020/06/18 10:04	0.91	8.00	0.82
2020/06/18 10:09	0.91	9.80	1.00
2020/06/18 10:14	0.93	10.24	1.00
2020/06/18 10:19	0.93	10.93	1.07
2020/06/18 10:24	0.93	11.25	1.10
2020/06/18 10:29	0.93	11.25	1.10
2020/06/18 10:34	0.93	10.93	1.07
2020/06/18 10:39	0.92	9.63	0.96
2020/06/18 10:44	1.00	10.28	0.91
2020/06/18 10:49	1.00	8.56	0.75
2020/06/18 10:54	1.07	9.25	0.74
2020/06/18 10:59	1.07	9.25	0.74
2020/06/18 11:04	1.07	9.34	0.75
2020/06/18 11:09	1.06	9.16	0.75
2020/06/18 11:14	0.96	8.53	0.80
2020/06/18 11:19	0.95	8.35	0.80
2020/06/18 11:24	0.89	8.37	0.87
2020/06/18 11:29	0.84	6.96	0.80

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 04:04	0.60	3.40	0.64
2020/06/18 04:09	0.60	3.34	0.62
2020/06/18 04:14	0.60	3.45	0.65
2020/06/18 04:19	0.60	3.14	0.59
2020/06/18 04:24	0.60	2.80	0.52
2020/06/18 04:29	0.61	2.89	0.52
2020/06/18 04:34	0.78	4.36	0.55
2020/06/18 04:39	0.78	4.36	0.55
2020/06/18 04:44	0.78	4.36	0.55
2020/06/18 04:49	0.79	4.47	0.55
2020/06/18 04:54	0.81	4.59	0.55
2020/06/18 04:59	0.79	4.25	0.53
2020/06/18 05:04	0.77	4.03	0.53
2020/06/18 05:09	0.79	4.25	0.53
2020/06/18 05:14	0.79	4.49	0.56
2020/06/18 05:19	0.77	4.27	0.56
2020/06/18 05:24	0.67	3.50	0.56
2020/06/18 05:29	0.70	3.90	0.59
2020/06/18 05:34	0.70	3.90	0.59
2020/06/18 05:39	0.70	3.73	0.56
2020/06/18 05:44	0.93	5.36	0.52
2020/06/18 05:49	0.93	5.72	0.56
2020/06/18 05:54	0.93	5.72	0.56
2020/06/18 05:59	0.75	4.66	0.62
2020/06/18 06:04	0.74	4.54	0.62
2020/06/18 06:09	0.73	4.41	0.62
2020/06/18 06:14	0.73	4.41	0.62
2020/06/18 06:19	0.64	3.34	0.57
2020/06/18 06:24	0.73	4.00	0.57
2020/06/18 06:29	0.74	4.99	0.69
2020/06/18 06:34	0.78	6.88	0.87
2020/06/18 06:39	0.82	7.42	0.87
2020/06/18 06:44	0.91	9.82	1.00
2020/06/18 06:49	0.99	10.42	0.94
2020/06/18 06:54	0.99	11.17	1.00
2020/06/18 06:59	0.92	10.04	1.00
2020/06/18 07:04	0.91	9.16	0.94
2020/06/18 07:09	0.89	8.89	0.93
2020/06/18 07:14	0.89	8.89	0.93
2020/06/18 07:19	0.92	9.30	0.93
2020/06/18 07:24	0.89	8.89	0.93
2020/06/18 07:29	0.89	8.97	0.94
2020/06/18 07:34	0.89	8.97	0.94
2020/06/18 07:39	0.84	8.09	0.93
2020/06/18 07:44	0.79	5.96	0.74

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 15:19	0.99	10.57	0.95
2020/06/18 15:24	0.99	9.72	0.87
2020/06/18 15:29	1.06	10.73	0.87
2020/06/18 15:34	1.06	11.67	0.95
2020/06/18 15:39	1.06	9.78	0.80
2020/06/18 15:44	0.99	8.71	0.78
2020/06/18 15:49	0.99	8.60	0.77
2020/06/18 15:54	0.98	8.32	0.76
2020/06/18 15:59	0.98	8.32	0.76
2020/06/18 16:04	0.95	7.98	0.76
2020/06/18 16:09	0.95	7.62	0.73
2020/06/18 16:14	0.99	8.50	0.76
2020/06/18 16:19	1.06	8.37	0.68
2020/06/18 16:24	0.99	7.58	0.68
2020/06/18 16:29	1.04	9.80	0.81
2020/06/18 16:34	1.07	10.18	0.81
2020/06/18 16:39	1.07	10.18	0.81
2020/06/18 16:44	1.04	9.80	0.81
2020/06/18 16:49	1.04	8.75	0.73
2020/06/18 16:54	1.11	9.61	0.73
2020/06/18 16:59	1.06	9.38	0.76
2020/06/18 17:04	1.02	8.85	0.76
2020/06/18 17:09	1.06	11.96	0.97
2020/06/18 17:14	1.06	11.98	0.98
2020/06/18 17:19	1.06	11.98	0.98
2020/06/18 17:24	0.98	10.63	0.98
2020/06/18 17:29	0.98	10.16	0.93
2020/06/18 17:34	0.95	9.07	0.87
2020/06/18 17:39	0.95	9.07	0.87
2020/06/18 17:44	0.95	9.74	0.93
2020/06/18 17:49	0.95	9.79	0.94
2020/06/18 17:54	0.91	9.68	0.99
2020/06/18 17:59	0.82	8.40	0.99
2020/06/18 18:04	0.82	7.96	0.94
2020/06/18 18:09	0.82	7.61	0.90
2020/06/18 18:14	0.95	9.36	0.90
2020/06/18 18:19	0.96	9.54	0.89
2020/06/18 18:24	0.96	9.54	0.89
2020/06/18 18:29	0.95	9.34	0.89
2020/06/18 18:34	0.91	8.10	0.83
2020/06/18 18:39	0.91	8.10	0.83
2020/06/18 18:44	0.89	9.72	1.02
2020/06/18 18:49	0.89	9.37	0.98
2020/06/18 18:54	0.91	10.56	1.08
2020/06/18 18:59	0.89	10.33	1.08

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 11:34	0.84	6.96	0.80
2020/06/18 11:39	0.84	7.07	0.81
2020/06/18 11:44	0.84	7.07	0.81
2020/06/18 11:49	0.82	6.89	0.81
2020/06/18 11:54	0.79	6.57	0.81
2020/06/18 11:59	0.79	6.56	0.81
2020/06/18 12:04	0.79	6.74	0.83
2020/06/18 12:09	0.79	6.81	0.84
2020/06/18 12:14	0.79	6.81	0.84
2020/06/18 12:19	0.91	8.59	0.88
2020/06/18 12:24	0.92	8.78	0.88
2020/06/18 12:29	0.99	9.76	0.88
2020/06/18 12:34	1.09	11.19	0.88
2020/06/18 12:39	1.09	11.19	0.88
2020/06/18 12:44	1.10	10.87	0.84
2020/06/18 12:49	1.10	10.01	0.77
2020/06/18 12:54	1.09	11.93	0.94
2020/06/18 12:59	1.06	11.49	0.94
2020/06/18 13:04	0.93	8.55	0.84
2020/06/18 13:09	0.91	8.18	0.84
2020/06/18 13:14	0.91	8.18	0.84
2020/06/18 13:19	0.91	8.18	0.84
2020/06/18 13:24	0.91	8.18	0.84
2020/06/18 13:29	0.91	8.14	0.83
2020/06/18 13:34	0.93	8.51	0.83
2020/06/18 13:39	0.93	8.51	0.83
2020/06/18 13:44	0.93	8.10	0.79
2020/06/18 13:49	0.96	8.46	0.79
2020/06/18 13:54	0.93	7.54	0.74
2020/06/18 13:59	0.98	7.68	0.70
2020/06/18 14:04	0.99	8.82	0.79
2020/06/18 14:09	0.99	9.38	0.84
2020/06/18 14:14	0.99	10.28	0.92
2020/06/18 14:19	0.99	10.28	0.92
2020/06/18 14:24	0.99	10.39	0.93
2020/06/18 14:29	0.99	12.03	1.08
2020/06/18 14:34	0.99	12.44	1.12
2020/06/18 14:39	0.99	12.44	1.12
2020/06/18 14:44	0.99	12.44	1.12
2020/06/18 14:49	1.02	12.95	1.12
2020/06/18 14:54	1.02	12.33	1.06
2020/06/18 14:59	1.03	12.58	1.06
2020/06/18 15:04	1.03	12.58	1.06
2020/06/18 15:09	1.03	10.32	0.87
2020/06/18 15:14	0.99	9.72	0.87

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 22:49	1.07	8.97	0.72
2020/06/18 22:54	1.07	8.97	0.72
2020/06/18 22:59	0.98	7.81	0.72
2020/06/18 23:04	0.98	7.47	0.69
2020/06/18 23:09	0.86	6.55	0.72
2020/06/18 23:14	0.79	6.38	0.79
2020/06/18 23:19	0.79	6.38	0.79
2020/06/18 23:24	0.79	6.38	0.79
2020/06/18 23:29	0.75	6.67	0.89
2020/06/18 23:34	0.74	6.04	0.83
2020/06/18 23:39	0.71	5.71	0.83
2020/06/18 23:44	0.71	5.68	0.83
2020/06/18 23:49	0.68	5.35	0.83
2020/06/18 23:54	0.67	4.97	0.79
2020/06/18 23:59	0.67	4.97	0.79
2020/06/19 00:04	0.67	4.97	0.79
2020/06/19 00:09	0.98	8.62	0.79
2020/06/19 00:14	1.02	9.28	0.80
2020/06/19 00:19	1.02	9.75	0.84
2020/06/19 00:24	1.02	9.28	0.80
2020/06/19 00:29	0.79	6.18	0.76
2020/06/19 00:34	0.78	5.59	0.71
2020/06/19 00:39	0.71	4.77	0.69
2020/06/19 00:44	0.67	4.36	0.69
2020/06/19 00:49	0.66	3.86	0.63
2020/06/19 00:54	0.60	3.30	0.62
2020/06/19 00:59	0.60	3.22	0.60
2020/06/19 01:04	0.63	3.44	0.60
2020/06/19 01:09	0.63	3.63	0.63
2020/06/19 01:14	0.66	4.42	0.73
2020/06/19 01:19	0.68	5.02	0.78
2020/06/19 01:24	0.68	5.46	0.84
2020/06/19 01:29	0.68	5.02	0.78
2020/06/19 01:34	0.75	6.29	0.84
2020/06/19 01:39	0.75	6.40	0.86
2020/06/19 01:44	0.59	5.01	0.97
2020/06/19 01:49	0.59	5.01	0.97
2020/06/19 01:54	0.49	3.84	0.97
2020/06/19 01:59	0.48	4.04	1.07
2020/06/19 02:04	0.48	3.67	0.97
2020/06/19 02:09	0.45	2.84	0.82
2020/06/19 02:14	0.45	2.84	0.82
2020/06/19 02:19	0.43	2.30	0.69
2020/06/19 02:24	0.45	2.35	0.68
2020/06/19 02:29	0.43	2.30	0.69

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 19:04	0.89	9.37	0.98
2020/06/18 19:09	0.89	9.37	0.98
2020/06/18 19:14	0.89	10.50	1.10
2020/06/18 19:19	0.84	9.61	1.10
2020/06/18 19:24	0.84	9.61	1.10
2020/06/18 19:29	0.88	10.32	1.10
2020/06/18 19:34	0.88	9.46	1.01
2020/06/18 19:39	0.88	9.46	1.01
2020/06/18 19:44	0.88	9.46	1.01
2020/06/18 19:49	0.85	9.60	1.08
2020/06/18 19:54	0.85	9.60	1.08
2020/06/18 19:59	0.85	9.60	1.08
2020/06/18 20:04	0.85	10.17	1.14
2020/06/18 20:09	0.93	9.00	0.88
2020/06/18 20:14	0.93	9.00	0.88
2020/06/18 20:19	0.93	10.67	1.04
2020/06/18 20:24	1.04	13.97	1.16
2020/06/18 20:29	0.99	11.61	1.04
2020/06/18 20:34	1.04	12.58	1.04
2020/06/18 20:39	1.06	12.75	1.04
2020/06/18 20:44	1.06	12.21	0.99
2020/06/18 20:49	1.09	11.93	0.94
2020/06/18 20:54	1.11	11.72	0.89
2020/06/18 20:59	1.18	13.51	0.94
2020/06/18 21:04	1.18	13.51	0.94
2020/06/18 21:09	1.18	13.51	0.94
2020/06/18 21:14	1.04	11.22	0.93
2020/06/18 21:19	1.04	11.22	0.93
2020/06/18 21:24	0.98	9.19	0.84
2020/06/18 21:29	0.98	7.80	0.72
2020/06/18 21:34	0.89	6.84	0.72
2020/06/18 21:39	0.89	6.84	0.72
2020/06/18 21:44	0.89	8.07	0.84
2020/06/18 21:49	0.95	7.48	0.72
2020/06/18 21:54	0.96	7.07	0.66
2020/06/18 21:59	0.96	6.82	0.64
2020/06/18 22:04	0.96	6.80	0.64
2020/06/18 22:09	0.96	6.80	0.64
2020/06/18 22:14	0.96	6.82	0.64
2020/06/18 22:19	0.91	7.69	0.79
2020/06/18 22:24	0.91	8.76	0.90
2020/06/18 22:29	0.91	8.76	0.90
2020/06/18 22:34	0.91	8.76	0.90
2020/06/18 22:39	0.91	8.00	0.82
2020/06/18 22:44	0.98	8.83	0.81

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/19 06:19	0.63	4.12	0.72
2020/06/19 06:24	0.63	3.77	0.66
2020/06/19 06:29	0.63	4.12	0.72
2020/06/19 06:34	0.70	4.84	0.73
2020/06/19 06:39	0.70	5.16	0.77
2020/06/19 06:44	0.70	5.29	0.79
2020/06/19 06:49	0.77	6.20	0.81
2020/06/19 06:54	0.70	5.29	0.79
2020/06/19 06:59	0.70	5.16	0.77
2020/06/19 07:04	0.77	6.20	0.81
2020/06/19 07:09	0.77	8.23	1.07
2020/06/19 07:14	0.85	8.84	0.99
2020/06/19 07:19	0.96	11.46	1.07
2020/06/19 07:24	1.03	12.69	1.07
2020/06/19 07:29	1.04	11.95	0.99
2020/06/19 07:34	1.07	12.41	0.99
2020/06/19 07:39	1.21	13.28	0.89
2020/06/19 07:44	1.21	13.28	0.89
2020/06/19 07:49	1.21	14.75	0.99
2020/06/19 07:54	1.21	14.88	1.00
2020/06/19 07:59	1.21	14.75	0.99
2020/06/19 08:04	1.35	19.04	1.09
2020/06/19 08:09	1.35	19.04	1.09
2020/06/19 08:14	1.41	20.18	1.09
2020/06/19 08:19	1.35	19.23	1.10
2020/06/19 08:24	1.29	18.10	1.10
2020/06/19 08:29	1.16	13.67	0.98
2020/06/19 08:34	0.96	9.90	0.93
2020/06/19 08:39	0.91	9.07	0.93
2020/06/19 08:44	0.96	9.78	0.92
2020/06/19 08:49	0.93	9.48	0.93
2020/06/19 08:54	0.93	9.48	0.93
2020/06/19 08:59	0.93	7.88	0.77
2020/06/19 09:04	0.93	7.88	0.77
2020/06/19 09:09	0.93	8.83	0.86
2020/06/19 09:14	0.93	8.83	0.86
2020/06/19 09:19	1.00	10.26	0.90
2020/06/19 09:24	1.02	12.79	1.10
2020/06/19 09:29	1.24	19.08	1.24
2020/06/19 09:34	1.34	22.26	1.29
2020/06/19 09:39	1.34	21.29	1.24
2020/06/19 09:44	1.27	17.60	1.10
2020/06/19 09:49	1.27	15.85	0.99
2020/06/19 09:54	1.27	14.43	0.91
2020/06/19 09:59	1.27	14.06	0.88

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/19 02:34	0.39	2.13	0.75
2020/06/19 02:39	0.39	2.13	0.75
2020/06/19 02:44	0.35	2.09	0.87
2020/06/19 02:49	0.27	1.40	0.87
2020/06/19 02:54	0.25	1.29	0.87
2020/06/19 02:59	0.25	1.33	0.89
2020/06/19 03:04	0.27	1.43	0.89
2020/06/19 03:09	0.28	1.37	0.79
2020/06/19 03:14	0.38	2.41	0.89
2020/06/19 03:19	0.42	2.48	0.79
2020/06/19 03:24	0.45	2.73	0.79
2020/06/19 03:29	0.45	2.77	0.80
2020/06/19 03:34	0.45	2.89	0.83
2020/06/19 03:39	0.45	2.77	0.80
2020/06/19 03:44	0.46	2.90	0.80
2020/06/19 03:49	0.46	2.98	0.82
2020/06/19 03:54	0.46	2.32	0.64
2020/06/19 03:59	0.46	2.32	0.64
2020/06/19 04:04	0.45	2.42	0.70
2020/06/19 04:09	0.42	2.28	0.73
2020/06/19 04:14	0.42	2.20	0.70
2020/06/19 04:19	0.48	2.65	0.70
2020/06/19 04:24	0.43	2.40	0.73
2020/06/19 04:29	0.49	3.34	0.84
2020/06/19 04:34	0.49	3.10	0.78
2020/06/19 04:39	0.45	2.71	0.78
2020/06/19 04:44	0.43	2.59	0.78
2020/06/19 04:49	0.43	2.53	0.77
2020/06/19 04:54	0.36	1.95	0.77
2020/06/19 04:59	0.36	1.84	0.72
2020/06/19 05:04	0.36	1.95	0.77
2020/06/19 05:09	0.36	2.83	1.11
2020/06/19 05:14	0.36	2.83	1.11
2020/06/19 05:19	0.36	1.43	0.56
2020/06/19 05:24	0.43	2.05	0.62
2020/06/19 05:29	0.45	2.15	0.62
2020/06/19 05:34	0.50	2.56	0.62
2020/06/19 05:39	0.63	3.88	0.68
2020/06/19 05:44	0.95	8.24	0.79
2020/06/19 05:49	0.95	8.37	0.80
2020/06/19 05:54	0.95	8.37	0.80
2020/06/19 05:59	0.85	7.03	0.79
2020/06/19 06:04	0.77	5.83	0.76
2020/06/19 06:09	0.71	5.02	0.73
2020/06/19 06:14	0.63	4.12	0.72

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/19 10:04	1.28	14.28	0.88
2020/06/19 10:09	1.28	14.66	0.91
2020/06/19 10:14	1.28	18.66	1.15
2020/06/19 10:19	1.23	17.50	1.15
2020/06/19 10:24	1.23	18.00	1.19
2020/06/19 10:29	1.23	18.00	1.19
2020/06/19 10:34	1.28	16.33	1.01
2020/06/19 10:39	1.28	16.33	1.01
2020/06/19 10:44	1.28	17.22	1.06
2020/06/19 10:49	1.28	17.22	1.06
2020/06/19 10:54	1.27	16.95	1.06
2020/06/19 10:59	1.27	16.95	1.06
2020/06/19 11:04	1.17	18.06	1.27
2020/06/19 11:09	1.17	15.25	1.07
2020/06/19 11:14	1.17	14.26	1.00
2020/06/19 11:19	1.17	15.25	1.07
2020/06/19 11:24	1.13	15.25	1.13
2020/06/19 11:29	1.07	14.17	1.13
2020/06/19 11:34	1.07	14.27	1.14
2020/06/19 11:39	1.07	14.44	1.15
2020/06/19 11:44	1.21	17.24	1.15
2020/06/19 11:49	1.21	17.03	1.14
2020/06/19 11:54	1.21	15.86	1.06
2020/06/19 11:59	1.21	13.79	0.92
2020/06/19 12:04	1.13	12.43	0.92
2020/06/19 12:09	1.10	13.79	1.06
2020/06/19 12:14	1.10	13.83	1.06
2020/06/19 12:19	1.10	14.06	1.08
2020/06/19 12:24	1.06	13.29	1.08
2020/06/19 12:29	1.06	13.07	1.06
2020/06/19 12:34	1.00	9.73	0.86
2020/06/19 12:39	1.04	10.33	0.86
2020/06/19 12:44	1.06	10.53	0.86
2020/06/19 12:49	1.06	11.29	0.92
2020/06/19 12:54	1.06	11.30	0.92
2020/06/19 12:59	1.06	12.32	1.00
2020/06/19 13:04	1.06	11.30	0.92
2020/06/19 13:09	1.06	12.32	1.00
2020/06/19 13:14	1.02	11.62	1.00
2020/06/19 13:19	1.02	9.98	0.86
2020/06/19 13:24	1.02	9.98	0.86
2020/06/19 13:29	1.16	14.15	1.01
2020/06/19 13:34	1.16	14.15	1.01
2020/06/19 13:39	1.20	16.22	1.10
2020/06/19 13:44	1.20	16.85	1.15

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/19 13:49	1.14	16.09	1.17
2020/06/19 13:54	1.13	15.80	1.17
2020/06/19 13:59	1.13	15.80	1.17
2020/06/19 14:04	1.11	13.94	1.05
2020/06/19 14:09	1.06	11.40	0.93
2020/06/19 14:14	1.02	9.40	0.81
2020/06/19 14:19	1.00	10.54	0.93
2020/06/19 14:24	1.00	11.03	0.97
2020/06/19 14:29	1.02	11.25	0.97
2020/06/19 14:34	1.07	12.16	0.97
2020/06/19 14:39	1.10	14.37	1.11
2020/06/19 14:44	1.10	14.95	1.15
2020/06/19 14:49	1.18	16.67	1.15
2020/06/19 14:54	1.18	16.67	1.15
2020/06/19 14:59	1.10	16.06	1.24
2020/06/19 15:04	1.10	16.27	1.25
2020/06/19 15:09	1.16	17.25	1.24
2020/06/19 15:14	1.10	16.06	1.24
2020/06/19 15:19	1.09	11.39	0.89
2020/06/19 15:24	0.91	8.73	0.89
2020/06/19 15:29	0.91	8.73	0.89
2020/06/19 15:34	0.89	9.33	0.98
2020/06/19 15:39	0.89	9.33	0.98
2020/06/19 15:44	0.98	10.75	0.99
2020/06/19 15:49	0.98	10.75	0.99
2020/06/19 15:54	1.02	11.42	0.99
2020/06/19 15:59	1.10	14.86	1.14
2020/06/19 16:04	1.11	15.87	1.20
2020/06/19 16:09	1.18	16.53	1.14
2020/06/19 16:14	1.11	15.94	1.20
2020/06/19 16:19	1.11	15.94	1.20
2020/06/19 16:24	1.11	14.47	1.09
2020/06/19 16:29	1.09	13.94	1.09
2020/06/19 16:34	1.04	13.17	1.09
2020/06/19 16:39	1.03	12.14	1.03
2020/06/19 16:44	1.03	12.14	1.03
2020/06/19 16:49	1.04	10.62	0.88
2020/06/19 16:54	1.07	11.04	0.88
2020/06/19 16:59	1.09	11.21	0.88
2020/06/19 17:04	1.16	12.31	0.88
2020/06/19 17:09	1.11	12.87	0.97
2020/06/19 17:14	1.17	13.81	0.97
2020/06/19 17:19	1.17	12.48	0.88
2020/06/19 17:24	1.13	13.10	0.97
2020/06/19 17:29	1.11	12.87	0.97

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/19 17:34	1.11	11.79	0.89
2020/06/19 17:39	1.11	14.54	1.10
2020/06/19 17:44	1.11	14.54	1.10
2020/06/19 17:49	1.11	12.52	0.95
2020/06/19 17:54	1.11	12.52	0.95
2020/06/19 17:59	1.11	12.52	0.95
2020/06/19 18:04	1.04	9.81	0.81
2020/06/19 18:09	0.98	8.88	0.81
2020/06/19 18:14	0.96	10.58	0.99
2020/06/19 18:19	0.98	9.49	0.87
2020/06/19 18:24	0.98	10.81	0.99
2020/06/19 18:29	1.09	12.65	0.99
2020/06/19 18:34	1.09	15.77	1.24
2020/06/19 18:39	1.09	14.14	1.11
2020/06/19 18:44	1.09	15.12	1.19
2020/06/19 18:49	1.09	15.12	1.19
2020/06/19 18:54	1.06	14.56	1.19
2020/06/19 18:59	1.09	15.12	1.19
2020/06/19 19:04	1.06	14.56	1.19
2020/06/19 19:09	1.09	15.57	1.22
2020/06/19 19:14	1.10	14.61	1.12
2020/06/19 19:19	1.10	14.61	1.12
2020/06/19 19:24	1.00	11.91	1.05
2020/06/19 19:29	1.00	11.91	1.05
2020/06/19 19:34	1.00	11.23	0.99
2020/06/19 19:39	0.99	11.00	0.99
2020/06/19 19:44	0.98	10.94	1.00
2020/06/19 19:49	0.98	10.94	1.00
2020/06/19 19:54	0.98	10.18	0.93
2020/06/19 19:59	0.98	10.18	0.93
2020/06/19 20:04	0.98	9.21	0.84
2020/06/19 20:09	0.98	9.09	0.83
2020/06/19 20:14	0.98	9.09	0.83
2020/06/19 20:19	0.99	9.40	0.84
2020/06/19 20:24	0.99	10.33	0.93
2020/06/19 20:29	0.99	10.33	0.93
2020/06/19 20:34	1.00	10.54	0.93
2020/06/19 20:39	1.02	10.76	0.93
2020/06/19 20:44	1.02	11.25	0.97
2020/06/19 20:49	1.02	11.25	0.97
2020/06/19 20:54	0.99	10.90	0.98
2020/06/19 20:59	0.98	10.67	0.98
2020/06/19 21:04	0.98	10.58	0.97
2020/06/19 21:09	0.98	10.42	0.96
2020/06/19 21:14	1.02	11.07	0.96

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/19 21:19	1.02	9.98	0.86
2020/06/19 21:24	1.02	10.87	0.94
2020/06/19 21:29	1.02	10.50	0.91
2020/06/19 21:34	1.02	10.50	0.91
2020/06/19 21:39	1.02	10.50	0.91
2020/06/19 21:44	1.00	10.65	0.94
2020/06/19 21:49	1.00	11.63	1.02
2020/06/19 21:54	0.99	11.42	1.03
2020/06/19 21:59	0.98	11.18	1.03
2020/06/19 22:04	0.98	11.18	1.03
2020/06/19 22:09	1.00	12.63	1.11
2020/06/19 22:14	1.00	12.63	1.11
2020/06/19 22:19	1.13	14.99	1.11
2020/06/19 22:24	1.13	14.99	1.11
2020/06/19 22:29	1.13	14.91	1.11
2020/06/19 22:34	1.03	11.72	0.99
2020/06/19 22:39	0.96	9.53	0.89
2020/06/19 22:44	0.92	8.79	0.88
2020/06/19 22:49	0.91	8.60	0.88
2020/06/19 22:54	0.88	8.29	0.89
2020/06/19 22:59	0.91	8.68	0.89
2020/06/19 23:04	0.91	9.57	0.98
2020/06/19 23:09	0.98	10.66	0.98
2020/06/19 23:14	0.98	10.66	0.98
2020/06/19 23:19	0.98	10.00	0.92
2020/06/19 23:24	0.88	8.14	0.87
2020/06/19 23:29	0.86	7.34	0.80
2020/06/19 23:34	0.86	7.34	0.80
2020/06/19 23:39	0.88	7.41	0.79
2020/06/19 23:44	0.99	8.82	0.79
2020/06/19 23:49	1.03	8.50	0.72
2020/06/19 23:54	1.03	8.59	0.73
2020/06/19 23:59	1.03	8.59	0.73
2020/06/20 00:04	1.03	10.19	0.86
2020/06/20 00:09	1.03	10.19	0.86
2020/06/20 00:14	1.03	11.10	0.94
2020/06/20 00:19	1.03	11.10	0.94
2020/06/20 00:24	1.03	10.19	0.86
2020/06/20 00:29	0.96	10.03	0.94
2020/06/20 00:34	0.96	10.86	1.02
2020/06/20 00:39	0.95	9.46	0.91
2020/06/20 00:44	0.92	9.05	0.91
2020/06/20 00:49	0.95	9.46	0.91
2020/06/20 00:54	0.92	9.05	0.91
2020/06/20 00:59	0.89	7.42	0.78

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 01:04	0.89	7.42	0.78
2020/06/20 01:09	0.86	5.31	0.58
2020/06/20 01:14	0.86	6.20	0.68
2020/06/20 01:19	0.82	5.76	0.68
2020/06/20 01:24	0.85	7.41	0.83
2020/06/20 01:29	0.85	7.41	0.83
2020/06/20 01:34	0.85	7.79	0.87
2020/06/20 01:39	0.85	7.79	0.87
2020/06/20 01:44	0.85	7.41	0.83
2020/06/20 01:49	0.85	7.79	0.87
2020/06/20 01:54	0.82	6.94	0.82
2020/06/20 01:59	0.81	6.77	0.82
2020/06/20 02:04	0.79	6.74	0.83
2020/06/20 02:09	0.79	6.90	0.85
2020/06/20 02:14	0.79	6.74	0.83
2020/06/20 02:19	0.79	6.74	0.83
2020/06/20 02:24	0.81	6.61	0.80
2020/06/20 02:29	0.81	6.50	0.78
2020/06/20 02:34	0.81	6.50	0.78
2020/06/20 02:39	0.85	7.12	0.80
2020/06/20 02:44	0.86	7.29	0.80
2020/06/20 02:49	0.86	7.16	0.78
2020/06/20 02:54	0.88	8.26	0.88
2020/06/20 02:59	0.88	7.00	0.75
2020/06/20 03:04	0.86	6.84	0.75
2020/06/20 03:09	0.86	8.81	0.96
2020/06/20 03:14	0.88	9.01	0.96
2020/06/20 03:19	0.89	7.83	0.82
2020/06/20 03:24	0.89	9.22	0.96
2020/06/20 03:29	0.89	7.99	0.83
2020/06/20 03:34	0.89	7.99	0.83
2020/06/20 03:39	0.89	9.09	0.95
2020/06/20 03:44	0.91	9.88	1.01
2020/06/20 03:49	0.91	10.11	1.03
2020/06/20 03:54	0.91	10.11	1.03
2020/06/20 03:59	0.86	8.68	0.95
2020/06/20 04:04	0.86	8.34	0.91
2020/06/20 04:09	0.84	7.95	0.91
2020/06/20 04:14	0.82	7.27	0.86
2020/06/20 04:19	0.82	6.70	0.79
2020/06/20 04:24	0.82	6.70	0.79
2020/06/20 04:29	0.82	6.43	0.76
2020/06/20 04:34	0.82	6.43	0.76
2020/06/20 04:39	0.86	6.91	0.76
2020/06/20 04:44	0.86	7.35	0.80

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 04:49	0.86	7.35	0.80
2020/06/20 04:54	0.82	6.84	0.80
2020/06/20 04:59	0.82	6.84	0.80
2020/06/20 05:04	0.82	6.70	0.79
2020/06/20 05:09	0.82	6.41	0.75
2020/06/20 05:14	0.84	6.56	0.75
2020/06/20 05:19	0.84	7.33	0.84
2020/06/20 05:24	0.82	6.41	0.75
2020/06/20 05:29	0.84	7.25	0.83
2020/06/20 05:34	0.82	7.07	0.83
2020/06/20 05:39	0.82	6.89	0.81
2020/06/20 05:44	0.81	6.58	0.79
2020/06/20 05:49	0.82	6.74	0.79
2020/06/20 05:54	0.82	6.74	0.79
2020/06/20 05:59	0.88	7.59	0.81
2020/06/20 06:04	0.88	8.17	0.87
2020/06/20 06:09	0.88	8.17	0.87
2020/06/20 06:14	0.88	8.17	0.87
2020/06/20 06:19	0.88	8.13	0.87
2020/06/20 06:24	0.86	7.91	0.87
2020/06/20 06:29	0.86	7.56	0.83
2020/06/20 06:34	0.82	7.12	0.84
2020/06/20 06:39	0.82	7.12	0.84
2020/06/20 06:44	0.82	7.12	0.84
2020/06/20 06:49	0.93	9.44	0.92
2020/06/20 06:54	1.06	11.56	0.94
2020/06/20 06:59	1.11	15.41	1.16
2020/06/20 07:04	1.14	16.05	1.17
2020/06/20 07:09	1.17	16.54	1.16
2020/06/20 07:14	1.17	16.54	1.16
2020/06/20 07:19	1.17	16.23	1.14
2020/06/20 07:24	0.96	9.63	0.90
2020/06/20 07:29	0.96	9.63	0.90
2020/06/20 07:34	0.89	7.07	0.74
2020/06/20 07:39	0.89	8.63	0.90
2020/06/20 07:44	0.89	8.63	0.90
2020/06/20 07:49	0.91	8.88	0.91
2020/06/20 07:54	0.91	6.72	0.69
2020/06/20 07:59	0.93	9.27	0.91
2020/06/20 08:04	0.93	9.27	0.91
2020/06/20 08:09	0.95	9.49	0.91
2020/06/20 08:14	0.95	9.84	0.94
2020/06/20 08:19	0.96	10.06	0.94
2020/06/20 08:24	0.98	10.27	0.94
2020/06/20 08:29	0.98	8.55	0.78

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 08:34	0.96	8.37	0.78
2020/06/20 08:39	1.00	8.91	0.78
2020/06/20 08:44	1.11	14.12	1.07
2020/06/20 08:49	1.11	14.27	1.08
2020/06/20 08:54	1.18	15.58	1.08
2020/06/20 08:59	1.27	20.43	1.28
2020/06/20 09:04	1.84	28.97	1.07
2020/06/20 09:09	1.88	31.67	1.13
2020/06/20 09:14	1.88	26.13	0.93
2020/06/20 09:19	1.88	31.67	1.13
2020/06/20 09:24	1.84	25.31	0.93
2020/06/20 09:29	1.82	30.35	1.13
2020/06/20 09:34	1.73	23.16	0.93
2020/06/20 09:39	1.73	20.67	0.83
2020/06/20 09:44	1.67	19.73	0.83
2020/06/20 09:49	1.34	14.33	0.83
2020/06/20 09:54	1.29	11.64	0.71
2020/06/20 09:59	1.17	10.04	0.71
2020/06/20 10:04	1.11	11.56	0.87
2020/06/20 10:09	1.11	11.56	0.87
2020/06/20 10:14	1.11	12.92	0.98
2020/06/20 10:19	1.17	15.62	1.10
2020/06/20 10:24	1.18	15.89	1.10
2020/06/20 10:29	1.20	16.16	1.10
2020/06/20 10:34	1.25	17.76	1.13
2020/06/20 10:39	1.29	18.62	1.13
2020/06/20 10:44	1.36	20.08	1.13
2020/06/20 10:49	1.36	20.08	1.13
2020/06/20 10:54	1.36	20.08	1.13
2020/06/20 10:59	1.29	17.96	1.09
2020/06/20 11:04	1.20	16.04	1.09
2020/06/20 11:09	1.17	14.20	1.00
2020/06/20 11:14	1.13	13.47	1.00
2020/06/20 11:19	1.11	14.45	1.09
2020/06/20 11:24	1.11	15.08	1.14
2020/06/20 11:29	1.13	13.47	1.00
2020/06/20 11:34	1.13	15.36	1.14
2020/06/20 11:39	1.24	17.60	1.14
2020/06/20 11:44	1.24	13.83	0.90
2020/06/20 11:49	1.21	13.38	0.90
2020/06/20 11:54	1.13	15.39	1.14
2020/06/20 11:59	1.21	13.93	0.93
2020/06/20 12:04	1.21	17.07	1.14
2020/06/20 12:09	1.25	17.93	1.14
2020/06/20 12:14	1.25	16.25	1.04

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 12:19	1.31	17.30	1.04
2020/06/20 12:24	1.36	20.42	1.15
2020/06/20 12:29	1.35	22.47	1.29
2020/06/20 12:34	1.31	21.48	1.29
2020/06/20 12:39	1.31	21.48	1.29
2020/06/20 12:44	1.27	16.47	1.03
2020/06/20 12:49	1.21	14.45	0.97
2020/06/20 12:54	1.21	14.45	0.97
2020/06/20 12:59	1.21	15.43	1.03
2020/06/20 13:04	1.27	17.23	1.08
2020/06/20 13:09	1.31	20.79	1.24
2020/06/20 13:14	1.31	20.79	1.24
2020/06/20 13:19	1.31	20.79	1.24
2020/06/20 13:24	1.29	19.39	1.18
2020/06/20 13:29	1.25	16.77	1.07
2020/06/20 13:34	1.21	15.20	1.02
2020/06/20 13:39	1.21	15.20	1.02
2020/06/20 13:44	1.25	15.08	0.96
2020/06/20 13:49	1.39	16.73	0.92
2020/06/20 13:54	1.43	18.32	0.96
2020/06/20 13:59	1.46	18.83	0.96
2020/06/20 14:04	1.46	18.83	0.96
2020/06/20 14:09	1.54	21.15	1.00
2020/06/20 14:14	1.54	23.45	1.11
2020/06/20 14:19	1.46	20.45	1.04
2020/06/20 14:24	1.45	21.36	1.11
2020/06/20 14:29	1.61	28.17	1.25
2020/06/20 14:34	1.48	25.42	1.28
2020/06/20 14:39	1.45	24.73	1.28
2020/06/20 14:44	1.48	25.42	1.28
2020/06/20 14:49	1.48	20.78	1.05
2020/06/20 14:54	1.45	18.73	0.97
2020/06/20 14:59	1.45	18.73	0.97
2020/06/20 15:04	1.43	19.23	1.01
2020/06/20 15:09	1.42	18.22	0.97
2020/06/20 15:14	1.42	18.97	1.01
2020/06/20 15:19	1.42	18.97	1.01
2020/06/20 15:24	1.29	16.11	0.98
2020/06/20 15:29	1.38	17.63	0.98
2020/06/20 15:34	1.38	20.82	1.16
2020/06/20 15:39	1.29	17.80	1.08
2020/06/20 15:44	1.29	17.80	1.08
2020/06/20 15:49	1.29	17.80	1.08
2020/06/20 15:54	1.24	15.71	1.02
2020/06/20 15:59	1.13	13.36	0.99

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 19:49	1.23	17.42	1.15
2020/06/20 19:54	1.25	19.27	1.23
2020/06/20 19:59	1.25	19.27	1.23
2020/06/20 20:04	1.23	18.32	1.21
2020/06/20 20:09	1.17	16.29	1.15
2020/06/20 20:14	1.13	14.67	1.09
2020/06/20 20:19	1.13	14.67	1.09
2020/06/20 20:24	1.13	14.64	1.09
2020/06/20 20:29	1.13	14.64	1.09
2020/06/20 20:34	1.13	14.64	1.09
2020/06/20 20:39	1.13	15.43	1.15
2020/06/20 20:44	1.14	17.95	1.31
2020/06/20 20:49	1.10	17.01	1.31
2020/06/20 20:54	1.10	13.83	1.06
2020/06/20 20:59	1.10	14.17	1.09
2020/06/20 21:04	1.09	13.58	1.06
2020/06/20 21:09	1.09	13.35	1.05
2020/06/20 21:14	1.09	13.35	1.05
2020/06/20 21:19	1.09	13.35	1.05
2020/06/20 21:24	1.07	13.10	1.05
2020/06/20 21:29	1.07	13.36	1.07
2020/06/20 21:34	1.11	15.27	1.15
2020/06/20 21:39	1.13	16.71	1.24
2020/06/20 21:44	1.13	16.71	1.24
2020/06/20 21:49	1.13	16.86	1.25
2020/06/20 21:54	1.10	16.26	1.25
2020/06/20 21:59	1.07	15.53	1.24
2020/06/20 22:04	1.04	12.96	1.08
2020/06/20 22:09	1.02	11.42	0.99
2020/06/20 22:14	0.99	10.97	0.99
2020/06/20 22:19	0.99	10.97	0.99
2020/06/20 22:24	1.02	11.85	1.02
2020/06/20 22:29	1.02	12.43	1.07
2020/06/20 22:34	0.99	11.93	1.07
2020/06/20 22:39	1.03	12.82	1.08
2020/06/20 22:44	1.03	13.57	1.15
2020/06/20 22:49	0.99	12.78	1.15
2020/06/20 22:54	1.04	13.19	1.09
2020/06/20 22:59	1.04	13.19	1.09
2020/06/20 23:04	1.04	12.99	1.08
2020/06/20 23:09	0.99	10.70	0.96
2020/06/20 23:14	1.02	12.49	1.08
2020/06/20 23:19	0.92	9.99	1.00
2020/06/20 23:24	0.91	9.25	0.94
2020/06/20 23:29	0.88	7.66	0.82

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 16:04	0.99	11.03	0.99
2020/06/20 16:09	0.99	10.99	0.99
2020/06/20 16:14	0.99	10.99	0.99
2020/06/20 16:19	1.09	12.95	1.01
2020/06/20 16:24	1.10	13.37	1.03
2020/06/20 16:29	1.10	13.19	1.01
2020/06/20 16:34	1.10	13.19	1.01
2020/06/20 16:39	1.04	11.44	0.95
2020/06/20 16:44	1.04	9.81	0.81
2020/06/20 16:49	1.03	9.62	0.81
2020/06/20 16:54	1.04	9.81	0.81
2020/06/20 16:59	1.07	11.43	0.91
2020/06/20 17:04	1.07	12.02	0.96
2020/06/20 17:09	1.17	13.63	0.96
2020/06/20 17:14	1.17	13.63	0.96
2020/06/20 17:19	1.17	13.63	0.96
2020/06/20 17:24	1.04	11.45	0.95
2020/06/20 17:29	1.04	11.07	0.92
2020/06/20 17:34	1.04	11.45	0.95
2020/06/20 17:39	1.06	12.38	1.01
2020/06/20 17:44	1.09	13.12	1.03
2020/06/20 17:49	1.09	13.12	1.03
2020/06/20 17:54	1.06	12.64	1.03
2020/06/20 17:59	0.98	11.98	1.10
2020/06/20 18:04	0.98	11.03	1.01
2020/06/20 18:09	0.98	11.03	1.01
2020/06/20 18:14	1.03	11.96	1.01
2020/06/20 18:19	1.03	12.01	1.02
2020/06/20 18:24	1.03	11.96	1.01
2020/06/20 18:29	1.03	11.60	0.98
2020/06/20 18:34	1.07	12.29	0.98
2020/06/20 18:39	1.09	12.28	0.96
2020/06/20 18:44	1.07	11.74	0.94
2020/06/20 18:49	1.09	12.28	0.96
2020/06/20 18:54	1.07	12.05	0.96
2020/06/20 18:59	1.00	10.84	0.95
2020/06/20 19:04	1.00	10.51	0.93
2020/06/20 19:09	1.03	11.28	0.95
2020/06/20 19:14	1.03	11.28	0.95
2020/06/20 19:19	1.03	10.94	0.93
2020/06/20 19:24	1.03	10.42	0.88
2020/06/20 19:29	1.03	11.18	0.95
2020/06/20 19:34	1.03	10.87	0.92
2020/06/20 19:39	1.03	10.87	0.92
2020/06/20 19:44	1.10	12.30	0.95

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 23:34	0.77	6.29	0.82
2020/06/20 23:39	0.77	6.00	0.78
2020/06/20 23:44	0.77	5.82	0.76
2020/06/20 23:49	0.79	6.08	0.75
2020/06/20 23:54	0.81	4.98	0.60
2020/06/20 23:59	0.81	6.24	0.75
2020/06/21 00:04	0.81	4.98	0.60
2020/06/21 00:09	0.91	5.89	0.60
2020/06/21 00:14	0.91	7.22	0.74
2020/06/21 00:19	0.93	7.54	0.74
2020/06/21 00:24	0.93	7.37	0.72
2020/06/21 00:29	0.93	7.37	0.72
2020/06/21 00:34	0.93	5.95	0.58
2020/06/21 00:39	0.78	4.14	0.53
2020/06/21 00:44	0.75	4.35	0.58
2020/06/21 00:49	0.70	3.88	0.58
2020/06/21 00:54	0.70	4.29	0.64
2020/06/21 00:59	0.70	4.29	0.64
2020/06/21 01:04	0.73	4.55	0.64
2020/06/21 01:09	0.79	5.28	0.65
2020/06/21 01:14	0.82	5.55	0.65
2020/06/21 01:19	0.84	6.79	0.78
2020/06/21 01:24	0.84	6.79	0.78
2020/06/21 01:29	0.84	6.93	0.80
2020/06/21 01:34	0.74	5.66	0.78
2020/06/21 01:39	0.74	5.48	0.75
2020/06/21 01:44	0.68	4.88	0.75
2020/06/21 01:49	0.64	4.45	0.75
2020/06/21 01:54	0.64	4.45	0.75
2020/06/21 01:59	0.61	4.17	0.75
2020/06/21 02:04	0.61	3.67	0.66
2020/06/21 02:09	0.61	3.67	0.66
2020/06/21 02:14	0.63	3.80	0.66
2020/06/21 02:19	0.63	3.80	0.66
2020/06/21 02:24	0.64	3.96	0.67
2020/06/21 02:29	0.67	4.29	0.68
2020/06/21 02:34	0.67	4.29	0.68
2020/06/21 02:39	0.67	4.29	0.68
2020/06/21 02:44	0.66	4.01	0.66
2020/06/21 02:49	0.66	4.01	0.66
2020/06/21 02:54	0.66	4.01	0.66
2020/06/21 02:59	0.64	3.93	0.67
2020/06/21 03:04	0.64	3.93	0.67
2020/06/21 03:09	0.64	3.93	0.67
2020/06/21 03:14	0.61	3.63	0.66

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 03:19	0.61	3.58	0.65
2020/06/21 03:24	0.63	3.69	0.65
2020/06/21 03:29	0.64	3.82	0.65
2020/06/21 03:34	0.66	3.93	0.65
2020/06/21 03:39	0.66	3.86	0.63
2020/06/21 03:44	0.66	3.86	0.63
2020/06/21 03:49	0.57	3.62	0.73
2020/06/21 03:54	0.57	3.97	0.80
2020/06/21 03:59	0.52	3.41	0.80
2020/06/21 04:04	0.52	3.60	0.84
2020/06/21 04:09	0.52	3.41	0.80
2020/06/21 04:14	0.52	3.41	0.80
2020/06/21 04:19	0.49	3.37	0.85
2020/06/21 04:24	0.49	3.37	0.85
2020/06/21 04:29	0.49	3.37	0.85
2020/06/21 04:34	0.49	3.37	0.85
2020/06/21 04:39	0.49	3.86	0.98
2020/06/21 04:44	0.48	3.10	0.82
2020/06/21 04:49	0.46	3.50	0.97
2020/06/21 04:54	0.45	3.35	0.97
2020/06/21 04:59	0.45	3.35	0.97
2020/06/21 05:04	0.45	3.35	0.97
2020/06/21 05:09	0.45	3.35	0.97
2020/06/21 05:14	0.45	3.21	0.93
2020/06/21 05:19	0.45	3.21	0.93
2020/06/21 05:24	0.45	3.21	0.93
2020/06/21 05:29	0.45	3.21	0.93
2020/06/21 05:34	0.45	2.68	0.77
2020/06/21 05:39	0.49	3.68	0.93
2020/06/21 05:44	0.52	2.95	0.69
2020/06/21 05:49	0.53	3.07	0.69
2020/06/21 05:54	0.70	5.12	0.77
2020/06/21 05:59	0.73	6.15	0.87
2020/06/21 06:04	0.73	5.42	0.77
2020/06/21 06:09	0.73	5.42	0.77
2020/06/21 06:14	0.70	4.84	0.73
2020/06/21 06:19	0.70	4.29	0.64
2020/06/21 06:24	0.67	3.92	0.62
2020/06/21 06:29	0.66	3.91	0.64
2020/06/21 06:34	0.63	3.56	0.62
2020/06/21 06:39	0.59	3.20	0.62
2020/06/21 06:44	0.59	3.03	0.59
2020/06/21 06:49	0.59	3.03	0.59
2020/06/21 06:54	0.59	3.03	0.59
2020/06/21 06:59	0.60	3.32	0.62

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 07:04	0.64	3.84	0.65
2020/06/21 07:09	0.67	4.30	0.68
2020/06/21 07:14	0.68	4.49	0.69
2020/06/21 07:19	0.70	4.80	0.72
2020/06/21 07:24	0.70	4.80	0.72
2020/06/21 07:29	0.88	6.73	0.72
2020/06/21 07:34	0.95	7.98	0.76
2020/06/21 07:39	0.95	8.28	0.79
2020/06/21 07:44	0.95	7.98	0.76
2020/06/21 07:49	0.89	7.30	0.76
2020/06/21 07:54	0.85	6.37	0.71
2020/06/21 07:59	0.81	4.77	0.58
2020/06/21 08:04	0.81	4.62	0.56
2020/06/21 08:09	0.81	4.59	0.55
2020/06/21 08:14	0.82	4.70	0.55
2020/06/21 08:19	0.89	5.29	0.55
2020/06/21 08:24	0.89	5.33	0.56
2020/06/21 08:29	0.88	5.44	0.58
2020/06/21 08:34	0.88	6.19	0.66
2020/06/21 08:39	0.88	6.19	0.66
2020/06/21 08:44	0.88	5.62	0.60
2020/06/21 08:49	0.88	5.62	0.60
2020/06/21 08:54	0.92	6.99	0.70
2020/06/21 08:59	0.92	8.78	0.88
2020/06/21 09:04	0.95	10.29	0.98
2020/06/21 09:09	0.96	10.51	0.98
2020/06/21 09:14	0.95	10.29	0.98
2020/06/21 09:19	0.95	9.50	0.91
2020/06/21 09:24	0.95	9.50	0.91
2020/06/21 09:29	0.95	9.50	0.91
2020/06/21 09:34	0.95	8.42	0.81
2020/06/21 09:39	0.98	9.01	0.83
2020/06/21 09:44	0.98	9.72	0.89
2020/06/21 09:49	1.02	10.33	0.89
2020/06/21 09:54	0.98	9.72	0.89
2020/06/21 09:59	0.95	9.31	0.89
2020/06/21 10:04	0.95	9.83	0.94
2020/06/21 10:09	0.99	10.47	0.94
2020/06/21 10:14	0.99	10.47	0.94
2020/06/21 10:19	1.13	13.80	1.02
2020/06/21 10:24	1.13	13.80	1.02
2020/06/21 10:29	1.07	12.24	0.98
2020/06/21 10:34	1.13	13.17	0.98
2020/06/21 10:39	1.14	13.41	0.98
2020/06/21 10:44	1.14	13.41	0.98

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 10:49	1.14	16.24	1.18
2020/06/21 10:54	1.14	17.57	1.28
2020/06/21 10:59	1.17	18.20	1.28
2020/06/21 11:04	1.14	17.57	1.28
2020/06/21 11:09	1.06	14.83	1.21
2020/06/21 11:14	1.10	15.69	1.21
2020/06/21 11:19	1.10	15.52	1.19
2020/06/21 11:24	1.10	14.95	1.15
2020/06/21 11:29	1.10	14.95	1.15
2020/06/21 11:34	1.18	16.63	1.15
2020/06/21 11:39	1.23	17.48	1.15
2020/06/21 11:44	1.23	15.06	0.99
2020/06/21 11:49	1.18	16.63	1.15
2020/06/21 11:54	1.16	14.66	1.05
2020/06/21 11:59	1.16	14.66	1.05
2020/06/21 12:04	1.16	12.69	0.91
2020/06/21 12:09	1.18	15.18	1.05
2020/06/21 12:14	1.18	13.13	0.91
2020/06/21 12:19	1.18	12.02	0.83
2020/06/21 12:24	1.18	11.83	0.82
2020/06/21 12:29	1.21	11.22	0.75
2020/06/21 12:34	1.18	10.85	0.75
2020/06/21 12:39	1.18	10.85	0.75
2020/06/21 12:44	1.18	10.85	0.75
2020/06/21 12:49	1.02	9.93	0.86
2020/06/21 12:54	0.98	9.34	0.86
2020/06/21 12:59	0.98	8.88	0.81
2020/06/21 13:04	0.98	8.88	0.81
2020/06/21 13:09	0.98	8.88	0.81
2020/06/21 13:14	1.09	10.39	0.81
2020/06/21 13:19	1.14	12.34	0.90
2020/06/21 13:24	1.17	12.79	0.90
2020/06/21 13:29	1.17	13.36	0.94
2020/06/21 13:34	1.18	16.59	1.15
2020/06/21 13:39	1.18	16.59	1.15
2020/06/21 13:44	1.18	16.59	1.15
2020/06/21 13:49	1.09	14.65	1.15
2020/06/21 13:54	0.98	11.71	1.07
2020/06/21 13:59	0.98	9.61	0.88
2020/06/21 14:04	0.93	8.83	0.86
2020/06/21 14:09	0.98	8.92	0.82
2020/06/21 14:14	1.00	9.30	0.82
2020/06/21 14:19	1.00	9.81	0.86
2020/06/21 14:24	1.00	9.81	0.86
2020/06/21 14:29	1.00	10.29	0.91

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 14:34	1.00	11.62	1.02
2020/06/21 14:39	0.93	10.46	1.02
2020/06/21 14:44	0.92	10.24	1.02
2020/06/21 14:49	0.92	9.85	0.98
2020/06/21 14:54	0.92	9.85	0.98
2020/06/21 14:59	0.88	8.59	0.92
2020/06/21 15:04	0.92	5.67	0.57
2020/06/21 15:09	0.96	9.81	0.92
2020/06/21 15:14	0.96	6.05	0.57
2020/06/21 15:19	0.96	6.05	0.57
2020/06/21 15:24	1.04	6.83	0.57
2020/06/21 15:29	1.04	7.46	0.62
2020/06/21 15:34	1.10	8.05	0.62
2020/06/21 15:39	1.10	9.39	0.72
2020/06/21 15:44	1.04	8.72	0.72
2020/06/21 15:49	0.99	10.42	0.94
2020/06/21 15:54	1.00	10.75	0.95
2020/06/21 15:59	0.99	10.53	0.95
2020/06/21 16:04	0.99	10.99	0.99
2020/06/21 16:09	0.96	10.97	1.03
2020/06/21 16:14	0.96	10.54	0.99
2020/06/21 16:19	0.96	10.97	1.03
2020/06/21 16:24	0.96	10.54	0.99
2020/06/21 16:29	0.96	10.94	1.02
2020/06/21 16:34	0.86	8.38	0.92
2020/06/21 16:39	0.86	8.38	0.92
2020/06/21 16:44	0.85	8.18	0.92
2020/06/21 16:49	0.85	7.95	0.89
2020/06/21 16:54	0.85	5.73	0.64
2020/06/21 16:59	0.85	5.73	0.64
2020/06/21 17:04	0.91	7.36	0.75
2020/06/21 17:09	0.96	8.03	0.75
2020/06/21 17:14	0.99	9.67	0.87
2020/06/21 17:19	1.07	12.02	0.96
2020/06/21 17:24	1.07	12.48	1.00
2020/06/21 17:29	1.07	12.57	1.00
2020/06/21 17:34	1.07	12.59	1.01
2020/06/21 17:39	1.04	12.10	1.00
2020/06/21 17:44	0.98	10.94	1.00
2020/06/21 17:49	0.96	10.72	1.00
2020/06/21 17:54	0.92	8.78	0.88
2020/06/21 17:59	0.89	8.39	0.88
2020/06/21 18:04	0.89	8.47	0.89
2020/06/21 18:09	0.89	8.47	0.89
2020/06/21 18:14	0.89	9.12	0.95

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 18:19	0.89	9.59	1.00
2020/06/21 18:24	0.89	9.12	0.95
2020/06/21 18:29	0.89	9.12	0.95
2020/06/21 18:34	0.89	7.87	0.82
2020/06/21 18:39	0.91	8.05	0.82
2020/06/21 18:44	0.85	7.01	0.79
2020/06/21 18:49	0.96	8.39	0.79
2020/06/21 18:54	0.98	8.56	0.79
2020/06/21 18:59	0.96	8.17	0.76
2020/06/21 19:04	0.93	7.16	0.70
2020/06/21 19:09	0.93	7.82	0.76
2020/06/21 19:14	0.93	7.82	0.76
2020/06/21 19:19	0.93	8.06	0.79
2020/06/21 19:24	0.95	9.28	0.89
2020/06/21 19:29	0.96	9.88	0.93
2020/06/21 19:34	0.96	9.88	0.93
2020/06/21 19:39	0.96	9.88	0.93
2020/06/21 19:44	0.96	10.03	0.94
2020/06/21 19:49	0.96	11.42	1.07
2020/06/21 19:54	0.93	9.87	0.97
2020/06/21 19:59	0.92	9.40	0.94
2020/06/21 20:04	0.93	9.87	0.97
2020/06/21 20:09	0.96	11.42	1.07
2020/06/21 20:14	1.03	14.33	1.21
2020/06/21 20:19	1.13	16.34	1.21
2020/06/21 20:24	1.13	16.38	1.22
2020/06/21 20:29	1.13	16.38	1.22
2020/06/21 20:34	1.10	10.53	0.81
2020/06/21 20:39	1.04	9.76	0.81
2020/06/21 20:44	1.04	12.64	1.05
2020/06/21 20:49	1.04	12.13	1.01
2020/06/21 20:54	1.04	12.13	1.01
2020/06/21 20:59	1.04	12.13	1.01
2020/06/21 21:04	1.23	14.62	0.96
2020/06/21 21:09	1.23	14.62	0.96
2020/06/21 21:14	1.23	14.46	0.95
2020/06/21 21:19	1.18	13.91	0.96
2020/06/21 21:24	1.18	13.75	0.95
2020/06/21 21:29	1.16	14.51	1.04
2020/06/21 21:34	1.16	13.28	0.95
2020/06/21 21:39	1.16	14.84	1.06
2020/06/21 21:44	1.16	14.84	1.06
2020/06/21 21:49	1.16	14.84	1.06
2020/06/21 21:54	1.11	16.12	1.22
2020/06/21 21:59	1.11	16.12	1.22

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 22:04	1.11	13.94	1.05
2020/06/21 22:09	1.11	13.94	1.05
2020/06/21 22:14	1.11	13.94	1.05
2020/06/21 22:19	1.11	12.85	0.97
2020/06/21 22:24	1.10	12.62	0.97
2020/06/21 22:29	1.04	11.70	0.97
2020/06/21 22:34	1.02	11.25	0.97
2020/06/21 22:39	0.99	10.96	0.98
2020/06/21 22:44	0.99	10.96	0.98
2020/06/21 22:49	0.98	10.73	0.98
2020/06/21 22:54	0.96	10.35	0.97
2020/06/21 22:59	0.91	9.49	0.97
2020/06/21 23:04	0.91	8.83	0.90
2020/06/21 23:09	0.98	10.57	0.97
2020/06/21 23:14	1.04	9.66	0.80
2020/06/21 23:19	1.04	9.38	0.78
2020/06/21 23:24	1.04	8.26	0.69
2020/06/21 23:29	1.04	8.26	0.69
2020/06/21 23:34	1.04	8.26	0.69
2020/06/21 23:39	0.93	9.03	0.88
2020/06/21 23:44	0.89	10.81	1.13
2020/06/21 23:49	0.89	10.81	1.13
2020/06/21 23:54	0.89	11.78	1.23
2020/06/21 23:59	0.89	12.81	1.34
2020/06/22 00:04	0.95	13.99	1.34
2020/06/22 00:09	1.03	14.14	1.20
2020/06/22 00:14	1.07	14.98	1.20
2020/06/22 00:19	1.03	11.05	0.94
2020/06/22 00:24	1.03	11.05	0.94
2020/06/22 00:29	0.98	10.66	0.98
2020/06/22 00:34	0.88	8.74	0.94
2020/06/22 00:39	0.86	7.19	0.79
2020/06/22 00:44	0.86	7.19	0.79
2020/06/22 00:49	0.86	5.56	0.61
2020/06/22 00:54	0.86	5.56	0.61
2020/06/22 00:59	0.92	6.09	0.61
2020/06/22 01:04	0.92	6.09	0.61
2020/06/22 01:09	0.92	6.57	0.66
2020/06/22 01:14	0.92	7.54	0.75
2020/06/22 01:19	0.78	5.93	0.75
2020/06/22 01:24	0.64	4.17	0.71
2020/06/22 01:29	0.54	3.27	0.71
2020/06/22 01:34	0.54	3.00	0.65
2020/06/22 01:39	0.53	2.89	0.65
2020/06/22 01:44	0.50	2.91	0.71

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/22 01:49	0.50	2.60	0.63
2020/06/22 01:54	0.53	2.82	0.63
2020/06/22 01:59	0.53	2.82	0.63
2020/06/22 02:04	0.56	3.04	0.63
2020/06/22 02:09	0.56	3.04	0.63
2020/06/22 02:14	0.56	3.26	0.68
2020/06/22 02:19	0.59	3.57	0.69
2020/06/22 02:24	0.59	3.62	0.70
2020/06/22 02:29	0.77	5.37	0.70
2020/06/22 02:34	0.77	5.64	0.74
2020/06/22 02:39	0.77	5.71	0.74
2020/06/22 02:44	0.71	5.05	0.74
2020/06/22 02:49	0.63	4.03	0.70
2020/06/22 02:54	0.63	4.03	0.70
2020/06/22 02:59	0.63	4.03	0.70
2020/06/22 03:04	0.86	6.37	0.70
2020/06/22 03:09	0.92	6.98	0.70
2020/06/22 03:14	0.92	7.02	0.70
2020/06/22 03:19	0.92	7.02	0.70
2020/06/22 03:24	0.89	6.71	0.70
2020/06/22 03:29	0.89	6.71	0.70
2020/06/22 03:34	0.86	5.95	0.65
2020/06/22 03:39	0.78	5.12	0.65
2020/06/22 03:44	0.73	5.31	0.75
2020/06/22 03:49	0.70	4.34	0.65
2020/06/22 03:54	0.64	3.92	0.66
2020/06/22 03:59	0.60	3.57	0.67
2020/06/22 04:04	0.54	3.08	0.66
2020/06/22 04:09	0.54	2.95	0.64
2020/06/22 04:14	0.54	3.03	0.65
2020/06/22 04:19	0.63	3.66	0.64
2020/06/22 04:24	0.63	3.31	0.58
2020/06/22 04:29	0.63	3.41	0.60
2020/06/22 04:34	0.61	3.54	0.64
2020/06/22 04:39	0.57	3.19	0.64
2020/06/22 04:44	0.57	3.12	0.63
2020/06/22 04:49	0.57	3.35	0.67
2020/06/22 04:54	0.56	3.94	0.82
2020/06/22 04:59	0.56	3.23	0.67
2020/06/22 05:04	0.56	3.68	0.77
2020/06/22 05:09	0.56	3.68	0.77
2020/06/22 05:14	0.56	3.00	0.62
2020/06/22 05:19	0.52	2.67	0.62
2020/06/22 05:24	0.57	3.82	0.77
2020/06/22 05:29	0.57	3.44	0.69

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/22 05:34	0.57	3.44	0.69
2020/06/22 05:39	0.73	4.88	0.69
2020/06/22 05:44	0.73	4.88	0.69
2020/06/22 05:49	0.73	4.86	0.69
2020/06/22 05:54	0.71	4.50	0.66
2020/06/22 05:59	0.61	3.62	0.66
2020/06/22 06:04	0.61	3.62	0.66
2020/06/22 06:09	0.61	3.37	0.61
2020/06/22 06:14	0.70	4.07	0.61
2020/06/22 06:19	0.81	5.54	0.67
2020/06/22 06:24	0.86	6.11	0.67
2020/06/22 06:29	0.88	7.79	0.83
2020/06/22 06:34	0.88	7.87	0.84
2020/06/22 06:39	0.93	8.53	0.83
2020/06/22 06:44	0.93	8.53	0.83
2020/06/22 06:49	0.91	8.64	0.88
2020/06/22 06:54	0.91	8.92	0.91
2020/06/22 06:59	0.91	8.64	0.88
2020/06/22 07:04	0.91	8.64	0.88
2020/06/22 07:09	1.06	10.85	0.88
2020/06/22 07:14	1.14	11.64	0.85
2020/06/22 07:19	1.14	11.64	0.85
2020/06/22 07:24	1.14	11.64	0.85
2020/06/22 07:29	1.03	10.03	0.85
2020/06/22 07:34	1.02	9.83	0.85
2020/06/22 07:39	1.02	9.91	0.86
2020/06/22 07:44	1.02	10.28	0.89
2020/06/22 07:49	1.24	17.45	1.13
2020/06/22 07:54	1.27	18.02	1.13
2020/06/22 07:59	1.34	19.46	1.13
2020/06/22 08:04	1.27	16.18	1.01
2020/06/22 08:09	1.24	15.67	1.01
2020/06/22 08:14	1.07	12.71	1.01
2020/06/22 08:19	0.98	11.86	1.09
2020/06/22 08:24	0.98	11.86	1.09
2020/06/22 08:29	0.98	13.19	1.21
2020/06/22 08:34	1.07	13.62	1.09
2020/06/22 08:39	1.07	13.62	1.09
2020/06/22 08:44	1.07	12.02	0.96
2020/06/22 08:49	1.07	13.31	1.06
2020/06/22 08:54	1.07	12.02	0.96
2020/06/22 08:59	1.07	12.02	0.96
2020/06/22 09:04	1.07	11.35	0.91
2020/06/22 09:09	1.04	10.56	0.88
2020/06/22 09:14	1.04	10.44	0.87

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/22 09:19	1.04	9.63	0.80
2020/06/22 09:24	1.11	10.58	0.80
2020/06/22 09:29	1.11	10.49	0.79
2020/06/22 09:34	1.11	10.58	0.80
2020/06/22 09:39	0.98	9.03	0.83
2020/06/22 09:44	0.93	8.47	0.83
2020/06/22 09:49	0.93	8.47	0.83
2020/06/22 09:54	0.98	10.10	0.93
2020/06/22 09:59	1.03	10.95	0.93
2020/06/22 10:04	1.10	9.73	0.75
2020/06/22 10:09	1.10	10.40	0.80
2020/06/22 10:14	1.03	8.84	0.75
2020/06/22 10:19	0.99	8.33	0.75
2020/06/22 10:24	0.99	8.53	0.77
2020/06/22 10:29	0.99	8.91	0.80
2020/06/22 10:34	0.99	9.57	0.86
2020/06/22 10:39	0.99	9.66	0.87
2020/06/22 10:44	0.99	9.66	0.87
2020/06/22 10:49	1.02	10.20	0.88
2020/06/22 10:54	0.98	9.86	0.91
2020/06/22 10:59	0.98	9.86	0.91
2020/06/22 11:04	1.17	14.00	0.99
2020/06/22 11:09	1.25	18.49	1.18
2020/06/22 11:14	1.27	20.14	1.26
2020/06/22 11:19	1.27	20.14	1.26
2020/06/22 11:24	1.17	14.00	0.99
2020/06/22 11:29	1.14	11.02	0.80
2020/06/22 11:34	1.13	10.82	0.80
2020/06/22 11:39	1.06	9.87	0.80
2020/06/22 11:44	0.99	10.25	0.92
2020/06/22 11:49	0.99	10.25	0.92
2020/06/22 11:54	0.92	9.22	0.92
2020/06/22 11:59	0.92	9.22	0.92
2020/06/22 12:04	0.92	9.22	0.92
2020/06/22 12:09	1.02	8.07	0.70
2020/06/22 12:14	1.02	8.64	0.75
2020/06/22 12:19	1.06	11.44	0.93
2020/06/22 12:24	1.07	11.66	0.93
2020/06/22 12:29	1.09	12.91	1.01
2020/06/22 12:34	1.07	14.63	1.17
2020/06/22 12:39	1.07	14.63	1.17
2020/06/22 12:44	1.02	13.54	1.17
2020/06/22 12:49	1.02	11.41	0.98
2020/06/22 12:54	1.02	11.20	0.97
2020/06/22 12:59	1.14	13.26	0.97

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/22 13:04	1.14	13.50	0.98
2020/06/22 13:09	1.14	15.28	1.11
2020/06/22 13:14	1.13	15.41	1.14
2020/06/22 13:19	1.03	14.14	1.20
2020/06/22 13:24	1.03	14.14	1.20
2020/06/22 13:29	1.02	13.25	1.14
2020/06/22 13:34	1.02	10.90	0.94
2020/06/22 13:39	1.00	9.51	0.84
2020/06/22 13:44	1.00	9.51	0.84
2020/06/22 13:49	1.00	9.51	0.84
2020/06/22 13:54	1.00	10.15	0.89
2020/06/22 13:59	1.00	10.15	0.89
2020/06/22 14:04	1.00	10.59	0.93
2020/06/22 14:09	1.00	10.15	0.89
2020/06/22 14:14	1.00	9.30	0.82
2020/06/22 14:19	1.00	8.92	0.79
2020/06/22 14:24	1.00	8.92	0.79
2020/06/22 14:29	1.00	7.45	0.66
2020/06/22 14:34	1.00	7.75	0.68
2020/06/22 14:39	1.00	7.75	0.68
2020/06/22 14:44	1.00	8.78	0.77
2020/06/22 14:49	0.93	6.98	0.68
2020/06/22 14:54	0.86	6.23	0.68
2020/06/22 14:59	0.86	7.06	0.77
2020/06/22 15:04	0.89	7.40	0.77
2020/06/22 15:09	0.93	9.62	0.94
2020/06/22 15:14	0.89	9.00	0.94
2020/06/22 15:19	1.04	11.34	0.94
2020/06/22 15:24	1.04	10.94	0.91
2020/06/22 15:29	0.86	7.43	0.81
2020/06/22 15:34	0.86	7.43	0.81
2020/06/22 15:39	0.89	7.78	0.81
2020/06/22 15:44	0.89	7.91	0.83
2020/06/22 15:49	0.89	7.91	0.83
2020/06/22 15:54	0.89	7.91	0.83
2020/06/22 15:59	0.89	7.38	0.77
2020/06/22 16:04	0.88	7.09	0.76
2020/06/22 16:09	0.86	6.92	0.76
2020/06/22 16:14	0.86	6.92	0.76
2020/06/22 16:19	0.86	7.60	0.83
2020/06/22 16:24	0.86	7.60	0.83
2020/06/22 16:29	0.86	8.44	0.92
2020/06/22 16:34	0.95	8.70	0.83
2020/06/22 16:39	0.98	9.07	0.83
2020/06/22 16:44	1.06	10.41	0.85

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/22 16:49	1.06	10.46	0.85
2020/06/22 16:54	1.06	10.46	0.85
2020/06/22 16:59	1.04	11.05	0.92
2020/06/22 17:04	0.99	10.21	0.92
2020/06/22 17:09	0.96	9.79	0.92
2020/06/22 17:14	0.96	9.88	0.93
2020/06/22 17:19	0.96	10.09	0.94
2020/06/22 17:24	0.93	9.47	0.93
2020/06/22 17:29	0.93	9.38	0.92
2020/06/22 17:34	0.96	10.09	0.94
2020/06/22 17:39	0.96	10.09	0.94
2020/06/22 17:44	0.98	10.00	0.92
2020/06/22 17:49	1.32	15.73	0.93
2020/06/22 17:54	1.32	16.12	0.95
2020/06/22 17:59	1.42	17.86	0.95
2020/06/22 18:04	1.32	15.73	0.93
2020/06/22 18:09	1.29	15.25	0.93
2020/06/22 18:14	1.18	11.86	0.82
2020/06/22 18:19	1.14	9.94	0.73
2020/06/22 18:24	1.09	8.48	0.66
2020/06/22 18:29	1.04	8.01	0.66
2020/06/22 18:34	1.04	8.01	0.66
2020/06/22 18:39	1.04	12.01	1.00
2020/06/22 18:44	1.04	12.01	1.00
2020/06/22 18:49	1.17	14.16	1.00
2020/06/22 18:54	1.17	13.01	0.92
2020/06/22 18:59	1.38	16.49	0.92
2020/06/22 19:04	1.17	11.10	0.78
2020/06/22 19:09	1.07	11.47	0.92
2020/06/22 19:14	1.02	10.61	0.92
2020/06/22 19:19	1.02	9.05	0.78
2020/06/22 19:24	0.95	7.58	0.73
2020/06/22 19:29	0.95	7.58	0.73
2020/06/22 19:34	0.95	7.58	0.73
2020/06/22 19:39	1.17	17.69	1.25
2020/06/22 19:44	1.21	18.61	1.25
2020/06/22 19:49	1.21	18.61	1.25
2020/06/22 19:54	1.35	20.38	1.17
2020/06/22 19:59	1.27	17.39	1.09
2020/06/22 20:04	1.25	16.21	1.03
2020/06/22 20:09	1.27	15.00	0.94
2020/06/22 20:14	1.27	14.32	0.90
2020/06/22 20:19	1.27	14.32	0.90
2020/06/22 20:24	1.42	16.88	0.90
2020/06/22 20:29	1.43	16.96	0.89

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 00:19	1.17	13.65	0.96
2020/06/23 00:24	1.13	12.95	0.96
2020/06/23 00:29	1.17	13.83	0.97
2020/06/23 00:34	1.18	13.89	0.96
2020/06/23 00:39	1.20	14.89	1.01
2020/06/23 00:44	1.20	14.89	1.01
2020/06/23 00:49	1.20	12.49	0.85
2020/06/23 00:54	1.03	10.05	0.85
2020/06/23 00:59	0.96	9.25	0.87
2020/06/23 01:04	0.86	7.91	0.87
2020/06/23 01:09	0.82	7.53	0.89
2020/06/23 01:14	0.82	7.97	0.94
2020/06/23 01:19	0.82	8.27	0.97
2020/06/23 01:24	0.84	8.48	0.97
2020/06/23 01:29	0.84	8.17	0.94
2020/06/23 01:34	0.85	8.68	0.97
2020/06/23 01:39	0.89	9.31	0.97
2020/06/23 01:44	0.89	8.12	0.85
2020/06/23 01:49	0.91	8.30	0.85
2020/06/23 01:54	0.92	9.55	0.95
2020/06/23 01:59	0.91	8.30	0.85
2020/06/23 02:04	0.86	7.75	0.85
2020/06/23 02:09	0.89	7.99	0.83
2020/06/23 02:14	0.86	7.63	0.83
2020/06/23 02:19	0.85	7.35	0.82
2020/06/23 02:24	0.85	7.35	0.82
2020/06/23 02:29	0.86	7.63	0.83
2020/06/23 02:34	0.85	6.42	0.72
2020/06/23 02:39	0.82	6.11	0.72
2020/06/23 02:44	0.84	8.80	1.01
2020/06/23 02:49	0.84	8.80	1.01
2020/06/23 02:54	0.82	8.59	1.01
2020/06/23 02:59	0.82	8.59	1.01
2020/06/23 03:04	0.84	9.02	1.04
2020/06/23 03:09	0.82	8.80	1.04
2020/06/23 03:14	0.84	9.02	1.04
2020/06/23 03:19	0.85	8.27	0.93
2020/06/23 03:24	0.89	8.87	0.93
2020/06/23 03:29	0.89	8.15	0.85
2020/06/23 03:34	0.89	7.00	0.73
2020/06/23 03:39	0.89	7.00	0.73
2020/06/23 03:44	0.89	8.15	0.85
2020/06/23 03:49	0.93	8.71	0.85
2020/06/23 03:54	1.06	8.99	0.73
2020/06/23 03:59	1.06	10.51	0.86

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/22 20:34	1.43	20.75	1.09
2020/06/22 20:39	1.43	20.75	1.09
2020/06/22 20:44	1.29	17.92	1.09
2020/06/22 20:49	1.29	17.15	1.04
2020/06/22 20:54	1.27	16.82	1.05
2020/06/22 20:59	1.18	15.06	1.04
2020/06/22 21:04	1.17	14.80	1.04
2020/06/22 21:09	1.17	14.80	1.04
2020/06/22 21:14	1.17	12.93	0.91
2020/06/22 21:19	1.17	12.93	0.91
2020/06/22 21:24	1.11	15.57	1.18
2020/06/22 21:29	1.11	15.57	1.18
2020/06/22 21:34	1.11	12.14	0.92
2020/06/22 21:39	1.10	14.04	1.08
2020/06/22 21:44	1.07	13.53	1.08
2020/06/22 21:49	1.04	11.05	0.92
2020/06/22 21:54	1.04	10.01	0.83
2020/06/22 21:59	1.04	10.99	0.91
2020/06/22 22:04	1.04	10.99	0.91
2020/06/22 22:09	1.02	10.45	0.90
2020/06/22 22:14	0.99	10.15	0.91
2020/06/22 22:19	0.99	10.59	0.95
2020/06/22 22:24	1.07	15.46	1.23
2020/06/22 22:29	1.13	18.10	1.34
2020/06/22 22:34	1.14	18.42	1.34
2020/06/22 22:39	1.20	19.74	1.34
2020/06/22 22:44	1.20	19.37	1.32
2020/06/22 22:49	1.23	20.03	1.32
2020/06/22 22:54	1.24	20.36	1.32
2020/06/22 22:59	1.24	21.27	1.38
2020/06/22 23:04	1.24	21.27	1.38
2020/06/22 23:09	1.13	18.56	1.38
2020/06/22 23:14	0.98	10.84	0.99
2020/06/22 23:19	0.98	9.63	0.88
2020/06/22 23:24	0.98	9.63	0.88
2020/06/22 23:29	0.99	11.06	0.99
2020/06/22 23:34	1.07	12.45	0.99
2020/06/22 23:39	1.14	11.45	0.83
2020/06/22 23:44	1.18	14.62	1.01
2020/06/22 23:49	1.21	16.72	1.12
2020/06/22 23:54	1.14	15.35	1.12
2020/06/22 23:59	1.21	16.78	1.12
2020/06/23 00:04	1.21	16.78	1.12
2020/06/23 00:09	1.13	15.08	1.12
2020/06/23 00:14	1.13	13.12	0.97

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 04:04	1.06	7.91	0.64
2020/06/23 04:09	1.03	7.38	0.62
2020/06/23 04:14	1.03	7.38	0.62
2020/06/23 04:19	1.03	7.61	0.64
2020/06/23 04:24	1.06	7.91	0.64
2020/06/23 04:29	1.06	7.91	0.64
2020/06/23 04:34	1.07	8.65	0.69
2020/06/23 04:39	1.10	8.98	0.69
2020/06/23 04:44	1.14	12.45	0.91
2020/06/23 04:49	1.16	9.64	0.69
2020/06/23 04:54	1.14	12.56	0.92
2020/06/23 04:59	1.10	11.90	0.92
2020/06/23 05:04	1.09	11.68	0.92
2020/06/23 05:09	1.04	10.99	0.91
2020/06/23 05:14	1.02	10.57	0.91
2020/06/23 05:19	0.99	9.81	0.88
2020/06/23 05:24	0.96	9.73	0.91
2020/06/23 05:29	0.95	9.21	0.88
2020/06/23 05:34	0.95	9.21	0.88
2020/06/23 05:39	0.96	10.26	0.96
2020/06/23 05:44	0.96	10.26	0.96
2020/06/23 05:49	0.93	9.83	0.96
2020/06/23 05:54	0.85	8.57	0.96
2020/06/23 05:59	0.79	6.86	0.85
2020/06/23 06:04	0.79	5.80	0.72
2020/06/23 06:09	0.79	5.80	0.72
2020/06/23 06:14	0.88	6.71	0.72
2020/06/23 06:19	0.89	6.87	0.72
2020/06/23 06:24	0.92	7.19	0.72
2020/06/23 06:29	0.89	6.48	0.68
2020/06/23 06:34	0.89	6.96	0.73
2020/06/23 06:39	0.84	5.89	0.68
2020/06/23 06:44	0.84	5.89	0.68
2020/06/23 06:49	0.79	5.32	0.66
2020/06/23 06:54	0.84	8.54	0.98
2020/06/23 06:59	0.84	5.88	0.68
2020/06/23 07:04	0.89	9.17	0.96
2020/06/23 07:09	0.86	6.31	0.69
2020/06/23 07:14	0.86	6.31	0.69
2020/06/23 07:19	0.89	6.61	0.69
2020/06/23 07:24	0.98	10.45	0.96
2020/06/23 07:29	0.98	10.94	1.00
2020/06/23 07:34	1.02	11.63	1.00
2020/06/23 07:39	1.02	13.89	1.20
2020/06/23 07:44	1.02	13.89	1.20

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 07:49	0.98	12.69	1.16
2020/06/23 07:54	0.98	10.61	0.97
2020/06/23 07:59	0.98	11.36	1.04
2020/06/23 08:04	1.03	11.21	0.95
2020/06/23 08:09	1.07	10.20	0.81
2020/06/23 08:14	1.09	10.39	0.81
2020/06/23 08:19	1.09	13.24	1.04
2020/06/23 08:24	1.14	14.24	1.04
2020/06/23 08:29	1.17	14.74	1.04
2020/06/23 08:34	1.18	15.18	1.05
2020/06/23 08:39	1.20	15.44	1.05
2020/06/23 08:44	1.18	15.18	1.05
2020/06/23 08:49	1.18	13.91	0.96
2020/06/23 08:54	1.20	14.15	0.96
2020/06/23 08:59	1.20	14.15	0.96
2020/06/23 09:04	1.20	13.90	0.95
2020/06/23 09:09	1.20	13.90	0.95
2020/06/23 09:14	1.20	14.77	1.01
2020/06/23 09:19	1.18	14.52	1.01
2020/06/23 09:24	1.02	11.65	1.01
2020/06/23 09:29	1.02	13.87	1.20
2020/06/23 09:34	1.02	13.87	1.20
2020/06/23 09:39	1.03	12.20	1.03
2020/06/23 09:44	1.11	11.98	0.91
2020/06/23 09:49	1.17	14.67	1.03
2020/06/23 09:54	1.11	11.98	0.91
2020/06/23 09:59	1.09	13.17	1.03
2020/06/23 10:04	1.09	11.54	0.91
2020/06/23 10:09	1.07	10.40	0.83
2020/06/23 10:14	1.06	10.21	0.83
2020/06/23 10:19	1.06	12.16	0.99
2020/06/23 10:24	1.06	12.16	0.99
2020/06/23 10:29	1.14	13.58	0.99
2020/06/23 10:34	1.14	13.77	1.00
2020/06/23 10:39	1.14	13.77	1.00
2020/06/23 10:44	1.07	12.57	1.00
2020/06/23 10:49	1.07	11.06	0.88
2020/06/23 10:54	1.07	14.27	1.14
2020/06/23 10:59	0.99	10.79	0.97
2020/06/23 11:04	1.07	14.27	1.14
2020/06/23 11:09	1.03	11.91	1.01
2020/06/23 11:14	1.03	11.91	1.01
2020/06/23 11:19	1.03	11.91	1.01
2020/06/23 11:24	1.07	12.62	1.01
2020/06/23 11:29	1.07	12.34	0.99

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 15:19	1.42	20.02	1.07
2020/06/23 15:24	1.53	22.31	1.07
2020/06/23 15:29	1.54	22.49	1.06
2020/06/23 15:34	1.57	23.07	1.06
2020/06/23 15:39	1.57	20.95	0.96
2020/06/23 15:44	1.57	20.95	0.96
2020/06/23 15:49	1.45	18.60	0.96
2020/06/23 15:54	1.09	12.47	0.98
2020/06/23 15:59	1.09	12.28	0.96
2020/06/23 16:04	1.09	12.47	0.98
2020/06/23 16:09	1.09	15.19	1.19
2020/06/23 16:14	1.07	12.24	0.98
2020/06/23 16:19	1.09	11.51	0.90
2020/06/23 16:24	0.98	9.83	0.90
2020/06/23 16:29	0.98	9.28	0.85
2020/06/23 16:34	1.09	8.88	0.70
2020/06/23 16:39	1.09	8.39	0.66
2020/06/23 16:44	1.06	8.08	0.66
2020/06/23 16:49	1.06	8.55	0.70
2020/06/23 16:54	1.03	8.23	0.70
2020/06/23 16:59	1.03	7.77	0.66
2020/06/23 17:04	1.06	8.77	0.71
2020/06/23 17:09	1.02	8.27	0.71
2020/06/23 17:14	0.99	6.92	0.62
2020/06/23 17:19	0.99	7.95	0.71
2020/06/23 17:24	0.99	7.99	0.72
2020/06/23 17:29	0.99	9.44	0.85
2020/06/23 17:34	0.99	11.25	1.01
2020/06/23 17:39	1.03	13.18	1.12
2020/06/23 17:44	1.03	13.45	1.14
2020/06/23 17:49	0.96	12.15	1.14
2020/06/23 17:54	0.96	10.79	1.01
2020/06/23 17:59	0.85	8.16	0.91
2020/06/23 18:04	0.85	8.16	0.91
2020/06/23 18:09	0.85	7.32	0.82
2020/06/23 18:14	0.92	7.36	0.74
2020/06/23 18:19	0.92	8.02	0.80
2020/06/23 18:24	0.92	8.02	0.80
2020/06/23 18:29	0.91	7.85	0.80
2020/06/23 18:34	0.91	9.97	1.02
2020/06/23 18:39	0.91	9.97	1.02
2020/06/23 18:44	0.96	10.88	1.02
2020/06/23 18:49	0.96	10.88	1.02
2020/06/23 18:54	0.96	10.06	0.94
2020/06/23 18:59	0.96	10.06	0.94

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 11:34	1.07	12.34	0.99
2020/06/23 11:39	1.07	12.34	0.99
2020/06/23 11:44	1.07	12.34	0.99
2020/06/23 11:49	1.07	13.34	1.07
2020/06/23 11:54	1.10	13.85	1.07
2020/06/23 11:59	1.11	15.81	1.19
2020/06/23 12:04	1.11	16.77	1.27
2020/06/23 12:09	1.11	17.19	1.30
2020/06/23 12:14	1.11	17.19	1.30
2020/06/23 12:19	1.11	17.36	1.31
2020/06/23 12:24	1.11	17.36	1.31
2020/06/23 12:29	1.07	16.42	1.31
2020/06/23 12:34	1.07	16.42	1.31
2020/06/23 12:39	1.06	15.66	1.27
2020/06/23 12:44	1.04	14.43	1.20
2020/06/23 12:49	1.04	14.43	1.20
2020/06/23 12:54	1.04	14.88	1.23
2020/06/23 12:59	1.03	15.06	1.27
2020/06/23 13:04	1.07	17.16	1.37
2020/06/23 13:09	1.07	17.16	1.37
2020/06/23 13:14	1.07	17.18	1.37
2020/06/23 13:19	1.07	17.18	1.37
2020/06/23 13:24	1.07	14.06	1.12
2020/06/23 13:29	1.07	14.06	1.12
2020/06/23 13:34	1.07	12.31	0.98
2020/06/23 13:39	0.96	10.25	0.96
2020/06/23 13:44	0.98	10.72	0.98
2020/06/23 13:49	1.07	12.02	0.96
2020/06/23 13:54	1.07	12.02	0.96
2020/06/23 13:59	0.98	10.60	0.97
2020/06/23 14:04	0.98	10.60	0.97
2020/06/23 14:09	0.99	10.31	0.93
2020/06/23 14:14	0.92	9.73	0.97
2020/06/23 14:19	0.92	9.23	0.92
2020/06/23 14:24	0.92	9.23	0.92
2020/06/23 14:29	0.93	9.44	0.92
2020/06/23 14:34	0.93	9.44	0.92
2020/06/23 14:39	0.93	9.44	0.92
2020/06/23 14:44	1.07	11.67	0.93
2020/06/23 14:49	1.17	12.15	0.86
2020/06/23 14:54	1.24	15.44	1.00
2020/06/23 14:59	1.24	15.44	1.00
2020/06/23 15:04	1.24	15.44	1.00
2020/06/23 15:09	1.32	18.08	1.07
2020/06/23 15:14	1.34	18.38	1.07

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 22:49	1.07	8.82	0.70
2020/06/23 22:54	0.93	10.79	1.05
2020/06/23 22:59	0.93	7.20	0.70
2020/06/23 23:04	0.89	8.28	0.87
2020/06/23 23:09	0.78	6.81	0.87
2020/06/23 23:14	0.78	5.97	0.76
2020/06/23 23:19	0.78	5.75	0.73
2020/06/23 23:24	0.79	5.90	0.73
2020/06/23 23:29	0.92	7.31	0.73
2020/06/23 23:34	0.96	7.80	0.73
2020/06/23 23:39	0.98	9.30	0.85
2020/06/23 23:44	0.98	10.19	0.94
2020/06/23 23:49	0.98	10.19	0.94
2020/06/23 23:54	0.78	6.71	0.85
2020/06/23 23:59	0.78	4.99	0.63
2020/06/24 00:04	0.78	4.99	0.63
2020/06/24 00:09	0.78	4.99	0.63
2020/06/24 00:14	0.79	5.13	0.63
2020/06/24 00:19	0.82	6.10	0.72
2020/06/24 00:24	0.93	7.71	0.75
2020/06/24 00:29	0.82	6.10	0.72
2020/06/24 00:34	0.82	6.41	0.75
2020/06/24 00:39	0.73	5.92	0.84
2020/06/24 00:44	0.66	5.80	0.95
2020/06/24 00:49	0.66	5.80	0.95
2020/06/24 00:54	0.73	6.73	0.95
2020/06/24 00:59	0.74	7.19	0.99
2020/06/24 01:04	0.74	7.19	0.99
2020/06/24 01:09	0.74	7.19	0.99
2020/06/24 01:14	0.74	7.19	0.99
2020/06/24 01:19	0.71	6.80	0.99
2020/06/24 01:24	0.71	6.41	0.93
2020/06/24 01:29	0.71	5.60	0.82
2020/06/24 01:34	0.64	4.21	0.71
2020/06/24 01:39	0.64	3.61	0.61
2020/06/24 01:44	0.64	2.96	0.50
2020/06/24 01:49	0.67	3.85	0.61
2020/06/24 01:54	0.71	3.33	0.48
2020/06/24 01:59	0.77	4.54	0.59
2020/06/24 02:04	0.77	3.72	0.48
2020/06/24 02:09	0.77	4.18	0.55
2020/06/24 02:14	0.71	3.74	0.55
2020/06/24 02:19	0.71	3.84	0.56
2020/06/24 02:24	0.71	3.84	0.56
2020/06/24 02:29	0.75	4.18	0.56

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 19:04	0.98	11.00	1.01
2020/06/23 19:09	1.04	12.16	1.01
2020/06/23 19:14	1.04	11.44	0.95
2020/06/23 19:19	1.04	11.44	0.95
2020/06/23 19:24	0.99	8.63	0.78
2020/06/23 19:29	1.00	8.70	0.77
2020/06/23 19:34	0.99	8.53	0.77
2020/06/23 19:39	0.96	6.83	0.64
2020/06/23 19:44	0.91	6.26	0.64
2020/06/23 19:49	0.93	6.95	0.68
2020/06/23 19:54	0.92	8.33	0.83
2020/06/23 19:59	0.91	7.78	0.80
2020/06/23 20:04	0.85	7.90	0.89
2020/06/23 20:09	0.85	7.90	0.89
2020/06/23 20:14	0.85	7.39	0.83
2020/06/23 20:19	0.85	7.09	0.80
2020/06/23 20:24	0.85	6.44	0.72
2020/06/23 20:29	0.91	7.07	0.72
2020/06/23 20:34	0.92	8.29	0.83
2020/06/23 20:39	0.98	9.36	0.86
2020/06/23 20:44	0.98	9.36	0.86
2020/06/23 20:49	1.04	13.17	1.09
2020/06/23 20:54	1.02	9.94	0.86
2020/06/23 20:59	1.02	9.94	0.86
2020/06/23 21:04	1.02	9.98	0.86
2020/06/23 21:09	1.02	9.98	0.86
2020/06/23 21:14	1.00	9.78	0.86
2020/06/23 21:19	0.99	9.58	0.86
2020/06/23 21:24	0.96	9.34	0.87
2020/06/23 21:29	0.99	9.73	0.87
2020/06/23 21:34	0.96	9.48	0.89
2020/06/23 21:39	0.95	9.28	0.89
2020/06/23 21:44	0.89	8.50	0.89
2020/06/23 21:49	0.84	7.16	0.82
2020/06/23 21:54	0.84	5.93	0.68
2020/06/23 21:59	0.92	6.18	0.62
2020/06/23 22:04	0.92	6.18	0.62
2020/06/23 22:09	0.95	6.14	0.59
2020/06/23 22:14	0.95	6.46	0.62
2020/06/23 22:19	0.95	10.39	0.99
2020/06/23 22:24	0.98	10.84	0.99
2020/06/23 22:29	0.99	7.59	0.68
2020/06/23 22:34	0.88	9.76	1.04
2020/06/23 22:39	1.00	7.95	0.70
2020/06/23 22:44	1.07	8.77	0.70

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/24 02:34	0.78	4.71	0.60
2020/06/24 02:39	0.78	4.91	0.62
2020/06/24 02:44	0.75	4.65	0.62
2020/06/24 02:49	0.75	5.07	0.68
2020/06/24 02:54	0.74	4.53	0.62
2020/06/24 02:59	0.74	4.53	0.62
2020/06/24 03:04	0.74	4.94	0.68
2020/06/24 03:09	0.75	5.07	0.68
2020/06/24 03:14	0.78	5.38	0.68
2020/06/24 03:19	0.78	6.03	0.77
2020/06/24 03:24	0.82	6.51	0.77
2020/06/24 03:29	0.82	6.61	0.78
2020/06/24 03:34	0.84	7.53	0.87
2020/06/24 03:39	0.82	6.61	0.78
2020/06/24 03:44	0.82	7.35	0.87
2020/06/24 03:49	0.75	6.46	0.87
2020/06/24 03:54	0.73	4.70	0.67
2020/06/24 03:59	0.64	3.93	0.67
2020/06/24 04:04	0.60	5.30	0.99
2020/06/24 04:09	0.57	5.38	1.08
2020/06/24 04:14	0.56	5.19	1.08
2020/06/24 04:19	0.56	5.19	1.08
2020/06/24 04:24	0.56	5.19	1.08
2020/06/24 04:29	0.56	5.07	1.05
2020/06/24 04:34	0.57	5.17	1.04
2020/06/24 04:39	0.64	5.47	0.93
2020/06/24 04:44	0.64	5.47	0.93
2020/06/24 04:49	0.64	3.83	0.65
2020/06/24 04:54	0.64	4.22	0.72
2020/06/24 04:59	0.66	4.36	0.72
2020/06/24 05:04	0.66	5.20	0.85
2020/06/24 05:09	0.66	4.73	0.78
2020/06/24 05:14	0.66	4.73	0.78
2020/06/24 05:19	0.78	6.43	0.82
2020/06/24 05:24	0.78	6.12	0.78
2020/06/24 05:29	0.78	5.32	0.68
2020/06/24 05:34	0.78	4.32	0.55
2020/06/24 05:39	0.78	4.32	0.55
2020/06/24 05:44	0.77	4.21	0.55
2020/06/24 05:49	0.78	4.70	0.60
2020/06/24 05:54	0.78	4.70	0.60
2020/06/24 05:59	0.78	4.80	0.61
2020/06/24 06:04	0.77	4.72	0.62
2020/06/24 06:09	0.78	4.84	0.62
2020/06/24 06:14	0.78	4.84	0.62

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/24 06:19	0.89	6.73	0.70
2020/06/24 06:24	0.93	7.28	0.71
2020/06/24 06:29	0.93	8.31	0.81
2020/06/24 06:34	0.93	8.20	0.80
2020/06/24 06:39	0.93	8.31	0.81
2020/06/24 06:44	0.93	8.20	0.80
2020/06/24 06:49	0.85	7.25	0.81
2020/06/24 06:54	0.86	7.91	0.87
2020/06/24 06:59	0.85	7.73	0.87
2020/06/24 07:04	0.81	7.18	0.87
2020/06/24 07:09	0.79	7.59	0.94
2020/06/24 07:14	0.79	7.59	0.94
2020/06/24 07:19	0.79	7.59	0.94
2020/06/24 07:24	1.02	12.86	1.11
2020/06/24 07:29	1.07	13.89	1.11
2020/06/24 07:34	1.10	15.65	1.20
2020/06/24 07:39	1.11	14.70	1.11
2020/06/24 07:44	1.11	14.70	1.11
2020/06/24 07:49	1.14	15.24	1.11
2020/06/24 07:54	1.16	18.82	1.35
2020/06/24 07:59	1.18	16.05	1.11
2020/06/24 08:04	1.21	15.20	1.02
2020/06/24 08:09	1.25	18.79	1.20
2020/06/24 08:14	1.25	16.42	1.05
2020/06/24 08:19	1.21	14.90	1.00
2020/06/24 08:24	1.32	17.54	1.03
2020/06/24 08:29	1.32	17.54	1.03
2020/06/24 08:34	1.21	15.45	1.03
2020/06/24 08:39	1.25	16.23	1.03
2020/06/24 08:44	1.34	20.13	1.17
2020/06/24 08:49	1.35	21.68	1.24
2020/06/24 08:54	1.43	23.87	1.25
2020/06/24 08:59	1.43	23.87	1.25
2020/06/24 09:04	1.43	23.87	1.25
2020/06/24 09:09	1.32	21.64	1.28
2020/06/24 09:14	1.14	17.50	1.28
2020/06/24 09:19	1.14	15.09	1.10
2020/06/24 09:24	1.14	15.09	1.10
2020/06/24 09:29	1.14	15.09	1.10
2020/06/24 09:34	1.14	15.09	1.10
2020/06/24 09:39	1.17	12.64	0.89
2020/06/24 09:44	1.17	16.46	1.16
2020/06/24 09:49	1.21	16.87	1.13
2020/06/24 09:54	1.21	19.29	1.29
2020/06/24 09:59	1.21	16.87	1.13

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/24 10:04	1.21	17.73	1.19
2020/06/24 10:09	1.04	13.60	1.13
2020/06/24 10:14	1.03	13.03	1.10
2020/06/24 10:19	1.03	13.03	1.10
2020/06/24 10:24	0.99	12.27	1.10
2020/06/24 10:29	0.99	12.16	1.09
2020/06/24 10:34	0.99	12.09	1.09
2020/06/24 10:39	0.99	10.99	0.99
2020/06/24 10:44	0.96	10.00	0.94
2020/06/24 10:49	0.96	10.00	0.94
2020/06/24 10:54	0.92	10.87	1.09
2020/06/24 10:59	0.91	10.66	1.09
2020/06/24 11:04	0.91	10.66	1.09
2020/06/24 11:09	1.00	12.37	1.09
2020/06/24 11:14	1.00	11.99	1.06
2020/06/24 11:19	1.00	11.73	1.03
2020/06/24 11:24	1.00	11.73	1.03
2020/06/24 11:29	1.00	11.99	1.06
2020/06/24 11:34	1.00	10.84	0.95
2020/06/24 11:39	1.00	11.18	0.98
2020/06/24 11:44	1.00	11.18	0.98
2020/06/24 11:49	1.02	11.41	0.98
2020/06/24 11:54	1.06	12.10	0.98
2020/06/24 11:59	1.14	14.07	1.03
2020/06/24 12:04	1.14	15.33	1.12
2020/06/24 12:09	1.20	18.44	1.26
2020/06/24 12:14	1.24	17.26	1.12
2020/06/24 12:19	1.14	14.18	1.03
2020/06/24 12:24	1.02	12.19	1.05
2020/06/24 12:29	1.03	12.22	1.03
2020/06/24 12:34	1.03	12.04	1.02
2020/06/24 12:39	1.03	12.04	1.02
2020/06/24 12:44	1.06	12.52	1.02
2020/06/24 12:49	1.07	13.10	1.05
2020/06/24 12:54	1.07	11.69	0.93
2020/06/24 12:59	1.10	11.72	0.90

Utility Systems Science and Software

SITE 2
SMH: 4111

Report Date: 06/29/2020
Customer: US3
Group: 1413 Angelina Project
Site: 2020.06 Cypress Pt MH

Statistics for 2020.06 Cypress Pt MH: 06/09/2020 thru 06/24/2020

	Flow (GPM)			Flow (MGD)			Velocity (FPS)			Level (inches)				
Date	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Total Gal**	**Rain**
6/9/20	13.44	28.32	6.62	0.02	0.04	0.01	0.77	1.17	0.42	1.34	1.69	1.13	19,355	
6/10/20	11.46	27.99	5.59	0.02	0.04	0.01	0.72	1.10	0.45	1.26	1.75	0.85	16,504	
6/11/20	13.35	29.82	3.91	0.02	0.04	0.01	0.78	1.18	0.45	1.31	1.83	0.75	19,220	
6/12/20	15.49	30.75	7.38	0.02	0.04	0.01	0.90	1.47	0.46	1.34	1.85	1.07	22,308	
6/13/20	11.88	30.31	4.40	0.02	0.04	0.01	0.79	1.26	0.47	1.21	1.85	0.74	17,111	
6/14/20	13.52	29.45	5.01	0.02	0.04	0.01	0.82	1.25	0.47	1.29	1.96	0.71	19,473	
Week:	**13.19**	**30.75**	**3.91**	**0.02**	**0.04**	**0.01**	**0.80**	**1.47**	**0.42**	**1.29**	**1.96**	**0.71**	**113,971**	
6/15/20	13.08	31.15	4.07	0.02	0.04	0.01	0.78	1.36	0.48	1.27	1.79	0.72	18,835	
6/16/20	12.19	30.51	4.72	0.02	0.04	0.01	0.74	1.22	0.35	1.28	1.86	0.81	17,548	
6/17/20	11.65	26.45	3.64	0.02	0.04	0.01	0.73	1.13	0.32	1.26	1.72	0.83	16,781	
6/18/20	11.72	27.67	6.87	0.02	0.04	0.01	0.76	1.33	0.42	1.26	1.67	0.81	16,876	
6/19/20	13.62	30.37	3.60	0.02	0.04	0.01	0.82	1.34	0.42	1.30	1.79	0.72	19,613	
6/20/20	14.24	30.10	7.91	0.02	0.04	0.01	0.82	1.22	0.47	1.35	1.75	1.00	20,506	
6/21/20	13.01	28.53	4.96	0.02	0.04	0.01	0.75	1.28	0.44	1.34	1.88	0.78	18,733	
Week:	**12.79**	**31.15**	**3.60**	**0.02**	**0.04**	**0.01**	**0.77**	**1.36**	**0.32**	**1.29**	**1.88**	**0.72**	**128,892**	
6/22/20	12.06	29.41	3.57	0.02	0.04	0.01	0.69	1.23	0.44	1.33	1.79	0.79	17,363	
6/23/20	12.05	23.07	3.83	0.02	0.03	0.01	0.72	1.21	0.46	1.32	1.76	0.81	17,351	
6/24/20	9.14	23.25	3.92	0.01	0.03	0.01	0.61	0.99	0.43	1.19	1.75	0.76	13,161	
Week:	**11.08**	**29.41**	**3.57**	**0.02**	**0.04**	**0.01**	**0.67**	**1.23**	**0.43**	**1.28**	**1.79**	**0.76**	**47,875**	
Totals:	**12.62**	**31.15**	**3.57**	**0.02**	**0.04**	**0.01**	**0.76**	**1.47**	**0.32**	**1.29**	**1.96**	**0.71**	**290,737**	

ADF = 0.0345 cfs
PDF = 0.0694 cfs

Utility Systems Science and Software

SITE 2
SMH: 4111

Report Date: 06/29/2020
Customer: US3
Group: 1413 Angelina Project
Site: 2020.06 Cypress Pt MH

Data for 2020.06 Cypress Pt MH:
06/09/2020 thru 06/24/2020

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/09 11:34	1.36	19.07	1.08
2020/06/09 11:39	1.63	23.98	1.05
2020/06/09 11:44	1.28	17.46	1.08
2020/06/09 11:49	1.17	6.92	0.49
2020/06/09 11:54	1.28	17.28	1.07
2020/06/09 11:59	1.17	14.88	1.05
2020/06/09 12:04	1.17	7.30	0.52
2020/06/09 12:09	1.14	7.05	0.52
2020/06/09 12:14	1.13	6.93	0.52
2020/06/09 12:19	1.14	7.05	0.52
2020/06/09 12:24	1.14	7.05	0.52
2020/06/09 12:29	1.14	7.31	0.54
2020/06/09 12:34	1.14	8.08	0.59
2020/06/09 12:39	1.15	8.22	0.59
2020/06/09 12:44	1.53	17.87	0.86
2020/06/09 12:49	1.61	19.50	0.87
2020/06/09 12:54	1.53	17.87	0.86
2020/06/09 12:59	1.58	19.55	0.89
2020/06/09 13:04	1.53	22.42	1.07
2020/06/09 13:09	1.50	18.09	0.89
2020/06/09 13:14	1.42	13.93	0.74
2020/06/09 13:19	1.36	13.15	0.74
2020/06/09 13:24	1.33	11.33	0.66
2020/06/09 13:29	1.32	11.16	0.66
2020/06/09 13:34	1.29	10.25	0.62
2020/06/09 13:39	1.25	9.77	0.62
2020/06/09 13:44	1.25	9.77	0.62
2020/06/09 13:49	1.28	8.69	0.54
2020/06/09 13:54	1.28	8.69	0.54
2020/06/09 13:59	1.29	10.48	0.64
2020/06/09 14:04	1.31	10.65	0.64
2020/06/09 14:09	1.29	10.48	0.64
2020/06/09 14:14	1.29	10.48	0.64
2020/06/09 14:19	1.29	8.96	0.55
2020/06/09 14:24	1.42	10.24	0.55
2020/06/09 14:29	1.42	10.24	0.55
2020/06/09 14:34	1.42	10.24	0.55
2020/06/09 14:39	1.42	10.24	0.55
2020/06/09 14:44	1.26	7.82	0.49

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/09 14:49	1.25	7.69	0.49
2020/06/09 14:54	1.21	7.33	0.49
2020/06/09 14:59	1.21	7.56	0.51
2020/06/09 15:04	1.21	7.56	0.51
2020/06/09 15:09	1.28	10.63	0.66
2020/06/09 15:14	1.39	9.25	0.51
2020/06/09 15:19	1.39	9.25	0.51
2020/06/09 15:24	1.28	10.06	0.62
2020/06/09 15:29	1.22	9.97	0.66
2020/06/09 15:34	1.21	15.46	1.04
2020/06/09 15:39	1.15	14.80	1.06
2020/06/09 15:44	1.15	14.80	1.06
2020/06/09 15:49	1.17	14.69	1.04
2020/06/09 15:54	1.17	8.91	0.63
2020/06/09 15:59	1.19	7.88	0.54
2020/06/09 16:04	1.19	7.88	0.54
2020/06/09 16:09	1.19	7.88	0.54
2020/06/09 16:14	1.19	12.46	0.85
2020/06/09 16:19	1.19	12.46	0.85
2020/06/09 16:24	1.25	13.31	0.85
2020/06/09 16:29	1.26	6.62	0.42
2020/06/09 16:34	1.33	7.15	0.42
2020/06/09 16:39	1.26	6.62	0.42
2020/06/09 16:44	1.25	7.22	0.46
2020/06/09 16:49	1.19	6.78	0.46
2020/06/09 16:54	1.19	11.10	0.76
2020/06/09 16:59	1.19	11.38	0.78
2020/06/09 17:04	1.43	16.41	0.86
2020/06/09 17:09	1.43	16.20	0.85
2020/06/09 17:14	1.44	17.81	0.92
2020/06/09 17:19	1.44	17.81	0.92
2020/06/09 17:24	1.43	16.20	0.85
2020/06/09 17:29	1.43	15.53	0.82
2020/06/09 17:34	1.46	12.02	0.62
2020/06/09 17:39	1.46	9.77	0.50
2020/06/09 17:44	1.46	9.77	0.50
2020/06/09 17:49	1.46	9.77	0.50
2020/06/09 17:54	1.46	9.77	0.50
2020/06/09 17:59	1.42	9.49	0.51
2020/06/09 18:04	1.35	8.82	0.51
2020/06/09 18:09	1.31	7.85	0.47
2020/06/09 18:14	1.28	7.53	0.47
2020/06/09 18:19	1.26	7.41	0.47
2020/06/09 18:24	1.28	7.53	0.47
2020/06/09 18:29	1.28	6.88	0.43

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/09 22:19	1.21	16.56	1.11
2020/06/09 22:24	1.21	16.56	1.11
2020/06/09 22:29	1.54	24.24	1.15
2020/06/09 22:34	1.33	19.67	1.15
2020/06/09 22:39	1.33	19.67	1.15
2020/06/09 22:44	1.33	19.95	1.16
2020/06/09 22:49	1.33	19.67	1.15
2020/06/09 22:54	1.33	19.95	1.16
2020/06/09 22:59	1.33	20.03	1.17
2020/06/09 23:04	1.40	21.55	1.17
2020/06/09 23:09	1.46	22.79	1.17
2020/06/09 23:14	1.46	22.79	1.17
2020/06/09 23:19	1.40	20.01	1.08
2020/06/09 23:24	1.36	15.19	0.86
2020/06/09 23:29	1.33	14.75	0.86
2020/06/09 23:34	1.29	14.09	0.86
2020/06/09 23:39	1.29	14.09	0.86
2020/06/09 23:44	1.29	15.03	0.92
2020/06/09 23:49	1.33	17.50	1.02
2020/06/09 23:54	1.17	14.42	1.02
2020/06/09 23:59	1.13	13.68	1.02
2020/06/10 00:04	1.13	13.68	1.02
2020/06/10 00:09	1.11	14.53	1.10
2020/06/10 00:14	1.10	13.75	1.06
2020/06/10 00:19	1.10	13.75	1.06
2020/06/10 00:24	1.08	13.50	1.06
2020/06/10 00:29	1.08	13.50	1.06
2020/06/10 00:34	1.08	10.73	0.84
2020/06/10 00:39	0.94	8.79	0.84
2020/06/10 00:44	0.94	8.65	0.83
2020/06/10 00:49	0.94	8.00	0.77
2020/06/10 00:54	0.94	5.94	0.57
2020/06/10 00:59	0.94	5.94	0.57
2020/06/10 01:04	0.93	7.55	0.74
2020/06/10 01:09	0.92	5.59	0.56
2020/06/10 01:14	0.92	7.39	0.74
2020/06/10 01:19	0.92	7.77	0.78
2020/06/10 01:24	0.96	8.29	0.78
2020/06/10 01:29	0.96	7.00	0.66
2020/06/10 01:34	0.96	7.00	0.66
2020/06/10 01:39	0.89	6.01	0.63
2020/06/10 01:44	0.89	6.01	0.63
2020/06/10 01:49	0.89	6.27	0.66
2020/06/10 01:54	0.89	6.70	0.70
2020/06/10 01:59	0.88	6.55	0.70

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/09 18:34	1.28	7.53	0.47
2020/06/09 18:39	1.31	12.04	0.72
2020/06/09 18:44	1.49	14.50	0.72
2020/06/09 18:49	1.50	14.70	0.72
2020/06/09 18:54	1.53	16.13	0.77
2020/06/09 18:59	1.50	14.70	0.72
2020/06/09 19:04	1.50	14.37	0.71
2020/06/09 19:09	1.46	12.80	0.66
2020/06/09 19:14	1.38	11.76	0.66
2020/06/09 19:19	1.33	11.25	0.66
2020/06/09 19:24	1.31	9.63	0.58
2020/06/09 19:29	1.33	9.93	0.58
2020/06/09 19:34	1.33	17.00	0.99
2020/06/09 19:39	1.33	17.00	0.99
2020/06/09 19:44	1.38	17.77	0.99
2020/06/09 19:49	1.38	17.77	0.99
2020/06/09 19:54	1.33	8.97	0.52
2020/06/09 19:59	1.31	8.70	0.52
2020/06/09 20:04	1.31	10.46	0.63
2020/06/09 20:09	1.31	10.19	0.61
2020/06/09 20:14	1.38	11.27	0.63
2020/06/09 20:19	1.38	11.27	0.63
2020/06/09 20:24	1.38	10.99	0.61
2020/06/09 20:29	1.38	8.89	0.50
2020/06/09 20:34	1.38	8.89	0.50
2020/06/09 20:39	1.33	8.50	0.50
2020/06/09 20:44	1.33	8.50	0.50
2020/06/09 20:49	1.33	9.24	0.54
2020/06/09 20:54	1.36	10.17	0.58
2020/06/09 20:59	1.54	20.71	0.98
2020/06/09 21:04	1.58	22.12	1.01
2020/06/09 21:09	1.69	24.37	1.01
2020/06/09 21:14	1.69	28.32	1.17
2020/06/09 21:19	1.69	28.32	1.17
2020/06/09 21:24	1.54	23.66	1.12
2020/06/09 21:29	1.50	21.71	1.07
2020/06/09 21:34	1.50	22.20	1.09
2020/06/09 21:39	1.46	21.32	1.09
2020/06/09 21:44	1.46	21.32	1.09
2020/06/09 21:49	1.44	22.17	1.15
2020/06/09 21:54	1.29	18.87	1.15
2020/06/09 21:59	1.29	18.87	1.15
2020/06/09 22:04	1.22	17.37	1.15
2020/06/09 22:09	1.22	17.37	1.15
2020/06/09 22:14	1.21	16.56	1.11

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 05:49	0.93	9.05	0.89
2020/06/10 05:54	0.93	9.05	0.89
2020/06/10 05:59	0.93	9.05	0.89
2020/06/10 06:04	0.93	9.05	0.89
2020/06/10 06:09	0.93	9.15	0.90
2020/06/10 06:14	1.10	14.00	1.08
2020/06/10 06:19	1.14	12.28	0.90
2020/06/10 06:24	1.14	14.67	1.07
2020/06/10 06:29	1.14	14.67	1.07
2020/06/10 06:34	1.14	14.67	1.07
2020/06/10 06:39	1.11	12.80	0.97
2020/06/10 06:44	1.11	12.80	0.97
2020/06/10 06:49	1.11	12.80	0.97
2020/06/10 06:54	1.11	12.80	0.97
2020/06/10 06:59	1.11	9.76	0.74
2020/06/10 07:04	1.14	7.23	0.53
2020/06/10 07:09	1.21	7.87	0.53
2020/06/10 07:14	1.21	7.87	0.53
2020/06/10 07:19	1.25	8.27	0.53
2020/06/10 07:24	1.21	10.43	0.70
2020/06/10 07:29	1.21	10.43	0.70
2020/06/10 07:34	1.21	15.49	1.04
2020/06/10 07:39	1.25	10.95	0.70
2020/06/10 07:44	1.32	10.00	0.59
2020/06/10 07:49	1.32	9.54	0.56
2020/06/10 07:54	1.19	8.26	0.56
2020/06/10 07:59	1.32	9.54	0.56
2020/06/10 08:04	1.36	9.98	0.56
2020/06/10 08:09	1.40	11.16	0.60
2020/06/10 08:14	1.44	20.35	1.06
2020/06/10 08:19	1.58	23.21	1.06
2020/06/10 08:24	1.60	23.50	1.06
2020/06/10 08:29	1.72	20.13	0.81
2020/06/10 08:34	1.72	20.13	0.81
2020/06/10 08:39	1.72	20.13	0.81
2020/06/10 08:44	1.75	27.99	1.10
2020/06/10 08:49	1.75	27.99	1.10
2020/06/10 08:54	1.69	26.73	1.10
2020/06/10 08:59	1.65	20.48	0.88
2020/06/10 09:04	1.57	18.19	0.84
2020/06/10 09:09	1.57	18.19	0.84
2020/06/10 09:14	1.57	17.98	0.83
2020/06/10 09:19	1.63	18.57	0.81
2020/06/10 09:24	1.63	17.47	0.77
2020/06/10 09:29	1.63	18.57	0.81

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 02:04	0.88	6.55	0.70
2020/06/10 02:09	0.85	6.24	0.70
2020/06/10 02:14	0.85	6.33	0.71
2020/06/10 02:19	0.85	8.18	0.92
2020/06/10 02:24	0.89	8.77	0.92
2020/06/10 02:29	0.89	8.77	0.92
2020/06/10 02:34	0.89	8.44	0.89
2020/06/10 02:39	0.89	8.44	0.89
2020/06/10 02:44	0.89	8.44	0.89
2020/06/10 02:49	0.89	8.53	0.90
2020/06/10 02:54	0.89	8.53	0.90
2020/06/10 02:59	0.89	8.61	0.90
2020/06/10 03:04	0.89	8.53	0.90
2020/06/10 03:09	0.89	8.42	0.88
2020/06/10 03:14	0.96	8.91	0.84
2020/06/10 03:19	0.97	7.01	0.65
2020/06/10 03:24	0.99	7.16	0.65
2020/06/10 03:29	0.99	6.11	0.55
2020/06/10 03:34	1.08	7.23	0.57
2020/06/10 03:39	1.08	7.23	0.57
2020/06/10 03:44	1.08	7.23	0.57
2020/06/10 03:49	1.08	7.23	0.57
2020/06/10 03:54	1.00	10.35	0.91
2020/06/10 03:59	0.90	8.91	0.91
2020/06/10 04:04	0.89	6.97	0.73
2020/06/10 04:09	0.89	6.97	0.73
2020/06/10 04:14	0.89	6.97	0.73
2020/06/10 04:19	0.86	6.36	0.70
2020/06/10 04:24	0.85	6.22	0.70
2020/06/10 04:29	0.85	6.22	0.70
2020/06/10 04:34	0.85	6.29	0.71
2020/06/10 04:39	0.85	6.22	0.70
2020/06/10 04:44	0.85	6.29	0.71
2020/06/10 04:49	0.92	8.60	0.86
2020/06/10 04:54	0.93	8.79	0.86
2020/06/10 04:59	0.99	10.05	0.91
2020/06/10 05:04	1.00	10.26	0.91
2020/06/10 05:09	1.00	11.11	0.98
2020/06/10 05:14	1.00	9.10	0.80
2020/06/10 05:19	1.03	9.79	0.83
2020/06/10 05:24	1.04	9.98	0.83
2020/06/10 05:29	1.04	11.96	1.00
2020/06/10 05:34	1.08	12.67	1.00
2020/06/10 05:39	1.08	12.67	1.00
2020/06/10 05:44	1.01	11.50	1.00

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 09:34	1.54	17.22	0.81
2020/06/10 09:39	1.51	10.96	0.53
2020/06/10 09:44	1.51	10.96	0.53
2020/06/10 09:49	1.51	15.72	0.76
2020/06/10 09:54	1.51	12.25	0.59
2020/06/10 09:59	1.47	11.77	0.59
2020/06/10 10:04	1.40	10.98	0.59
2020/06/10 10:09	1.40	10.98	0.59
2020/06/10 10:14	1.40	10.98	0.59
2020/06/10 10:19	1.39	9.95	0.55
2020/06/10 10:24	1.47	10.82	0.55
2020/06/10 10:29	1.47	10.25	0.52
2020/06/10 10:34	1.39	9.42	0.52
2020/06/10 10:39	1.39	9.42	0.52
2020/06/10 10:44	1.57	18.08	0.83
2020/06/10 10:49	1.39	10.77	0.59
2020/06/10 10:54	1.33	11.55	0.67
2020/06/10 10:59	1.49	16.72	0.83
2020/06/10 11:04	1.49	16.72	0.83
2020/06/10 11:09	1.49	17.62	0.88
2020/06/10 11:14	1.63	20.03	0.88
2020/06/10 11:19	1.63	20.07	0.88
2020/06/10 11:24	1.68	21.01	0.88
2020/06/10 11:29	1.63	14.99	0.66
2020/06/10 11:34	1.57	13.32	0.61
2020/06/10 11:39	1.54	10.00	0.47
2020/06/10 11:44	1.54	10.00	0.47
2020/06/10 11:49	1.44	9.11	0.47
2020/06/10 11:54	1.36	8.76	0.50
2020/06/10 11:59	1.32	8.40	0.50
2020/06/10 12:04	1.21	9.43	0.63
2020/06/10 12:09	1.21	9.43	0.63
2020/06/10 12:14	1.21	11.62	0.78
2020/06/10 12:19	1.21	11.62	0.78
2020/06/10 12:24	1.44	15.04	0.78
2020/06/10 12:29	1.44	13.61	0.71
2020/06/10 12:34	1.44	15.04	0.78
2020/06/10 12:39	1.38	12.68	0.71
2020/06/10 12:44	1.29	11.59	0.71
2020/06/10 12:49	1.25	10.98	0.70
2020/06/10 12:54	1.25	9.75	0.62
2020/06/10 12:59	1.25	7.69	0.49
2020/06/10 13:04	1.24	7.57	0.49
2020/06/10 13:09	1.24	7.57	0.49
2020/06/10 13:14	1.24	7.57	0.49

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 13:19	1.24	8.73	0.57
2020/06/10 13:24	1.26	11.00	0.69
2020/06/10 13:29	1.38	12.42	0.69
2020/06/10 13:34	1.38	12.42	0.69
2020/06/10 13:39	1.46	14.02	0.72
2020/06/10 13:44	1.38	12.42	0.69
2020/06/10 13:49	1.33	8.47	0.49
2020/06/10 13:54	1.31	8.14	0.49
2020/06/10 13:59	1.31	8.22	0.49
2020/06/10 14:04	1.28	7.97	0.49
2020/06/10 14:09	1.26	7.84	0.49
2020/06/10 14:14	1.28	13.66	0.85
2020/06/10 14:19	1.29	16.50	1.01
2020/06/10 14:24	1.28	13.66	0.85
2020/06/10 14:29	1.25	7.57	0.48
2020/06/10 14:34	1.25	7.57	0.48
2020/06/10 14:39	1.18	6.97	0.48
2020/06/10 14:44	1.18	6.97	0.48
2020/06/10 14:49	1.18	8.58	0.60
2020/06/10 14:54	1.25	9.32	0.60
2020/06/10 14:59	1.32	10.08	0.60
2020/06/10 15:04	1.32	9.94	0.59
2020/06/10 15:09	1.32	9.94	0.59
2020/06/10 15:14	1.32	9.94	0.59
2020/06/10 15:19	1.32	14.93	0.88
2020/06/10 15:24	1.32	17.75	1.05
2020/06/10 15:29	1.40	19.39	1.05
2020/06/10 15:34	1.40	19.39	1.05
2020/06/10 15:39	1.40	15.39	0.83
2020/06/10 15:44	1.36	13.52	0.76
2020/06/10 15:49	1.32	11.76	0.70
2020/06/10 15:54	1.25	10.53	0.67
2020/06/10 15:59	1.25	10.53	0.67
2020/06/10 16:04	1.28	7.48	0.46
2020/06/10 16:09	1.28	8.87	0.55
2020/06/10 16:14	1.24	8.46	0.55
2020/06/10 16:19	1.28	12.50	0.77
2020/06/10 16:24	1.28	12.19	0.75
2020/06/10 16:29	1.24	11.61	0.75
2020/06/10 16:34	1.38	18.18	1.01
2020/06/10 16:39	1.38	13.55	0.75
2020/06/10 16:44	1.32	8.64	0.51
2020/06/10 16:49	1.26	7.08	0.45
2020/06/10 16:54	1.26	7.33	0.46
2020/06/10 16:59	1.22	6.99	0.46

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 20:49	1.35	8.82	0.51
2020/06/10 20:54	1.46	9.89	0.51
2020/06/10 20:59	1.46	9.89	0.51
2020/06/10 21:04	1.35	8.82	0.51
2020/06/10 21:09	1.35	9.91	0.57
2020/06/10 21:14	1.36	10.06	0.57
2020/06/10 21:19	1.36	16.27	0.92
2020/06/10 21:24	1.49	18.46	0.92
2020/06/10 21:29	1.54	17.93	0.85
2020/06/10 21:34	1.49	14.02	0.70
2020/06/10 21:39	1.49	14.02	0.70
2020/06/10 21:44	1.47	10.98	0.55
2020/06/10 21:49	1.47	10.12	0.51
2020/06/10 21:54	1.46	9.80	0.50
2020/06/10 21:59	1.42	9.40	0.50
2020/06/10 22:04	1.47	9.93	0.50
2020/06/10 22:09	1.54	16.98	0.80
2020/06/10 22:14	1.64	19.13	0.83
2020/06/10 22:19	1.64	19.13	0.83
2020/06/10 22:24	1.64	18.54	0.80
2020/06/10 22:29	1.58	17.96	0.82
2020/06/10 22:34	1.58	16.87	0.77
2020/06/10 22:39	1.54	15.39	0.73
2020/06/10 22:44	1.47	14.41	0.73
2020/06/10 22:49	1.43	10.35	0.54
2020/06/10 22:54	1.36	9.55	0.54
2020/06/10 22:59	1.35	9.41	0.54
2020/06/10 23:04	1.32	9.13	0.54
2020/06/10 23:09	1.26	8.66	0.54
2020/06/10 23:14	1.24	9.44	0.61
2020/06/10 23:19	1.21	15.56	1.04
2020/06/10 23:24	1.21	15.56	1.04
2020/06/10 23:29	1.21	15.56	1.04
2020/06/10 23:34	1.18	11.56	0.80
2020/06/10 23:39	1.11	10.58	0.80
2020/06/10 23:44	1.01	8.21	0.71
2020/06/10 23:49	1.00	9.08	0.80
2020/06/10 23:54	1.00	8.05	0.71
2020/06/10 23:59	1.00	6.32	0.56
2020/06/11 00:04	0.99	6.20	0.56
2020/06/11 00:09	0.99	7.26	0.66
2020/06/11 00:14	0.99	7.26	0.66
2020/06/11 00:19	0.99	8.90	0.80
2020/06/11 00:24	1.04	10.14	0.84
2020/06/11 00:29	1.04	10.14	0.84

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/10 17:04	1.15	6.42	0.46
2020/06/10 17:09	1.14	6.50	0.48
2020/06/10 17:14	1.14	8.06	0.59
2020/06/10 17:19	1.14	11.12	0.81
2020/06/10 17:24	1.14	11.12	0.81
2020/06/10 17:29	1.21	12.12	0.81
2020/06/10 17:34	1.63	18.71	0.82
2020/06/10 17:39	1.46	16.03	0.82
2020/06/10 17:44	1.63	18.71	0.82
2020/06/10 17:49	1.63	17.84	0.78
2020/06/10 17:54	1.46	15.27	0.78
2020/06/10 17:59	1.33	11.22	0.65
2020/06/10 18:04	1.33	13.43	0.78
2020/06/10 18:09	1.33	13.43	0.78
2020/06/10 18:14	1.44	15.56	0.81
2020/06/10 18:19	1.44	15.56	0.81
2020/06/10 18:24	1.44	15.56	0.81
2020/06/10 18:29	1.44	12.60	0.65
2020/06/10 18:34	1.36	8.76	0.50
2020/06/10 18:39	1.36	8.76	0.50
2020/06/10 18:44	1.36	8.76	0.50
2020/06/10 18:49	1.43	9.41	0.50
2020/06/10 18:54	1.43	10.08	0.53
2020/06/10 18:59	1.44	11.48	0.60
2020/06/10 19:04	1.46	16.15	0.83
2020/06/10 19:09	1.49	16.59	0.83
2020/06/10 19:14	1.49	16.59	0.83
2020/06/10 19:19	1.49	16.24	0.81
2020/06/10 19:24	1.39	10.88	0.60
2020/06/10 19:29	1.31	8.78	0.53
2020/06/10 19:34	1.28	8.51	0.53
2020/06/10 19:39	1.25	9.35	0.60
2020/06/10 19:44	1.25	10.07	0.64
2020/06/10 19:49	1.25	10.07	0.64
2020/06/10 19:54	1.28	11.77	0.73
2020/06/10 19:59	1.33	12.52	0.73
2020/06/10 20:04	1.39	13.25	0.73
2020/06/10 20:09	1.40	10.69	0.58
2020/06/10 20:14	1.39	9.37	0.51
2020/06/10 20:19	1.33	8.83	0.51
2020/06/10 20:24	1.26	8.28	0.52
2020/06/10 20:29	1.24	7.25	0.47
2020/06/10 20:34	1.24	8.01	0.52
2020/06/10 20:39	1.26	8.58	0.54
2020/06/10 20:44	1.35	9.08	0.52

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 04:19	0.85	4.21	0.47
2020/06/11 04:24	0.85	4.61	0.52
2020/06/11 04:29	0.85	5.11	0.58
2020/06/11 04:34	0.85	5.49	0.62
2020/06/11 04:39	0.85	5.49	0.62
2020/06/11 04:44	0.85	5.56	0.63
2020/06/11 04:49	0.85	5.56	0.63
2020/06/11 04:54	0.86	5.30	0.58
2020/06/11 04:59	0.86	5.23	0.58
2020/06/11 05:04	0.86	5.30	0.58
2020/06/11 05:09	0.86	5.30	0.58
2020/06/11 05:14	0.86	5.30	0.58
2020/06/11 05:19	0.88	6.25	0.67
2020/06/11 05:24	0.88	6.25	0.67
2020/06/11 05:29	0.88	7.99	0.86
2020/06/11 05:34	0.90	8.51	0.87
2020/06/11 05:39	0.92	8.70	0.87
2020/06/11 05:44	1.04	10.37	0.86
2020/06/11 05:49	1.04	10.48	0.87
2020/06/11 05:54	1.06	10.80	0.88
2020/06/11 05:59	1.25	13.51	0.86
2020/06/11 06:04	1.06	11.53	0.94
2020/06/11 06:09	1.06	11.53	0.94
2020/06/11 06:14	1.06	10.57	0.86
2020/06/11 06:19	0.92	6.58	0.66
2020/06/11 06:24	0.92	6.58	0.66
2020/06/11 06:29	0.92	6.54	0.66
2020/06/11 06:34	1.29	10.77	0.66
2020/06/11 06:39	1.29	10.83	0.66
2020/06/11 06:44	1.29	15.08	0.92
2020/06/11 06:49	1.15	14.73	1.06
2020/06/11 06:54	1.15	14.73	1.06
2020/06/11 06:59	1.15	15.00	1.08
2020/06/11 07:04	1.17	14.99	1.06
2020/06/11 07:09	1.18	14.21	0.99
2020/06/11 07:14	1.19	8.78	0.60
2020/06/11 07:19	1.32	10.13	0.60
2020/06/11 07:24	1.32	10.13	0.60
2020/06/11 07:29	1.32	10.13	0.60
2020/06/11 07:34	1.32	10.13	0.60
2020/06/11 07:39	1.31	13.37	0.80
2020/06/11 07:44	1.28	12.96	0.80
2020/06/11 07:49	1.28	16.43	1.02
2020/06/11 07:54	1.15	14.15	1.02
2020/06/11 07:59	1.15	14.15	1.02

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 00:34	1.04	9.64	0.80
2020/06/11 00:39	0.99	8.90	0.80
2020/06/11 00:44	1.04	10.42	0.87
2020/06/11 00:49	0.99	7.24	0.65
2020/06/11 00:54	0.96	6.95	0.65
2020/06/11 00:59	0.94	9.04	0.87
2020/06/11 01:04	0.89	6.23	0.65
2020/06/11 01:09	0.89	5.92	0.62
2020/06/11 01:14	0.89	4.79	0.50
2020/06/11 01:19	0.89	4.79	0.50
2020/06/11 01:24	0.89	4.79	0.50
2020/06/11 01:29	0.85	4.91	0.55
2020/06/11 01:34	0.82	7.46	0.88
2020/06/11 01:39	0.82	7.46	0.88
2020/06/11 01:44	0.82	6.95	0.82
2020/06/11 01:49	0.89	7.83	0.82
2020/06/11 01:54	0.99	10.74	0.97
2020/06/11 01:59	0.99	10.71	0.97
2020/06/11 02:04	0.99	10.74	0.97
2020/06/11 02:09	0.96	11.39	1.07
2020/06/11 02:14	0.92	10.77	1.08
2020/06/11 02:19	0.92	10.77	1.08
2020/06/11 02:24	0.92	10.77	1.08
2020/06/11 02:29	0.90	10.25	1.05
2020/06/11 02:34	0.89	8.68	0.91
2020/06/11 02:39	0.78	7.14	0.91
2020/06/11 02:44	0.78	7.14	0.91
2020/06/11 02:49	0.78	7.29	0.93
2020/06/11 02:54	0.76	7.10	0.93
2020/06/11 02:59	0.76	7.10	0.93
2020/06/11 03:04	0.76	7.22	0.95
2020/06/11 03:09	0.75	6.95	0.94
2020/06/11 03:14	0.76	7.14	0.94
2020/06/11 03:19	0.76	7.14	0.94
2020/06/11 03:24	0.78	7.41	0.95
2020/06/11 03:29	0.83	8.11	0.94
2020/06/11 03:34	0.83	6.61	0.76
2020/06/11 03:39	0.83	6.61	0.76
2020/06/11 03:44	0.81	7.16	0.87
2020/06/11 03:49	0.79	5.15	0.64
2020/06/11 03:54	0.79	5.15	0.64
2020/06/11 03:59	0.79	5.15	0.64
2020/06/11 04:04	0.79	5.09	0.63
2020/06/11 04:09	0.81	3.91	0.47
2020/06/11 04:14	0.83	4.11	0.47

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 11:49	1.61	10.87	0.48
2020/06/11 11:54	1.61	12.31	0.55
2020/06/11 11:59	1.61	11.84	0.53
2020/06/11 12:04	1.61	12.31	0.55
2020/06/11 12:09	1.61	12.31	0.55
2020/06/11 12:14	1.79	21.42	0.82
2020/06/11 12:19	1.79	27.05	1.03
2020/06/11 12:24	1.79	27.05	1.03
2020/06/11 12:29	1.79	27.05	1.03
2020/06/11 12:34	1.74	25.55	1.02
2020/06/11 12:39	1.50	20.73	1.02
2020/06/11 12:44	1.50	9.06	0.45
2020/06/11 12:49	1.50	9.06	0.45
2020/06/11 12:54	1.40	8.23	0.45
2020/06/11 12:59	1.40	8.23	0.45
2020/06/11 13:04	1.40	12.96	0.70
2020/06/11 13:09	1.40	14.68	0.79
2020/06/11 13:14	1.40	14.68	0.79
2020/06/11 13:19	1.40	19.27	1.04
2020/06/11 13:24	1.35	18.18	1.04
2020/06/11 13:29	1.29	9.80	0.60
2020/06/11 13:34	1.29	9.80	0.60
2020/06/11 13:39	1.29	13.87	0.85
2020/06/11 13:44	1.31	14.09	0.85
2020/06/11 13:49	1.33	14.69	0.86
2020/06/11 13:54	1.33	14.69	0.86
2020/06/11 13:59	1.31	14.25	0.86
2020/06/11 14:04	1.31	14.25	0.86
2020/06/11 14:09	1.31	11.40	0.68
2020/06/11 14:14	1.31	11.40	0.68
2020/06/11 14:19	1.31	9.61	0.58
2020/06/11 14:24	1.31	9.61	0.58
2020/06/11 14:29	1.32	9.19	0.54
2020/06/11 14:34	1.31	8.99	0.54
2020/06/11 14:39	1.28	8.72	0.54
2020/06/11 14:44	1.26	8.63	0.54
2020/06/11 14:49	1.24	8.46	0.55
2020/06/11 14:54	1.22	16.54	1.09
2020/06/11 14:59	1.22	16.54	1.09
2020/06/11 15:04	1.24	13.14	0.85
2020/06/11 15:09	1.31	14.22	0.85
2020/06/11 15:14	1.31	13.74	0.83
2020/06/11 15:19	1.31	13.74	0.83
2020/06/11 15:24	1.31	10.70	0.64
2020/06/11 15:29	1.31	10.70	0.64

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 08:04	1.15	9.34	0.67
2020/06/11 08:09	1.25	8.90	0.57
2020/06/11 08:14	1.26	9.04	0.57
2020/06/11 08:19	1.26	10.67	0.67
2020/06/11 08:24	1.26	14.18	0.89
2020/06/11 08:29	1.26	14.18	0.89
2020/06/11 08:34	1.49	22.06	1.10
2020/06/11 08:39	1.75	23.08	0.91
2020/06/11 08:44	1.81	24.12	0.91
2020/06/11 08:49	1.81	24.12	0.91
2020/06/11 08:54	1.81	24.12	0.91
2020/06/11 08:59	1.78	23.60	0.91
2020/06/11 09:04	1.67	19.33	0.82
2020/06/11 09:09	1.64	19.57	0.85
2020/06/11 09:14	1.64	18.46	0.80
2020/06/11 09:19	1.64	19.57	0.85
2020/06/11 09:24	1.61	18.85	0.84
2020/06/11 09:29	1.64	19.42	0.84
2020/06/11 09:34	1.61	18.85	0.84
2020/06/11 09:39	1.60	18.62	0.84
2020/06/11 09:44	1.57	18.15	0.84
2020/06/11 09:49	1.38	15.10	0.84
2020/06/11 09:54	1.35	12.65	0.73
2020/06/11 09:59	1.35	12.65	0.73
2020/06/11 10:04	1.35	18.63	1.07
2020/06/11 10:09	1.39	13.22	0.73
2020/06/11 10:14	1.39	13.07	0.72
2020/06/11 10:19	1.40	13.26	0.72
2020/06/11 10:24	1.44	14.08	0.73
2020/06/11 10:29	1.44	13.92	0.72
2020/06/11 10:34	1.63	16.67	0.73
2020/06/11 10:39	1.63	16.67	0.73
2020/06/11 10:44	1.63	16.48	0.72
2020/06/11 10:49	1.58	13.66	0.62
2020/06/11 10:54	1.56	11.47	0.54
2020/06/11 10:59	1.40	9.89	0.54
2020/06/11 11:04	1.29	9.78	0.60
2020/06/11 11:09	1.29	8.75	0.53
2020/06/11 11:14	1.29	8.57	0.52
2020/06/11 11:19	1.26	8.10	0.51
2020/06/11 11:24	1.26	8.10	0.51
2020/06/11 11:29	1.32	8.51	0.50
2020/06/11 11:34	1.43	9.68	0.51
2020/06/11 11:39	1.47	9.96	0.50
2020/06/11 11:44	1.61	15.78	0.70

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 19:19	1.49	20.65	1.03
2020/06/11 19:24	1.49	20.65	1.03
2020/06/11 19:29	1.57	22.33	1.03
2020/06/11 19:34	1.58	23.17	1.05
2020/06/11 19:39	1.72	26.13	1.05
2020/06/11 19:44	1.83	28.56	1.05
2020/06/11 19:49	1.83	28.56	1.05
2020/06/11 19:54	1.83	29.08	1.07
2020/06/11 19:59	1.83	29.08	1.07
2020/06/11 20:04	1.82	28.81	1.08
2020/06/11 20:09	1.75	27.22	1.07
2020/06/11 20:14	1.60	20.86	0.94
2020/06/11 20:19	1.60	20.86	0.94
2020/06/11 20:24	1.60	22.97	1.03
2020/06/11 20:29	1.60	20.26	0.91
2020/06/11 20:34	1.63	20.76	0.91
2020/06/11 20:39	1.67	21.18	0.90
2020/06/11 20:44	1.67	20.88	0.88
2020/06/11 20:49	1.72	20.65	0.83
2020/06/11 20:54	1.69	20.18	0.83
2020/06/11 20:59	1.69	21.38	0.88
2020/06/11 21:04	1.69	20.18	0.83
2020/06/11 21:09	1.72	20.65	0.83
2020/06/11 21:14	1.75	29.82	1.18
2020/06/11 21:19	1.75	29.82	1.18
2020/06/11 21:24	1.75	20.11	0.79
2020/06/11 21:29	1.71	19.78	0.81
2020/06/11 21:34	1.57	17.53	0.81
2020/06/11 21:39	1.57	17.53	0.81
2020/06/11 21:44	1.57	17.53	0.81
2020/06/11 21:49	1.57	17.53	0.81
2020/06/11 21:54	1.61	20.22	0.90
2020/06/11 21:59	1.61	15.09	0.67
2020/06/11 22:04	1.61	14.73	0.65
2020/06/11 22:09	1.60	12.59	0.57
2020/06/11 22:14	1.60	12.59	0.57
2020/06/11 22:19	1.54	11.97	0.57
2020/06/11 22:24	1.54	13.02	0.62
2020/06/11 22:29	1.53	12.85	0.62
2020/06/11 22:34	1.51	18.92	0.92
2020/06/11 22:39	1.51	18.92	0.92
2020/06/11 22:44	1.51	19.95	0.97
2020/06/11 22:49	1.47	17.42	0.88
2020/06/11 22:54	1.42	17.86	0.95
2020/06/11 22:59	1.29	15.64	0.95

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 15:34	1.31	12.94	0.78
2020/06/11 15:39	1.31	12.94	0.78
2020/06/11 15:44	1.32	12.87	0.76
2020/06/11 15:49	1.33	13.10	0.76
2020/06/11 15:54	1.32	12.87	0.76
2020/06/11 15:59	1.22	11.52	0.76
2020/06/11 16:04	1.32	12.87	0.76
2020/06/11 16:09	1.33	8.42	0.49
2020/06/11 16:14	1.22	7.42	0.49
2020/06/11 16:19	1.18	8.67	0.60
2020/06/11 16:24	1.18	6.60	0.46
2020/06/11 16:29	1.18	8.67	0.60
2020/06/11 16:34	1.15	8.38	0.60
2020/06/11 16:39	1.15	8.25	0.59
2020/06/11 16:44	1.19	8.26	0.56
2020/06/11 16:49	1.19	8.26	0.56
2020/06/11 16:54	1.47	11.17	0.56
2020/06/11 16:59	1.47	11.74	0.59
2020/06/11 17:04	1.47	11.80	0.60
2020/06/11 17:09	1.43	11.33	0.60
2020/06/11 17:14	1.42	11.29	0.60
2020/06/11 17:19	1.42	14.20	0.76
2020/06/11 17:24	1.42	14.20	0.76
2020/06/11 17:29	1.42	14.20	0.76
2020/06/11 17:34	1.44	14.60	0.76
2020/06/11 17:39	1.44	15.10	0.78
2020/06/11 17:44	1.40	14.47	0.78
2020/06/11 17:49	1.40	14.47	0.78
2020/06/11 17:54	1.44	12.90	0.67
2020/06/11 17:59	1.57	14.54	0.67
2020/06/11 18:04	1.57	14.54	0.67
2020/06/11 18:09	1.71	16.41	0.67
2020/06/11 18:14	1.71	16.09	0.66
2020/06/11 18:19	1.57	16.73	0.77
2020/06/11 18:24	1.56	17.86	0.83
2020/06/11 18:29	1.56	18.34	0.86
2020/06/11 18:34	1.54	17.63	0.83
2020/06/11 18:39	1.50	17.93	0.88
2020/06/11 18:44	1.50	17.93	0.88
2020/06/11 18:49	1.56	16.24	0.76
2020/06/11 18:54	1.61	17.08	0.76
2020/06/11 18:59	1.61	17.11	0.76
2020/06/11 19:04	1.61	17.11	0.76
2020/06/11 19:09	1.58	21.38	0.97
2020/06/11 19:14	1.49	20.23	1.01

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/12 02:49	1.13	18.33	1.37
2020/06/12 02:54	1.36	23.75	1.34
2020/06/12 02:59	1.39	24.45	1.34
2020/06/12 03:04	1.40	22.97	1.24
2020/06/12 03:09	1.40	22.97	1.24
2020/06/12 03:14	1.40	24.48	1.33
2020/06/12 03:19	1.36	23.24	1.31
2020/06/12 03:24	1.36	23.44	1.33
2020/06/12 03:29	1.33	22.75	1.33
2020/06/12 03:34	1.28	21.21	1.31
2020/06/12 03:39	1.24	20.22	1.31
2020/06/12 03:44	1.24	20.44	1.33
2020/06/12 03:49	1.24	19.04	1.24
2020/06/12 03:54	1.28	19.66	1.22
2020/06/12 03:59	1.32	22.46	1.33
2020/06/12 04:04	1.36	23.10	1.31
2020/06/12 04:09	1.36	23.10	1.31
2020/06/12 04:14	1.32	22.14	1.31
2020/06/12 04:19	1.29	22.26	1.36
2020/06/12 04:24	1.25	21.23	1.36
2020/06/12 04:29	1.21	20.26	1.36
2020/06/12 04:34	1.21	20.42	1.37
2020/06/12 04:39	1.25	21.65	1.38
2020/06/12 04:44	1.25	21.55	1.38
2020/06/12 04:49	1.25	22.33	1.43
2020/06/12 04:54	1.28	23.57	1.46
2020/06/12 04:59	1.28	23.80	1.47
2020/06/12 05:04	1.28	23.57	1.46
2020/06/12 05:09	1.39	26.58	1.46
2020/06/12 05:14	1.39	21.94	1.20
2020/06/12 05:19	1.39	21.33	1.17
2020/06/12 05:24	1.38	18.18	1.01
2020/06/12 05:29	1.31	16.52	0.99
2020/06/12 05:34	1.17	11.95	0.84
2020/06/12 05:39	1.14	11.54	0.84
2020/06/12 05:44	1.14	11.61	0.85
2020/06/12 05:49	1.17	12.02	0.85
2020/06/12 05:54	1.22	12.86	0.85
2020/06/12 05:59	1.47	16.98	0.86
2020/06/12 06:04	1.47	20.59	1.04
2020/06/12 06:09	1.47	20.59	1.04
2020/06/12 06:14	1.38	18.66	1.04
2020/06/12 06:19	1.32	16.69	0.99
2020/06/12 06:24	1.31	16.44	0.99
2020/06/12 06:29	1.29	16.19	0.99

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/11 23:04	1.29	15.64	0.95
2020/06/11 23:09	1.29	13.90	0.85
2020/06/11 23:14	1.42	17.86	0.95
2020/06/11 23:19	1.57	16.48	0.76
2020/06/11 23:24	1.60	16.87	0.76
2020/06/11 23:29	1.61	17.08	0.76
2020/06/11 23:34	1.61	13.36	0.59
2020/06/11 23:39	1.61	13.36	0.59
2020/06/11 23:44	1.58	13.03	0.59
2020/06/11 23:49	1.47	14.09	0.71
2020/06/11 23:54	1.36	18.39	1.04
2020/06/11 23:59	1.36	20.18	1.14
2020/06/12 00:04	1.36	20.18	1.14
2020/06/12 00:09	1.39	18.94	1.04
2020/06/12 00:14	1.39	17.83	0.98
2020/06/12 00:19	1.39	17.74	0.97
2020/06/12 00:24	1.31	15.80	0.95
2020/06/12 00:29	1.25	14.11	0.90
2020/06/12 00:34	1.17	13.79	0.97
2020/06/12 00:39	1.13	12.28	0.91
2020/06/12 00:44	1.13	12.11	0.90
2020/06/12 00:49	1.10	11.41	0.88
2020/06/12 00:54	1.07	11.41	0.91
2020/06/12 00:59	1.07	10.99	0.88
2020/06/12 01:04	1.07	10.99	0.88
2020/06/12 01:09	1.07	10.99	0.88
2020/06/12 01:14	1.18	15.30	1.06
2020/06/12 01:19	1.18	15.30	1.06
2020/06/12 01:24	1.18	15.85	1.10
2020/06/12 01:29	1.14	15.04	1.10
2020/06/12 01:34	1.10	14.33	1.11
2020/06/12 01:39	1.10	14.33	1.11
2020/06/12 01:44	1.08	14.07	1.11
2020/06/12 01:49	1.08	14.07	1.11
2020/06/12 01:54	1.08	14.07	1.11
2020/06/12 01:59	1.08	14.40	1.13
2020/06/12 02:04	1.10	14.67	1.13
2020/06/12 02:09	1.10	13.94	1.08
2020/06/12 02:14	1.11	14.20	1.08
2020/06/12 02:19	1.14	13.82	1.01
2020/06/12 02:24	1.14	13.82	1.01
2020/06/12 02:29	1.13	13.57	1.01
2020/06/12 02:34	1.13	13.79	1.03
2020/06/12 02:39	1.13	17.81	1.33
2020/06/12 02:44	1.13	18.33	1.37

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/12 10:19	1.43	13.49	0.71
2020/06/12 10:24	1.43	13.58	0.71
2020/06/12 10:29	1.58	15.71	0.71
2020/06/12 10:34	1.58	12.26	0.56
2020/06/12 10:39	1.58	12.26	0.56
2020/06/12 10:44	1.65	13.03	0.56
2020/06/12 10:49	1.51	11.49	0.56
2020/06/12 10:54	1.43	11.14	0.59
2020/06/12 10:59	1.39	11.23	0.62
2020/06/12 11:04	1.28	10.14	0.63
2020/06/12 11:09	1.28	10.14	0.63
2020/06/12 11:14	1.28	15.50	0.96
2020/06/12 11:19	1.46	18.75	0.96
2020/06/12 11:24	1.57	19.68	0.91
2020/06/12 11:29	1.67	21.45	0.91
2020/06/12 11:34	1.67	21.45	0.91
2020/06/12 11:39	1.57	18.08	0.83
2020/06/12 11:44	1.50	11.41	0.56
2020/06/12 11:49	1.50	9.65	0.47
2020/06/12 11:54	1.35	8.27	0.47
2020/06/12 11:59	1.35	8.27	0.47
2020/06/12 12:04	1.33	8.36	0.49
2020/06/12 12:09	1.35	9.49	0.54
2020/06/12 12:14	1.35	9.49	0.54
2020/06/12 12:19	1.33	8.36	0.49
2020/06/12 12:24	1.33	8.28	0.48
2020/06/12 12:29	1.38	8.66	0.48
2020/06/12 12:34	1.53	10.07	0.48
2020/06/12 12:39	1.53	14.36	0.69
2020/06/12 12:44	1.53	14.36	0.69
2020/06/12 12:49	1.35	11.98	0.69
2020/06/12 12:54	1.35	11.98	0.69
2020/06/12 12:59	1.33	11.97	0.70
2020/06/12 13:04	1.33	9.90	0.58
2020/06/12 13:09	1.40	12.88	0.70
2020/06/12 13:14	1.47	16.31	0.82
2020/06/12 13:19	1.42	15.43	0.82
2020/06/12 13:24	1.47	9.96	0.50
2020/06/12 13:29	1.51	16.98	0.82
2020/06/12 13:34	1.51	10.37	0.50
2020/06/12 13:39	1.51	10.37	0.50
2020/06/12 13:44	1.64	17.57	0.76
2020/06/12 13:49	1.64	18.72	0.81
2020/06/12 13:54	1.51	15.69	0.76
2020/06/12 13:59	1.51	15.69	0.76

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/12 06:34	1.29	17.55	1.07
2020/06/12 06:39	1.29	17.55	1.07
2020/06/12 06:44	1.31	17.83	1.07
2020/06/12 06:49	1.36	17.51	0.99
2020/06/12 06:54	1.38	17.66	0.98
2020/06/12 06:59	1.38	17.66	0.98
2020/06/12 07:04	1.36	17.40	0.98
2020/06/12 07:09	1.33	16.97	0.99
2020/06/12 07:14	1.33	16.97	0.99
2020/06/12 07:19	1.33	18.68	1.09
2020/06/12 07:24	1.33	18.68	1.09
2020/06/12 07:29	1.36	16.21	0.92
2020/06/12 07:34	1.39	16.69	0.92
2020/06/12 07:39	1.63	23.10	1.01
2020/06/12 07:44	1.63	20.91	0.92
2020/06/12 07:49	1.63	23.10	1.01
2020/06/12 07:54	1.43	19.24	1.01
2020/06/12 07:59	1.40	18.71	1.01
2020/06/12 08:04	1.40	19.18	1.04
2020/06/12 08:09	1.40	19.57	1.06
2020/06/12 08:14	1.40	19.57	1.06
2020/06/12 08:19	1.39	22.70	1.25
2020/06/12 08:24	1.47	20.97	1.06
2020/06/12 08:29	1.47	20.47	1.03
2020/06/12 08:34	1.47	20.47	1.03
2020/06/12 08:39	1.67	26.57	1.12
2020/06/12 08:44	1.85	28.29	1.03
2020/06/12 08:49	1.85	30.75	1.12
2020/06/12 08:54	1.85	30.75	1.12
2020/06/12 08:59	1.75	26.04	1.03
2020/06/12 09:04	1.75	26.00	1.03
2020/06/12 09:09	1.75	26.04	1.03
2020/06/12 09:14	1.75	26.04	1.03
2020/06/12 09:19	1.78	26.59	1.03
2020/06/12 09:24	1.78	28.00	1.08
2020/06/12 09:29	1.69	26.15	1.08
2020/06/12 09:34	1.65	21.16	0.91
2020/06/12 09:39	1.65	21.16	0.91
2020/06/12 09:44	1.58	19.90	0.91
2020/06/12 09:49	1.54	16.44	0.78
2020/06/12 09:54	1.54	16.17	0.76
2020/06/12 09:59	1.53	14.36	0.69
2020/06/12 10:04	1.49	13.80	0.69
2020/06/12 10:09	1.49	14.25	0.71
2020/06/12 10:14	1.43	13.06	0.69

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/12 17:49	1.28	8.20	0.51
2020/06/12 17:54	1.28	8.43	0.52
2020/06/12 17:59	1.28	8.43	0.52
2020/06/12 18:04	1.28	8.43	0.52
2020/06/12 18:09	1.31	13.74	0.83
2020/06/12 18:14	1.31	13.74	0.83
2020/06/12 18:19	1.31	13.74	0.83
2020/06/12 18:24	1.28	13.32	0.83
2020/06/12 18:29	1.28	12.73	0.79
2020/06/12 18:34	1.28	9.91	0.61
2020/06/12 18:39	1.32	13.33	0.79
2020/06/12 18:44	1.39	14.74	0.81
2020/06/12 18:49	1.39	13.10	0.72
2020/06/12 18:54	1.39	14.74	0.81
2020/06/12 18:59	1.25	13.06	0.83
2020/06/12 19:04	1.13	12.80	0.95
2020/06/12 19:09	1.13	13.98	1.04
2020/06/12 19:14	1.13	16.31	1.21
2020/06/12 19:19	1.19	17.79	1.21
2020/06/12 19:24	1.28	16.82	1.04
2020/06/12 19:29	1.28	11.02	0.68
2020/06/12 19:34	1.31	11.37	0.68
2020/06/12 19:39	1.31	11.37	0.68
2020/06/12 19:44	1.31	14.20	0.85
2020/06/12 19:49	1.31	14.20	0.85
2020/06/12 19:54	1.39	15.52	0.85
2020/06/12 19:59	1.44	11.67	0.61
2020/06/12 20:04	1.44	11.67	0.61
2020/06/12 20:09	1.51	12.48	0.61
2020/06/12 20:14	1.56	12.98	0.61
2020/06/12 20:19	1.76	22.06	0.86
2020/06/12 20:24	1.76	24.45	0.95
2020/06/12 20:29	1.76	24.45	0.95
2020/06/12 20:34	1.64	22.01	0.95
2020/06/12 20:39	1.56	20.43	0.95
2020/06/12 20:44	1.56	21.98	1.03
2020/06/12 20:49	1.49	15.18	0.76
2020/06/12 20:54	1.42	15.79	0.84
2020/06/12 20:59	1.40	15.57	0.84
2020/06/12 21:04	1.42	15.79	0.84
2020/06/12 21:09	1.42	10.48	0.56
2020/06/12 21:14	1.42	10.48	0.56
2020/06/12 21:19	1.42	10.48	0.56
2020/06/12 21:24	1.42	9.28	0.50
2020/06/12 21:29	1.42	10.48	0.56

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/12 14:04	1.42	14.59	0.78
2020/06/12 14:09	1.36	12.84	0.73
2020/06/12 14:14	1.32	12.28	0.73
2020/06/12 14:19	1.29	12.77	0.78
2020/06/12 14:24	1.14	11.15	0.82
2020/06/12 14:29	1.14	13.64	1.00
2020/06/12 14:34	1.14	14.21	1.04
2020/06/12 14:39	1.14	14.21	1.04
2020/06/12 14:44	1.17	14.13	1.00
2020/06/12 14:49	1.17	15.13	1.07
2020/06/12 14:54	1.18	14.19	0.99
2020/06/12 14:59	1.22	14.92	0.99
2020/06/12 15:04	1.22	14.92	0.99
2020/06/12 15:09	1.25	15.41	0.99
2020/06/12 15:14	1.25	15.41	0.99
2020/06/12 15:19	1.25	16.99	1.09
2020/06/12 15:24	1.25	11.35	0.73
2020/06/12 15:29	1.21	15.44	1.04
2020/06/12 15:34	1.21	16.18	1.09
2020/06/12 15:39	1.21	15.44	1.04
2020/06/12 15:44	1.21	15.44	1.04
2020/06/12 15:49	1.21	15.44	1.04
2020/06/12 15:54	1.25	9.92	0.63
2020/06/12 15:59	1.25	8.40	0.54
2020/06/12 16:04	1.36	9.49	0.54
2020/06/12 16:09	1.39	9.63	0.53
2020/06/12 16:14	1.39	9.63	0.53
2020/06/12 16:19	1.31	8.94	0.54
2020/06/12 16:24	1.31	10.09	0.61
2020/06/12 16:29	1.24	9.32	0.61
2020/06/12 16:34	1.15	8.42	0.61
2020/06/12 16:39	1.14	9.46	0.69
2020/06/12 16:44	1.14	15.02	1.10
2020/06/12 16:49	1.08	13.97	1.10
2020/06/12 16:54	1.08	13.95	1.10
2020/06/12 16:59	1.07	13.69	1.10
2020/06/12 17:04	1.07	13.05	1.05
2020/06/12 17:09	1.07	11.51	0.92
2020/06/12 17:14	1.39	15.64	0.86
2020/06/12 17:19	1.39	15.64	0.86
2020/06/12 17:24	1.39	10.13	0.56
2020/06/12 17:29	1.33	9.52	0.55
2020/06/12 17:34	1.33	9.52	0.55
2020/06/12 17:39	1.31	9.23	0.55
2020/06/12 17:44	1.31	9.23	0.55

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 01:19	1.24	16.32	1.06
2020/06/13 01:24	1.19	15.53	1.06
2020/06/13 01:29	1.19	15.53	1.06
2020/06/13 01:34	1.18	15.23	1.06
2020/06/13 01:39	1.17	14.26	1.01
2020/06/13 01:44	1.14	13.49	0.99
2020/06/13 01:49	1.11	13.01	0.99
2020/06/13 01:54	1.08	12.54	0.99
2020/06/13 01:59	1.06	11.96	0.98
2020/06/13 02:04	1.04	11.73	0.98
2020/06/13 02:09	0.99	10.09	0.91
2020/06/13 02:14	0.97	10.61	0.98
2020/06/13 02:19	0.96	11.80	1.11
2020/06/13 02:24	0.94	11.55	1.11
2020/06/13 02:29	0.90	8.88	0.91
2020/06/13 02:34	0.90	11.02	1.13
2020/06/13 02:39	0.90	8.88	0.91
2020/06/13 02:44	0.90	7.69	0.79
2020/06/13 02:49	0.90	7.69	0.79
2020/06/13 02:54	0.90	7.69	0.79
2020/06/13 02:59	0.88	7.20	0.77
2020/06/13 03:04	0.86	6.87	0.76
2020/06/13 03:09	0.86	6.86	0.75
2020/06/13 03:14	0.86	6.86	0.75
2020/06/13 03:19	0.86	6.87	0.76
2020/06/13 03:24	0.86	7.43	0.82
2020/06/13 03:29	0.86	7.54	0.83
2020/06/13 03:34	0.86	7.54	0.83
2020/06/13 03:39	0.81	8.96	1.09
2020/06/13 03:44	0.81	9.25	1.12
2020/06/13 03:49	0.81	8.96	1.09
2020/06/13 03:54	0.81	5.23	0.63
2020/06/13 03:59	0.81	5.23	0.63
2020/06/13 04:04	0.83	5.37	0.62
2020/06/13 04:09	0.83	5.37	0.62
2020/06/13 04:14	0.83	5.30	0.61
2020/06/13 04:19	0.79	4.98	0.62
2020/06/13 04:24	0.78	4.88	0.62
2020/06/13 04:29	0.76	4.75	0.62
2020/06/13 04:34	0.76	4.75	0.62
2020/06/13 04:39	0.76	4.75	0.62
2020/06/13 04:44	0.76	4.40	0.58
2020/06/13 04:49	0.76	4.40	0.58
2020/06/13 04:54	0.76	5.71	0.75
2020/06/13 04:59	0.76	4.40	0.58

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/12 21:34	1.42	11.26	0.60
2020/06/12 21:39	1.56	17.37	0.81
2020/06/12 21:44	1.56	17.37	0.81
2020/06/12 21:49	1.56	17.37	0.81
2020/06/12 21:54	1.36	15.42	0.87
2020/06/12 21:59	1.31	14.52	0.87
2020/06/12 22:04	1.26	15.23	0.96
2020/06/12 22:09	1.26	15.58	0.98
2020/06/12 22:14	1.17	14.47	1.02
2020/06/12 22:19	1.17	13.88	0.98
2020/06/12 22:24	1.17	13.88	0.98
2020/06/12 22:29	1.15	13.64	0.98
2020/06/12 22:34	1.15	12.28	0.88
2020/06/12 22:39	1.24	9.03	0.59
2020/06/12 22:44	1.26	8.81	0.55
2020/06/12 22:49	1.26	7.38	0.46
2020/06/12 22:54	1.29	7.62	0.46
2020/06/12 22:59	1.29	7.62	0.46
2020/06/12 23:04	1.29	7.73	0.47
2020/06/12 23:09	1.29	7.73	0.47
2020/06/12 23:14	1.26	7.56	0.48
2020/06/12 23:19	1.26	8.15	0.51
2020/06/12 23:24	1.26	8.15	0.51
2020/06/12 23:29	1.26	8.35	0.53
2020/06/12 23:34	1.15	14.15	1.02
2020/06/12 23:39	1.14	13.91	1.02
2020/06/12 23:44	1.14	14.85	1.09
2020/06/12 23:49	1.14	14.85	1.09
2020/06/12 23:54	1.11	11.07	0.84
2020/06/12 23:59	1.10	10.87	0.84
2020/06/13 00:04	1.10	11.06	0.85
2020/06/13 00:09	1.10	10.87	0.84
2020/06/13 00:14	1.10	10.87	0.84
2020/06/13 00:19	1.19	10.91	0.75
2020/06/13 00:24	1.19	10.91	0.75
2020/06/13 00:29	1.19	10.91	0.75
2020/06/13 00:34	1.14	12.55	0.92
2020/06/13 00:39	1.14	12.55	0.92
2020/06/13 00:44	1.14	13.05	0.95
2020/06/13 00:49	1.19	16.71	1.14
2020/06/13 00:54	1.19	16.71	1.14
2020/06/13 00:59	1.22	13.39	0.88
2020/06/13 01:04	1.22	13.39	0.88
2020/06/13 01:09	1.24	13.61	0.88
2020/06/13 01:14	1.24	13.61	0.88

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 08:49	1.35	11.31	0.65
2020/06/13 08:54	1.36	11.65	0.66
2020/06/13 08:59	1.35	11.31	0.65
2020/06/13 09:04	1.36	11.65	0.66
2020/06/13 09:09	1.36	11.48	0.65
2020/06/13 09:14	1.36	12.92	0.73
2020/06/13 09:19	1.44	12.87	0.67
2020/06/13 09:24	1.53	13.95	0.67
2020/06/13 09:29	1.53	11.11	0.53
2020/06/13 09:34	1.53	11.11	0.53
2020/06/13 09:39	1.42	9.97	0.53
2020/06/13 09:44	1.39	9.69	0.53
2020/06/13 09:49	1.33	10.32	0.60
2020/06/13 09:54	1.33	19.64	1.14
2020/06/13 09:59	1.33	20.61	1.20
2020/06/13 10:04	1.42	22.49	1.20
2020/06/13 10:09	1.44	22.04	1.14
2020/06/13 10:14	1.47	21.86	1.10
2020/06/13 10:19	1.60	24.57	1.10
2020/06/13 10:24	1.69	26.73	1.10
2020/06/13 10:29	1.69	26.73	1.10
2020/06/13 10:34	1.85	30.22	1.10
2020/06/13 10:39	1.85	30.31	1.11
2020/06/13 10:44	1.85	29.70	1.08
2020/06/13 10:49	1.61	24.41	1.08
2020/06/13 10:54	1.67	25.62	1.08
2020/06/13 10:59	1.60	18.08	0.81
2020/06/13 11:04	1.67	16.03	0.68
2020/06/13 11:09	1.67	16.03	0.68
2020/06/13 11:14	1.76	17.38	0.68
2020/06/13 11:19	1.76	22.23	0.87
2020/06/13 11:24	1.76	22.23	0.87
2020/06/13 11:29	1.72	21.88	0.88
2020/06/13 11:34	1.71	21.63	0.88
2020/06/13 11:39	1.71	21.35	0.87
2020/06/13 11:44	1.71	19.63	0.80
2020/06/13 11:49	1.71	19.63	0.80
2020/06/13 11:54	1.71	12.80	0.52
2020/06/13 11:59	1.53	10.91	0.52
2020/06/13 12:04	1.51	13.08	0.63
2020/06/13 12:09	1.44	12.23	0.63
2020/06/13 12:14	1.44	14.79	0.77
2020/06/13 12:19	1.44	14.79	0.77
2020/06/13 12:24	1.46	14.99	0.77
2020/06/13 12:29	1.46	13.80	0.71

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 05:04	0.76	5.71	0.75
2020/06/13 05:09	0.75	5.55	0.75
2020/06/13 05:14	0.74	5.40	0.75
2020/06/13 05:19	0.74	5.91	0.82
2020/06/13 05:24	0.74	6.06	0.84
2020/06/13 05:29	0.83	7.09	0.82
2020/06/13 05:34	0.83	7.09	0.82
2020/06/13 05:39	0.83	5.18	0.60
2020/06/13 05:44	0.83	5.18	0.60
2020/06/13 05:49	0.82	4.98	0.59
2020/06/13 05:54	0.82	5.05	0.60
2020/06/13 05:59	0.82	5.31	0.63
2020/06/13 06:04	0.82	5.88	0.70
2020/06/13 06:09	0.82	5.91	0.70
2020/06/13 06:14	0.82	5.91	0.70
2020/06/13 06:19	0.86	6.70	0.74
2020/06/13 06:24	0.89	9.86	1.04
2020/06/13 06:29	0.88	11.54	1.24
2020/06/13 06:34	0.88	11.54	1.24
2020/06/13 06:39	0.88	11.54	1.24
2020/06/13 06:44	0.88	10.94	1.18
2020/06/13 06:49	0.86	6.95	0.76
2020/06/13 06:54	0.86	6.95	0.76
2020/06/13 06:59	0.88	7.11	0.76
2020/06/13 07:04	0.93	7.78	0.76
2020/06/13 07:09	0.93	7.39	0.73
2020/06/13 07:14	0.93	7.39	0.73
2020/06/13 07:19	0.93	7.39	0.73
2020/06/13 07:24	1.08	7.00	0.55
2020/06/13 07:29	1.11	6.84	0.52
2020/06/13 07:34	1.19	14.50	0.99
2020/06/13 07:39	1.21	14.75	0.99
2020/06/13 07:44	1.21	14.75	0.99
2020/06/13 07:49	1.19	15.63	1.07
2020/06/13 07:54	1.21	15.89	1.07
2020/06/13 07:59	1.18	15.41	1.07
2020/06/13 08:04	1.18	15.36	1.07
2020/06/13 08:09	1.18	12.04	0.84
2020/06/13 08:14	1.18	11.00	0.76
2020/06/13 08:19	1.18	12.04	0.84
2020/06/13 08:24	1.18	11.00	0.76
2020/06/13 08:29	1.18	8.42	0.58
2020/06/13 08:34	1.21	11.38	0.76
2020/06/13 08:39	1.25	9.15	0.58
2020/06/13 08:44	1.28	9.44	0.58

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 16:19	1.26	9.50	0.60
2020/06/13 16:24	1.26	9.50	0.60
2020/06/13 16:29	1.19	8.75	0.60
2020/06/13 16:34	1.19	8.75	0.60
2020/06/13 16:39	1.19	8.75	0.60
2020/06/13 16:44	1.19	7.32	0.50
2020/06/13 16:49	1.19	8.80	0.60
2020/06/13 16:54	1.25	9.92	0.63
2020/06/13 16:59	1.28	10.24	0.63
2020/06/13 17:04	1.28	10.24	0.63
2020/06/13 17:09	1.25	9.92	0.63
2020/06/13 17:14	1.19	11.24	0.77
2020/06/13 17:19	1.15	15.20	1.09
2020/06/13 17:24	1.11	14.41	1.09
2020/06/13 17:29	1.04	10.19	0.85
2020/06/13 17:34	1.01	11.11	0.96
2020/06/13 17:39	1.01	9.80	0.85
2020/06/13 17:44	1.01	9.63	0.83
2020/06/13 17:49	1.21	12.43	0.83
2020/06/13 17:54	1.24	12.77	0.83
2020/06/13 17:59	1.32	10.00	0.59
2020/06/13 18:04	1.32	10.00	0.59
2020/06/13 18:09	1.29	9.70	0.59
2020/06/13 18:14	1.29	9.70	0.59
2020/06/13 18:19	1.29	9.70	0.59
2020/06/13 18:24	1.29	12.67	0.77
2020/06/13 18:29	1.35	13.46	0.77
2020/06/13 18:34	1.50	15.71	0.77
2020/06/13 18:39	1.50	12.19	0.60
2020/06/13 18:44	1.38	10.76	0.60
2020/06/13 18:49	1.38	10.76	0.60
2020/06/13 18:54	1.26	10.70	0.67
2020/06/13 18:59	1.17	9.64	0.68
2020/06/13 19:04	1.17	9.64	0.68
2020/06/13 19:09	1.17	9.52	0.67
2020/06/13 19:14	1.28	9.08	0.56
2020/06/13 19:19	1.42	10.54	0.56
2020/06/13 19:24	1.42	9.34	0.50
2020/06/13 19:29	1.42	10.54	0.56
2020/06/13 19:34	1.40	10.51	0.57
2020/06/13 19:39	1.28	11.38	0.70
2020/06/13 19:44	1.21	14.84	1.00
2020/06/13 19:49	1.17	14.11	1.00
2020/06/13 19:54	1.17	11.32	0.80
2020/06/13 19:59	1.14	14.19	1.04

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 12:34	1.46	13.40	0.69
2020/06/13 12:39	1.36	11.36	0.64
2020/06/13 12:44	1.36	12.13	0.69
2020/06/13 12:49	1.36	12.50	0.71
2020/06/13 12:54	1.39	17.24	0.95
2020/06/13 12:59	1.40	17.49	0.95
2020/06/13 13:04	1.44	18.31	0.95
2020/06/13 13:09	1.47	19.01	0.96
2020/06/13 13:14	1.47	18.82	0.95
2020/06/13 13:19	1.51	19.78	0.96
2020/06/13 13:24	1.47	20.05	1.01
2020/06/13 13:29	1.43	19.24	1.01
2020/06/13 13:34	1.36	17.91	1.01
2020/06/13 13:39	1.32	17.13	1.01
2020/06/13 13:44	1.32	9.38	0.55
2020/06/13 13:49	1.32	9.38	0.55
2020/06/13 13:54	1.36	9.81	0.55
2020/06/13 13:59	1.39	9.60	0.53
2020/06/13 14:04	1.39	9.60	0.53
2020/06/13 14:09	1.39	8.49	0.47
2020/06/13 14:14	1.39	8.49	0.47
2020/06/13 14:19	1.39	8.49	0.47
2020/06/13 14:24	1.39	12.46	0.68
2020/06/13 14:29	1.39	12.46	0.68
2020/06/13 14:34	1.31	11.40	0.68
2020/06/13 14:39	1.35	17.29	0.99
2020/06/13 14:44	1.29	10.04	0.61
2020/06/13 14:49	1.24	8.33	0.54
2020/06/13 14:54	1.19	8.96	0.61
2020/06/13 14:59	1.19	9.81	0.67
2020/06/13 15:04	1.17	9.48	0.67
2020/06/13 15:09	1.17	9.48	0.67
2020/06/13 15:14	1.19	12.86	0.88
2020/06/13 15:19	1.21	13.08	0.88
2020/06/13 15:24	1.31	9.21	0.55
2020/06/13 15:29	1.31	9.18	0.55
2020/06/13 15:34	1.35	9.61	0.55
2020/06/13 15:39	1.35	9.61	0.55
2020/06/13 15:44	1.39	9.57	0.53
2020/06/13 15:49	1.35	9.16	0.53
2020/06/13 15:54	1.35	9.16	0.53
2020/06/13 15:59	1.39	8.67	0.48
2020/06/13 16:04	1.26	9.35	0.59
2020/06/13 16:09	1.22	19.14	1.26
2020/06/13 16:14	1.15	16.94	1.22

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 23:49	1.25	9.85	0.63
2020/06/13 23:54	1.19	9.43	0.64
2020/06/13 23:59	1.19	10.89	0.74
2020/06/14 00:04	1.17	11.13	0.79
2020/06/14 00:09	1.15	10.94	0.79
2020/06/14 00:14	1.13	11.29	0.84
2020/06/14 00:19	1.11	11.09	0.84
2020/06/14 00:24	1.11	11.09	0.84
2020/06/14 00:29	1.11	11.09	0.84
2020/06/14 00:34	1.07	9.53	0.76
2020/06/14 00:39	1.07	9.53	0.76
2020/06/14 00:44	0.96	8.12	0.76
2020/06/14 00:49	0.94	8.49	0.82
2020/06/14 00:54	0.94	8.49	0.82
2020/06/14 00:59	0.94	8.49	0.82
2020/06/14 01:04	1.06	10.24	0.84
2020/06/14 01:09	1.07	10.43	0.84
2020/06/14 01:14	1.07	12.29	0.99
2020/06/14 01:19	1.07	9.63	0.77
2020/06/14 01:24	1.06	8.22	0.67
2020/06/14 01:29	0.93	6.41	0.63
2020/06/14 01:34	0.88	6.25	0.67
2020/06/14 01:39	0.86	6.10	0.67
2020/06/14 01:44	0.82	5.73	0.68
2020/06/14 01:49	0.82	7.46	0.88
2020/06/14 01:54	0.79	7.09	0.88
2020/06/14 01:59	0.76	6.73	0.88
2020/06/14 02:04	0.75	6.55	0.88
2020/06/14 02:09	0.75	6.55	0.88
2020/06/14 02:14	0.72	7.07	1.01
2020/06/14 02:19	0.71	6.87	1.01
2020/06/14 02:24	0.71	6.91	1.01
2020/06/14 02:29	0.71	7.44	1.09
2020/06/14 02:34	0.75	8.09	1.09
2020/06/14 02:39	0.78	7.52	0.96
2020/06/14 02:44	0.79	7.71	0.96
2020/06/14 02:49	0.81	5.39	0.65
2020/06/14 02:54	0.81	5.01	0.61
2020/06/14 02:59	0.81	5.39	0.65
2020/06/14 03:04	0.82	5.53	0.65
2020/06/14 03:09	0.85	6.33	0.71
2020/06/14 03:14	0.88	6.64	0.71
2020/06/14 03:19	0.90	7.13	0.73
2020/06/14 03:24	0.90	7.13	0.73
2020/06/14 03:29	0.92	7.10	0.71

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/13 20:04	1.13	11.16	0.83
2020/06/13 20:09	1.14	11.36	0.83
2020/06/13 20:14	1.17	11.77	0.83
2020/06/13 20:19	1.18	14.35	1.00
2020/06/13 20:24	1.35	14.49	0.83
2020/06/13 20:29	1.35	11.45	0.66
2020/06/13 20:34	1.35	11.45	0.66
2020/06/13 20:39	1.31	16.95	1.02
2020/06/13 20:44	1.31	17.45	1.05
2020/06/13 20:49	1.31	17.45	1.05
2020/06/13 20:54	1.22	15.87	1.05
2020/06/13 20:59	1.21	16.27	1.09
2020/06/13 21:04	1.21	13.31	0.89
2020/06/13 21:09	1.21	8.90	0.60
2020/06/13 21:14	1.21	13.31	0.89
2020/06/13 21:19	1.29	14.66	0.89
2020/06/13 21:24	1.47	11.84	0.60
2020/06/13 21:29	1.58	13.14	0.60
2020/06/13 21:34	1.63	13.52	0.59
2020/06/13 21:39	1.63	13.12	0.58
2020/06/13 21:44	1.63	13.12	0.58
2020/06/13 21:49	1.47	12.79	0.65
2020/06/13 21:54	1.29	10.59	0.65
2020/06/13 21:59	1.18	10.29	0.71
2020/06/13 22:04	1.17	10.11	0.71
2020/06/13 22:09	1.17	15.69	1.11
2020/06/13 22:14	1.17	15.33	1.08
2020/06/13 22:19	1.15	15.07	1.08
2020/06/13 22:24	1.11	14.28	1.08
2020/06/13 22:29	1.11	14.28	1.08
2020/06/13 22:34	1.11	10.14	0.77
2020/06/13 22:39	1.22	10.58	0.70
2020/06/13 22:44	1.31	11.18	0.67
2020/06/13 22:49	1.31	10.84	0.65
2020/06/13 22:54	1.24	10.01	0.65
2020/06/13 22:59	1.22	10.16	0.67
2020/06/13 23:04	1.14	9.85	0.72
2020/06/13 23:09	1.11	10.23	0.78
2020/06/13 23:14	1.11	10.23	0.78
2020/06/13 23:19	1.11	14.20	1.08
2020/06/13 23:24	1.22	11.74	0.78
2020/06/13 23:29	1.24	10.38	0.67
2020/06/13 23:34	1.25	10.07	0.64
2020/06/13 23:39	1.25	7.74	0.50
2020/06/13 23:44	1.25	7.74	0.50

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/14 07:19	1.04	10.00	0.83
2020/06/14 07:24	1.06	10.35	0.85
2020/06/14 07:29	1.07	10.55	0.85
2020/06/14 07:34	1.11	11.15	0.85
2020/06/14 07:39	1.11	13.84	1.05
2020/06/14 07:44	1.15	14.64	1.05
2020/06/14 07:49	1.15	14.60	1.05
2020/06/14 07:54	1.15	14.60	1.05
2020/06/14 07:59	1.15	14.60	1.05
2020/06/14 08:04	1.15	15.38	1.11
2020/06/14 08:09	1.19	16.19	1.11
2020/06/14 08:14	1.21	16.46	1.11
2020/06/14 08:19	1.33	18.98	1.11
2020/06/14 08:24	1.33	18.35	1.07
2020/06/14 08:29	1.33	13.48	0.79
2020/06/14 08:34	1.31	13.08	0.79
2020/06/14 08:39	1.31	11.90	0.71
2020/06/14 08:44	1.31	13.08	0.79
2020/06/14 08:49	1.26	12.81	0.81
2020/06/14 08:54	1.26	13.52	0.85
2020/06/14 08:59	1.31	14.25	0.86
2020/06/14 09:04	1.24	13.17	0.86
2020/06/14 09:09	1.24	13.17	0.86
2020/06/14 09:14	1.25	11.53	0.74
2020/06/14 09:19	1.31	12.28	0.74
2020/06/14 09:24	1.33	12.65	0.74
2020/06/14 09:29	1.35	13.63	0.78
2020/06/14 09:34	1.35	14.88	0.85
2020/06/14 09:39	1.42	16.06	0.86
2020/06/14 09:44	1.61	22.02	0.98
2020/06/14 09:49	1.67	23.12	0.98
2020/06/14 09:54	1.67	23.42	0.99
2020/06/14 09:59	1.67	23.12	0.98
2020/06/14 10:04	1.67	23.12	0.98
2020/06/14 10:09	1.67	23.42	0.99
2020/06/14 10:14	1.96	29.45	0.99
2020/06/14 10:19	1.96	23.92	0.80
2020/06/14 10:24	1.96	25.21	0.85
2020/06/14 10:29	1.96	25.21	0.85
2020/06/14 10:34	1.93	23.44	0.80
2020/06/14 10:39	1.82	21.25	0.79
2020/06/14 10:44	1.86	23.45	0.85
2020/06/14 10:49	1.93	27.04	0.93
2020/06/14 10:54	1.86	22.35	0.81
2020/06/14 10:59	1.81	27.73	1.05

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/14 03:34	0.92	7.42	0.75
2020/06/14 03:39	0.94	7.85	0.75
2020/06/14 03:44	0.92	12.34	1.24
2020/06/14 03:49	0.90	12.06	1.24
2020/06/14 03:54	0.86	11.39	1.25
2020/06/14 03:59	0.86	11.26	1.24
2020/06/14 04:04	0.86	6.87	0.76
2020/06/14 04:09	0.86	6.87	0.76
2020/06/14 04:14	0.85	5.58	0.63
2020/06/14 04:19	0.83	5.44	0.63
2020/06/14 04:24	0.83	8.50	0.98
2020/06/14 04:29	0.81	8.08	0.98
2020/06/14 04:34	0.81	8.03	0.97
2020/06/14 04:39	0.81	8.03	0.97
2020/06/14 04:44	0.81	7.32	0.89
2020/06/14 04:49	0.81	7.32	0.89
2020/06/14 04:54	0.82	7.90	0.93
2020/06/14 04:59	0.82	7.88	0.93
2020/06/14 05:04	0.85	8.28	0.93
2020/06/14 05:09	0.82	7.88	0.93
2020/06/14 05:14	0.79	7.49	0.93
2020/06/14 05:19	0.79	7.49	0.93
2020/06/14 05:24	0.79	7.19	0.89
2020/06/14 05:29	0.79	7.19	0.89
2020/06/14 05:34	0.79	7.19	0.89
2020/06/14 05:39	0.78	7.00	0.89
2020/06/14 05:44	0.78	7.00	0.89
2020/06/14 05:49	0.78	6.76	0.86
2020/06/14 05:54	0.78	7.06	0.90
2020/06/14 05:59	0.78	7.06	0.90
2020/06/14 06:04	0.78	7.06	0.90
2020/06/14 06:09	0.78	6.93	0.88
2020/06/14 06:14	0.78	7.70	0.98
2020/06/14 06:19	0.85	7.85	0.88
2020/06/14 06:24	0.92	8.81	0.88
2020/06/14 06:29	0.88	8.23	0.88
2020/06/14 06:34	0.93	10.13	0.99
2020/06/14 06:39	1.15	11.25	0.81
2020/06/14 06:44	1.15	11.25	0.81
2020/06/14 06:49	1.06	12.18	0.99
2020/06/14 06:54	1.06	9.65	0.79
2020/06/14 06:59	1.06	9.65	0.79
2020/06/14 07:04	1.03	9.28	0.79
2020/06/14 07:09	1.04	10.00	0.83
2020/06/14 07:14	1.04	9.23	0.77

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/14 14:49	1.53	17.17	0.82
2020/06/14 14:54	1.53	17.17	0.82
2020/06/14 14:59	1.53	16.70	0.80
2020/06/14 15:04	1.49	15.44	0.77
2020/06/14 15:09	1.44	14.82	0.77
2020/06/14 15:14	1.44	15.41	0.80
2020/06/14 15:19	1.44	17.60	0.91
2020/06/14 15:24	1.44	18.37	0.95
2020/06/14 15:29	1.44	18.37	0.95
2020/06/14 15:34	1.44	17.60	0.91
2020/06/14 15:39	1.44	18.00	0.93
2020/06/14 15:44	1.49	18.75	0.93
2020/06/14 15:49	1.39	16.19	0.89
2020/06/14 15:54	1.39	16.19	0.89
2020/06/14 15:59	1.39	11.73	0.64
2020/06/14 16:04	1.39	10.97	0.60
2020/06/14 16:09	1.39	9.60	0.53
2020/06/14 16:14	1.43	8.98	0.47
2020/06/14 16:19	1.40	8.73	0.47
2020/06/14 16:24	1.40	8.73	0.47
2020/06/14 16:29	1.40	8.73	0.47
2020/06/14 16:34	1.25	7.42	0.47
2020/06/14 16:39	1.25	13.03	0.83
2020/06/14 16:44	1.25	7.42	0.47
2020/06/14 16:49	1.31	11.26	0.68
2020/06/14 16:54	1.31	11.26	0.68
2020/06/14 16:59	1.31	11.26	0.68
2020/06/14 17:04	1.31	8.97	0.54
2020/06/14 17:09	1.31	10.94	0.66
2020/06/14 17:14	1.44	10.37	0.54
2020/06/14 17:19	1.44	12.66	0.66
2020/06/14 17:24	1.44	11.21	0.58
2020/06/14 17:29	1.51	13.54	0.66
2020/06/14 17:34	1.53	17.73	0.85
2020/06/14 17:39	1.60	18.90	0.85
2020/06/14 17:44	1.64	20.28	0.88
2020/06/14 17:49	1.68	21.01	0.88
2020/06/14 17:54	1.68	17.07	0.71
2020/06/14 17:59	1.68	16.37	0.68
2020/06/14 18:04	1.68	17.07	0.71
2020/06/14 18:09	1.49	14.31	0.71
2020/06/14 18:14	1.47	14.12	0.71
2020/06/14 18:19	1.47	13.55	0.68
2020/06/14 18:24	1.44	12.97	0.67
2020/06/14 18:29	1.44	12.97	0.67

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/14 11:04	1.81	27.73	1.05
2020/06/14 11:09	1.56	20.60	0.96
2020/06/14 11:14	1.56	19.09	0.89
2020/06/14 11:19	1.56	19.09	0.89
2020/06/14 11:24	1.60	18.83	0.85
2020/06/14 11:29	1.64	17.46	0.76
2020/06/14 11:34	1.75	19.18	0.76
2020/06/14 11:39	1.75	19.18	0.76
2020/06/14 11:44	1.75	19.18	0.76
2020/06/14 11:49	1.60	18.83	0.85
2020/06/14 11:54	1.60	18.83	0.85
2020/06/14 11:59	1.60	17.37	0.78
2020/06/14 12:04	1.60	18.83	0.85
2020/06/14 12:09	1.60	18.83	0.85
2020/06/14 12:14	1.61	19.06	0.85
2020/06/14 12:19	1.58	18.60	0.85
2020/06/14 12:24	1.58	18.60	0.85
2020/06/14 12:29	1.58	18.60	0.85
2020/06/14 12:34	1.61	19.06	0.85
2020/06/14 12:39	1.58	18.35	0.83
2020/06/14 12:44	1.50	19.59	0.96
2020/06/14 12:49	1.65	22.51	0.96
2020/06/14 12:54	1.64	22.24	0.96
2020/06/14 12:59	1.50	17.44	0.86
2020/06/14 13:04	1.46	16.75	0.86
2020/06/14 13:09	1.46	16.75	0.86
2020/06/14 13:14	1.40	15.84	0.86
2020/06/14 13:19	1.40	15.84	0.86
2020/06/14 13:24	1.40	16.13	0.87
2020/06/14 13:29	1.51	18.00	0.87
2020/06/14 13:34	1.53	17.37	0.83
2020/06/14 13:39	1.53	14.72	0.70
2020/06/14 13:44	1.51	12.78	0.62
2020/06/14 13:49	1.50	12.61	0.62
2020/06/14 13:54	1.50	12.61	0.62
2020/06/14 13:59	1.50	16.52	0.81
2020/06/14 14:04	1.54	18.41	0.87
2020/06/14 14:09	1.54	18.41	0.87
2020/06/14 14:14	1.54	18.41	0.87
2020/06/14 14:19	1.54	19.05	0.90
2020/06/14 14:24	1.54	18.41	0.87
2020/06/14 14:29	1.53	17.57	0.84
2020/06/14 14:34	1.53	17.57	0.84
2020/06/14 14:39	1.53	17.57	0.84
2020/06/14 14:44	1.53	17.57	0.84

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/14 18:34	1.44	12.97	0.67
2020/06/14 18:39	1.44	12.97	0.67
2020/06/14 18:44	1.44	13.37	0.69
2020/06/14 18:49	1.50	14.11	0.69
2020/06/14 18:54	1.57	16.00	0.74
2020/06/14 18:59	1.57	16.00	0.74
2020/06/14 19:04	1.57	16.00	0.74
2020/06/14 19:09	1.39	13.42	0.74
2020/06/14 19:14	1.39	13.77	0.76
2020/06/14 19:19	1.38	13.57	0.76
2020/06/14 19:24	1.38	13.89	0.77
2020/06/14 19:29	1.39	14.09	0.77
2020/06/14 19:34	1.57	16.31	0.75
2020/06/14 19:39	1.61	16.93	0.75
2020/06/14 19:44	1.61	16.93	0.75
2020/06/14 19:49	1.67	16.98	0.72
2020/06/14 19:54	1.67	14.78	0.62
2020/06/14 19:59	1.61	14.08	0.62
2020/06/14 20:04	1.61	14.08	0.62
2020/06/14 20:09	1.50	12.71	0.62
2020/06/14 20:14	1.50	12.71	0.62
2020/06/14 20:19	1.50	12.81	0.63
2020/06/14 20:24	1.43	12.09	0.64
2020/06/14 20:29	1.43	16.41	0.86
2020/06/14 20:34	1.31	14.73	0.88
2020/06/14 20:39	1.31	14.73	0.88
2020/06/14 20:44	1.51	18.23	0.88
2020/06/14 20:49	1.51	14.40	0.70
2020/06/14 20:54	1.43	13.27	0.70
2020/06/14 20:59	1.43	13.27	0.70
2020/06/14 21:04	1.39	13.45	0.74
2020/06/14 21:09	1.39	13.45	0.74
2020/06/14 21:14	1.36	13.69	0.77
2020/06/14 21:19	1.39	14.09	0.77
2020/06/14 21:24	1.39	12.61	0.69
2020/06/14 21:29	1.39	12.61	0.69
2020/06/14 21:34	1.44	13.34	0.69
2020/06/14 21:39	1.46	13.52	0.69
2020/06/14 21:44	1.44	13.92	0.72
2020/06/14 21:49	1.40	15.90	0.86
2020/06/14 21:54	1.40	15.36	0.83
2020/06/14 21:59	1.36	14.71	0.83
2020/06/14 22:04	1.36	16.15	0.91
2020/06/14 22:09	1.36	16.15	0.91
2020/06/14 22:14	1.43	17.60	0.93

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/14 22:19	1.43	17.60	0.93
2020/06/14 22:24	1.43	17.60	0.93
2020/06/14 22:29	1.43	17.60	0.93
2020/06/14 22:34	1.33	14.75	0.86
2020/06/14 22:39	1.28	12.11	0.75
2020/06/14 22:44	1.22	13.00	0.86
2020/06/14 22:49	1.22	13.12	0.87
2020/06/14 22:54	1.22	13.00	0.86
2020/06/14 22:59	1.22	13.12	0.87
2020/06/14 23:04	1.25	13.93	0.89
2020/06/14 23:09	1.25	14.39	0.92
2020/06/14 23:14	1.39	16.75	0.92
2020/06/14 23:19	1.39	16.75	0.92
2020/06/14 23:24	1.39	16.75	0.92
2020/06/14 23:29	1.31	16.60	1.00
2020/06/14 23:34	1.29	16.34	1.00
2020/06/14 23:39	1.28	14.36	0.89
2020/06/14 23:44	1.24	13.69	0.89
2020/06/14 23:49	1.15	8.96	0.64
2020/06/14 23:54	1.10	8.03	0.62
2020/06/14 23:59	1.06	7.59	0.62
2020/06/15 00:04	1.06	7.88	0.64
2020/06/15 00:09	1.06	8.16	0.67
2020/06/15 00:14	1.04	8.35	0.70
2020/06/15 00:19	1.03	8.19	0.70
2020/06/15 00:24	1.03	8.19	0.70
2020/06/15 00:29	1.03	7.54	0.64
2020/06/15 00:34	1.03	7.54	0.64
2020/06/15 00:39	1.03	7.54	0.64
2020/06/15 00:44	1.17	11.36	0.80
2020/06/15 00:49	1.17	12.77	0.90
2020/06/15 00:54	1.17	12.77	0.90
2020/06/15 00:59	1.15	12.55	0.90
2020/06/15 01:04	1.14	9.22	0.67
2020/06/15 01:09	1.10	8.73	0.67
2020/06/15 01:14	1.06	8.25	0.67
2020/06/15 01:19	0.96	7.27	0.68
2020/06/15 01:24	0.92	7.31	0.73
2020/06/15 01:29	0.89	6.99	0.73
2020/06/15 01:34	0.88	6.37	0.68
2020/06/15 01:39	0.88	6.37	0.68
2020/06/15 01:44	0.88	5.87	0.63
2020/06/15 01:49	0.85	5.25	0.59
2020/06/15 01:54	0.76	4.51	0.59
2020/06/15 01:59	0.75	4.69	0.63

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 02:04	0.75	4.08	0.55
2020/06/15 02:09	0.75	4.08	0.55
2020/06/15 02:14	0.75	4.76	0.64
2020/06/15 02:19	0.90	6.54	0.67
2020/06/15 02:24	0.90	6.24	0.64
2020/06/15 02:29	0.92	6.69	0.67
2020/06/15 02:34	0.92	6.69	0.67
2020/06/15 02:39	0.85	6.10	0.69
2020/06/15 02:44	0.82	5.00	0.59
2020/06/15 02:49	0.81	5.68	0.69
2020/06/15 02:54	0.79	4.98	0.62
2020/06/15 02:59	0.76	4.88	0.64
2020/06/15 03:04	0.75	4.75	0.64
2020/06/15 03:09	0.74	7.35	1.02
2020/06/15 03:14	0.74	7.90	1.09
2020/06/15 03:19	0.72	7.82	1.11
2020/06/15 03:24	0.72	7.92	1.13
2020/06/15 03:29	0.72	7.92	1.13
2020/06/15 03:34	0.72	7.92	1.13
2020/06/15 03:39	0.75	5.97	0.80
2020/06/15 03:44	0.75	5.08	0.68
2020/06/15 03:49	0.75	4.61	0.62
2020/06/15 03:54	0.75	4.61	0.62
2020/06/15 03:59	0.75	4.61	0.62
2020/06/15 04:04	0.74	5.11	0.71
2020/06/15 04:09	0.74	5.11	0.71
2020/06/15 04:14	0.74	5.11	0.71
2020/06/15 04:19	0.74	4.96	0.69
2020/06/15 04:24	0.75	4.61	0.62
2020/06/15 04:29	0.78	4.87	0.62
2020/06/15 04:34	0.82	5.78	0.68
2020/06/15 04:39	0.82	5.78	0.68
2020/06/15 04:44	0.82	5.78	0.68
2020/06/15 04:49	0.78	5.37	0.69
2020/06/15 04:54	0.75	5.08	0.68
2020/06/15 04:59	0.74	5.07	0.70
2020/06/15 05:04	0.74	5.07	0.70
2020/06/15 05:09	0.75	6.87	0.93
2020/06/15 05:14	0.78	4.86	0.62
2020/06/15 05:19	0.78	5.37	0.69
2020/06/15 05:24	0.79	4.07	0.51
2020/06/15 05:29	0.86	5.81	0.64
2020/06/15 05:34	0.86	4.56	0.50
2020/06/15 05:39	1.00	7.23	0.64
2020/06/15 05:44	1.11	8.43	0.64

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 05:49	1.18	13.03	0.91
2020/06/15 05:54	1.18	13.03	0.91
2020/06/15 05:59	1.14	12.37	0.91
2020/06/15 06:04	1.18	10.15	0.70
2020/06/15 06:09	1.14	9.64	0.70
2020/06/15 06:14	1.14	9.61	0.70
2020/06/15 06:19	1.00	7.63	0.67
2020/06/15 06:24	1.00	7.97	0.70
2020/06/15 06:29	1.00	8.05	0.71
2020/06/15 06:34	1.00	8.15	0.72
2020/06/15 06:39	1.01	8.32	0.72
2020/06/15 06:44	1.07	8.99	0.72
2020/06/15 06:49	1.18	9.92	0.69
2020/06/15 06:54	1.18	9.92	0.69
2020/06/15 06:59	1.21	10.26	0.69
2020/06/15 07:04	1.28	11.64	0.72
2020/06/15 07:09	1.28	12.03	0.75
2020/06/15 07:14	1.36	13.77	0.78
2020/06/15 07:19	1.36	14.37	0.81
2020/06/15 07:24	1.36	17.74	1.00
2020/06/15 07:29	1.36	18.20	1.03
2020/06/15 07:34	1.36	18.20	1.03
2020/06/15 07:39	1.36	23.30	1.32
2020/06/15 07:44	1.36	24.01	1.36
2020/06/15 07:49	1.61	29.68	1.32
2020/06/15 07:54	1.67	31.15	1.32
2020/06/15 07:59	1.67	26.83	1.13
2020/06/15 08:04	1.69	27.47	1.13
2020/06/15 08:09	1.67	20.99	0.89
2020/06/15 08:14	1.36	15.70	0.89
2020/06/15 08:19	1.36	16.30	0.92
2020/06/15 08:24	1.56	23.32	1.09
2020/06/15 08:29	1.36	16.30	0.92
2020/06/15 08:34	1.56	19.74	0.92
2020/06/15 08:39	1.63	19.85	0.87
2020/06/15 08:44	1.69	21.07	0.87
2020/06/15 08:49	1.63	19.59	0.86
2020/06/15 08:54	1.63	19.59	0.86
2020/06/15 08:59	1.56	18.40	0.86
2020/06/15 09:04	1.51	10.40	0.50
2020/06/15 09:09	1.50	10.27	0.50
2020/06/15 09:14	1.51	10.40	0.50
2020/06/15 09:19	1.56	18.82	0.88
2020/06/15 09:24	1.54	22.24	1.05
2020/06/15 09:29	1.54	22.24	1.05

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 09:34	1.54	22.24	1.05
2020/06/15 09:39	1.40	13.97	0.76
2020/06/15 09:44	1.40	13.97	0.76
2020/06/15 09:49	1.40	13.97	0.76
2020/06/15 09:54	1.57	25.67	1.18
2020/06/15 09:59	1.75	29.98	1.18
2020/06/15 10:04	1.75	29.98	1.18
2020/06/15 10:09	1.65	27.49	1.18
2020/06/15 10:14	1.65	19.58	0.84
2020/06/15 10:19	1.47	15.83	0.80
2020/06/15 10:24	1.36	14.14	0.80
2020/06/15 10:29	1.36	14.14	0.80
2020/06/15 10:34	1.36	14.14	0.80
2020/06/15 10:39	1.36	13.86	0.78
2020/06/15 10:44	1.32	15.66	0.93
2020/06/15 10:49	1.36	16.38	0.93
2020/06/15 10:54	1.36	20.52	1.16
2020/06/15 10:59	1.50	23.92	1.18
2020/06/15 11:04	1.50	23.92	1.18
2020/06/15 11:09	1.53	24.23	1.16
2020/06/15 11:14	1.64	27.16	1.18
2020/06/15 11:19	1.64	25.90	1.12
2020/06/15 11:24	1.64	25.34	1.10
2020/06/15 11:29	1.42	12.46	0.66
2020/06/15 11:34	1.42	10.42	0.56
2020/06/15 11:39	1.42	10.42	0.56
2020/06/15 11:44	1.42	10.42	0.56
2020/06/15 11:49	1.36	15.98	0.90
2020/06/15 11:54	1.32	15.28	0.90
2020/06/15 11:59	1.32	15.50	0.92
2020/06/15 12:04	1.32	15.50	0.92
2020/06/15 12:09	1.31	15.27	0.92
2020/06/15 12:14	1.35	15.86	0.91
2020/06/15 12:19	1.42	17.17	0.92
2020/06/15 12:24	1.43	17.29	0.91
2020/06/15 12:29	1.60	19.01	0.85
2020/06/15 12:34	1.60	19.01	0.85
2020/06/15 12:39	1.60	15.90	0.71
2020/06/15 12:44	1.51	14.56	0.71
2020/06/15 12:49	1.46	13.96	0.71
2020/06/15 12:54	1.44	13.77	0.71
2020/06/15 12:59	1.42	13.45	0.72
2020/06/15 13:04	1.42	13.45	0.72
2020/06/15 13:09	1.38	12.88	0.72
2020/06/15 13:14	1.38	12.88	0.72

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 13:19	1.38	12.88	0.72
2020/06/15 13:24	1.38	10.73	0.60
2020/06/15 13:29	1.39	11.38	0.62
2020/06/15 13:34	1.40	11.54	0.62
2020/06/15 13:39	1.44	12.04	0.62
2020/06/15 13:44	1.44	12.04	0.62
2020/06/15 13:49	1.44	15.47	0.80
2020/06/15 13:54	1.46	15.68	0.80
2020/06/15 13:59	1.46	15.68	0.80
2020/06/15 14:04	1.38	13.89	0.77
2020/06/15 14:09	1.38	9.98	0.56
2020/06/15 14:14	1.33	8.50	0.50
2020/06/15 14:19	1.33	8.50	0.50
2020/06/15 14:24	1.33	9.55	0.56
2020/06/15 14:29	1.33	10.29	0.60
2020/06/15 14:34	1.36	15.19	0.86
2020/06/15 14:39	1.40	16.16	0.87
2020/06/15 14:44	1.46	19.28	0.99
2020/06/15 14:49	1.47	19.55	0.99
2020/06/15 14:54	1.47	19.55	0.99
2020/06/15 14:59	1.40	17.64	0.95
2020/06/15 15:04	1.39	10.97	0.60
2020/06/15 15:09	1.31	8.51	0.51
2020/06/15 15:14	1.28	8.25	0.51
2020/06/15 15:19	1.28	8.25	0.51
2020/06/15 15:24	1.31	8.51	0.51
2020/06/15 15:29	1.33	8.17	0.48
2020/06/15 15:34	1.36	8.79	0.50
2020/06/15 15:39	1.36	8.79	0.50
2020/06/15 15:44	1.36	8.73	0.49
2020/06/15 15:49	1.29	8.15	0.50
2020/06/15 15:54	1.29	8.57	0.52
2020/06/15 15:59	1.29	8.57	0.52
2020/06/15 16:04	1.29	8.57	0.52
2020/06/15 16:09	1.32	12.22	0.72
2020/06/15 16:14	1.35	11.62	0.67
2020/06/15 16:19	1.47	13.36	0.67
2020/06/15 16:24	1.47	13.36	0.67
2020/06/15 16:29	1.47	13.20	0.67
2020/06/15 16:34	1.44	10.16	0.53
2020/06/15 16:39	1.40	9.74	0.53
2020/06/15 16:44	1.39	9.60	0.53
2020/06/15 16:49	1.39	10.13	0.56
2020/06/15 16:54	1.38	10.32	0.58
2020/06/15 16:59	1.38	10.67	0.59

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 20:49	1.67	21.34	0.90
2020/06/15 20:54	1.51	18.59	0.90
2020/06/15 20:59	1.57	24.17	1.11
2020/06/15 21:04	1.51	22.00	1.07
2020/06/15 21:09	1.57	23.16	1.07
2020/06/15 21:14	1.57	23.16	1.07
2020/06/15 21:19	1.57	13.11	0.60
2020/06/15 21:24	1.50	12.29	0.60
2020/06/15 21:29	1.50	12.29	0.60
2020/06/15 21:34	1.43	9.07	0.48
2020/06/15 21:39	1.43	11.69	0.62
2020/06/15 21:44	1.40	12.20	0.66
2020/06/15 21:49	1.43	12.54	0.66
2020/06/15 21:54	1.46	17.90	0.92
2020/06/15 21:59	1.79	28.98	1.11
2020/06/15 22:04	1.79	30.41	1.16
2020/06/15 22:09	1.79	30.41	1.16
2020/06/15 22:14	1.63	20.91	0.92
2020/06/15 22:19	1.58	16.06	0.73
2020/06/15 22:24	1.31	11.88	0.71
2020/06/15 22:29	1.24	10.97	0.71
2020/06/15 22:34	1.24	10.97	0.71
2020/06/15 22:39	1.24	10.80	0.70
2020/06/15 22:44	1.24	10.80	0.70
2020/06/15 22:49	1.24	17.16	1.12
2020/06/15 22:54	1.15	9.76	0.70
2020/06/15 22:59	1.11	14.49	1.10
2020/06/15 23:04	1.11	14.70	1.12
2020/06/15 23:09	1.11	14.73	1.12
2020/06/15 23:14	1.17	15.81	1.12
2020/06/15 23:19	1.17	18.10	1.28
2020/06/15 23:24	1.18	18.50	1.28
2020/06/15 23:29	1.18	18.50	1.28
2020/06/15 23:34	1.18	18.41	1.28
2020/06/15 23:39	1.14	17.41	1.27
2020/06/15 23:44	1.10	12.40	0.96
2020/06/15 23:49	1.08	12.18	0.96
2020/06/15 23:54	1.08	12.18	0.96
2020/06/15 23:59	1.08	13.77	1.08
2020/06/16 00:04	1.08	13.77	1.08
2020/06/16 00:09	1.08	13.77	1.08
2020/06/16 00:14	1.06	12.94	1.06
2020/06/16 00:19	1.03	10.60	0.90
2020/06/16 00:24	1.03	10.58	0.90
2020/06/16 00:29	1.03	9.69	0.82

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/15 17:04	1.39	11.38	0.62
2020/06/15 17:09	1.46	13.52	0.69
2020/06/15 17:14	1.68	17.49	0.73
2020/06/15 17:19	1.68	17.49	0.73
2020/06/15 17:24	1.68	17.49	0.73
2020/06/15 17:29	1.54	11.22	0.53
2020/06/15 17:34	1.50	10.63	0.52
2020/06/15 17:39	1.47	10.34	0.52
2020/06/15 17:44	1.36	8.87	0.50
2020/06/15 17:49	1.36	9.24	0.52
2020/06/15 17:54	1.31	10.59	0.64
2020/06/15 17:59	1.29	10.43	0.64
2020/06/15 18:04	1.29	11.19	0.68
2020/06/15 18:09	1.25	10.90	0.70
2020/06/15 18:14	1.25	10.90	0.70
2020/06/15 18:19	1.25	12.15	0.78
2020/06/15 18:24	1.58	17.93	0.82
2020/06/15 18:29	1.60	17.30	0.78
2020/06/15 18:34	1.60	17.30	0.78
2020/06/15 18:39	1.60	17.30	0.78
2020/06/15 18:44	1.58	17.93	0.82
2020/06/15 18:49	1.60	24.36	1.09
2020/06/15 18:54	1.56	23.45	1.09
2020/06/15 18:59	1.56	23.45	1.09
2020/06/15 19:04	1.56	19.43	0.91
2020/06/15 19:09	1.47	17.96	0.91
2020/06/15 19:14	1.42	15.70	0.84
2020/06/15 19:19	1.39	14.65	0.80
2020/06/15 19:24	1.39	14.65	0.80
2020/06/15 19:29	1.29	9.96	0.61
2020/06/15 19:34	1.29	9.96	0.61
2020/06/15 19:39	1.29	9.96	0.61
2020/06/15 19:44	1.29	9.96	0.61
2020/06/15 19:49	1.29	9.28	0.57
2020/06/15 19:54	1.26	8.99	0.57
2020/06/15 19:59	1.26	8.84	0.56
2020/06/15 20:04	1.28	8.98	0.56
2020/06/15 20:09	1.40	10.18	0.55
2020/06/15 20:14	1.40	10.18	0.55
2020/06/15 20:19	1.42	10.33	0.55
2020/06/15 20:24	1.56	13.32	0.62
2020/06/15 20:29	1.56	13.32	0.62
2020/06/15 20:34	1.42	16.90	0.90
2020/06/15 20:39	1.67	25.62	1.08
2020/06/15 20:44	1.67	25.62	1.08

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 04:19	0.86	5.70	0.63
2020/06/16 04:24	1.04	9.40	0.78
2020/06/16 04:29	1.04	10.02	0.83
2020/06/16 04:34	1.04	12.79	1.07
2020/06/16 04:39	0.93	9.56	0.94
2020/06/16 04:44	0.90	9.15	0.94
2020/06/16 04:49	0.86	9.69	1.07
2020/06/16 04:54	0.86	10.06	1.11
2020/06/16 04:59	0.86	10.06	1.11
2020/06/16 05:04	1.14	15.13	1.11
2020/06/16 05:09	1.14	15.13	1.11
2020/06/16 05:14	1.14	13.45	0.98
2020/06/16 05:19	1.01	10.89	0.94
2020/06/16 05:24	0.99	10.46	0.94
2020/06/16 05:29	0.99	8.91	0.80
2020/06/16 05:34	0.99	8.91	0.80
2020/06/16 05:39	0.99	9.52	0.86
2020/06/16 05:44	0.99	9.52	0.86
2020/06/16 05:49	1.00	9.10	0.80
2020/06/16 05:54	1.03	10.11	0.86
2020/06/16 05:59	1.03	10.11	0.86
2020/06/16 06:04	1.03	10.35	0.88
2020/06/16 06:09	1.03	10.35	0.88
2020/06/16 06:14	1.08	13.38	1.05
2020/06/16 06:19	1.08	13.38	1.05
2020/06/16 06:24	1.13	14.43	1.08
2020/06/16 06:29	1.13	10.37	0.77
2020/06/16 06:34	1.13	14.20	1.06
2020/06/16 06:39	1.07	11.09	0.89
2020/06/16 06:44	1.07	12.93	1.04
2020/06/16 06:49	1.07	11.09	0.89
2020/06/16 06:54	1.32	17.53	1.04
2020/06/16 06:59	1.32	17.53	1.04
2020/06/16 07:04	1.32	17.53	1.04
2020/06/16 07:09	1.21	16.58	1.11
2020/06/16 07:14	1.21	16.58	1.11
2020/06/16 07:19	1.21	16.37	1.10
2020/06/16 07:24	1.15	15.29	1.10
2020/06/16 07:29	1.15	15.29	1.10
2020/06/16 07:34	1.15	14.44	1.04
2020/06/16 07:39	1.15	14.44	1.04
2020/06/16 07:44	1.15	12.61	0.91
2020/06/16 07:49	1.17	8.91	0.63
2020/06/16 07:54	1.26	10.01	0.63
2020/06/16 07:59	1.39	11.47	0.63

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 00:34	1.03	9.69	0.82
2020/06/16 00:39	1.03	9.92	0.84
2020/06/16 00:44	1.03	9.92	0.84
2020/06/16 00:49	1.01	9.73	0.84
2020/06/16 00:54	1.01	9.73	0.84
2020/06/16 00:59	0.97	8.89	0.82
2020/06/16 01:04	0.94	7.72	0.74
2020/06/16 01:09	0.90	7.98	0.82
2020/06/16 01:14	0.90	7.23	0.74
2020/06/16 01:19	0.90	7.23	0.74
2020/06/16 01:24	0.92	6.08	0.61
2020/06/16 01:29	0.93	7.57	0.74
2020/06/16 01:34	0.93	6.51	0.64
2020/06/16 01:39	0.93	6.95	0.68
2020/06/16 01:44	0.88	6.35	0.68
2020/06/16 01:49	0.88	6.92	0.74
2020/06/16 01:54	0.85	6.46	0.73
2020/06/16 01:59	0.85	6.46	0.73
2020/06/16 02:04	0.85	6.46	0.73
2020/06/16 02:09	0.83	6.00	0.69
2020/06/16 02:14	0.83	5.43	0.63
2020/06/16 02:19	0.82	5.30	0.63
2020/06/16 02:24	0.82	5.16	0.61
2020/06/16 02:29	0.82	5.30	0.63
2020/06/16 02:34	0.82	4.92	0.58
2020/06/16 02:39	0.82	5.30	0.63
2020/06/16 02:44	0.82	4.92	0.58
2020/06/16 02:49	0.83	5.62	0.65
2020/06/16 02:54	0.83	6.07	0.70
2020/06/16 02:59	0.82	5.92	0.70
2020/06/16 03:04	0.82	5.68	0.67
2020/06/16 03:09	0.83	5.82	0.67
2020/06/16 03:14	0.83	5.82	0.67
2020/06/16 03:19	0.83	5.28	0.61
2020/06/16 03:24	0.83	5.82	0.67
2020/06/16 03:29	0.83	5.11	0.59
2020/06/16 03:34	0.83	5.11	0.59
2020/06/16 03:39	0.83	4.96	0.57
2020/06/16 03:44	0.81	4.72	0.57
2020/06/16 03:49	0.81	4.72	0.57
2020/06/16 03:54	0.81	4.81	0.58
2020/06/16 03:59	0.81	5.16	0.63
2020/06/16 04:04	0.81	6.46	0.78
2020/06/16 04:09	0.81	5.16	0.63
2020/06/16 04:14	0.82	5.30	0.63

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 11:49	1.47	16.02	0.81
2020/06/16 11:54	1.36	12.44	0.70
2020/06/16 11:59	1.43	11.84	0.62
2020/06/16 12:04	1.43	11.54	0.61
2020/06/16 12:09	1.43	11.54	0.61
2020/06/16 12:14	1.49	12.19	0.61
2020/06/16 12:19	1.49	12.19	0.61
2020/06/16 12:24	1.49	12.19	0.61
2020/06/16 12:29	1.65	16.55	0.71
2020/06/16 12:34	1.65	13.63	0.58
2020/06/16 12:39	1.56	13.94	0.65
2020/06/16 12:44	1.56	13.94	0.65
2020/06/16 12:49	1.56	12.77	0.60
2020/06/16 12:54	1.54	12.61	0.60
2020/06/16 12:59	1.47	12.88	0.65
2020/06/16 13:04	1.42	11.17	0.60
2020/06/16 13:09	1.42	12.82	0.68
2020/06/16 13:14	1.47	13.55	0.68
2020/06/16 13:19	1.43	12.39	0.65
2020/06/16 13:24	1.42	11.17	0.60
2020/06/16 13:29	1.29	10.70	0.65
2020/06/16 13:34	1.31	10.86	0.65
2020/06/16 13:39	1.29	18.76	1.14
2020/06/16 13:44	1.29	18.76	1.14
2020/06/16 13:49	1.31	20.31	1.22
2020/06/16 13:54	1.31	19.05	1.14
2020/06/16 13:59	1.33	11.42	0.66
2020/06/16 14:04	1.39	12.11	0.66
2020/06/16 14:09	1.39	12.78	0.70
2020/06/16 14:14	1.47	13.90	0.70
2020/06/16 14:19	1.47	20.59	1.04
2020/06/16 14:24	1.42	19.48	1.04
2020/06/16 14:29	1.43	13.34	0.70
2020/06/16 14:34	1.42	19.48	1.04
2020/06/16 14:39	1.42	12.22	0.65
2020/06/16 14:44	1.43	12.39	0.65
2020/06/16 14:49	1.43	14.83	0.78
2020/06/16 14:54	1.35	14.63	0.84
2020/06/16 14:59	1.50	15.87	0.78
2020/06/16 15:04	1.50	15.87	0.78
2020/06/16 15:09	1.51	16.08	0.78
2020/06/16 15:14	1.53	15.76	0.75
2020/06/16 15:19	1.53	15.76	0.75
2020/06/16 15:24	1.51	22.89	1.11
2020/06/16 15:29	1.51	22.89	1.11

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 08:04	1.26	10.01	0.63
2020/06/16 08:09	1.24	10.23	0.66
2020/06/16 08:14	1.24	12.11	0.79
2020/06/16 08:19	1.24	13.34	0.87
2020/06/16 08:24	1.24	14.57	0.95
2020/06/16 08:29	1.53	23.66	1.13
2020/06/16 08:34	1.57	25.94	1.20
2020/06/16 08:39	1.58	26.27	1.20
2020/06/16 08:44	1.58	24.90	1.13
2020/06/16 08:49	1.60	25.21	1.13
2020/06/16 08:54	1.83	30.51	1.13
2020/06/16 08:59	1.83	28.86	1.07
2020/06/16 09:04	1.86	18.13	0.66
2020/06/16 09:09	1.83	15.58	0.58
2020/06/16 09:14	1.61	11.84	0.53
2020/06/16 09:19	1.47	9.04	0.46
2020/06/16 09:24	1.40	8.35	0.45
2020/06/16 09:29	1.40	8.35	0.45
2020/06/16 09:34	1.39	8.23	0.45
2020/06/16 09:39	1.32	7.67	0.45
2020/06/16 09:44	1.32	7.67	0.45
2020/06/16 09:49	1.32	7.72	0.46
2020/06/16 09:54	1.32	12.28	0.73
2020/06/16 09:59	1.44	13.99	0.73
2020/06/16 10:04	1.50	14.76	0.73
2020/06/16 10:09	1.50	9.81	0.48
2020/06/16 10:14	1.50	9.68	0.48
2020/06/16 10:19	1.47	8.98	0.45
2020/06/16 10:24	1.49	9.55	0.48
2020/06/16 10:29	1.47	9.42	0.48
2020/06/16 10:34	1.47	9.42	0.48
2020/06/16 10:39	1.40	11.87	0.64
2020/06/16 10:44	1.28	10.37	0.64
2020/06/16 10:49	1.28	9.65	0.60
2020/06/16 10:54	1.28	9.65	0.60
2020/06/16 10:59	1.39	12.55	0.69
2020/06/16 11:04	1.43	11.36	0.60
2020/06/16 11:09	1.43	11.33	0.60
2020/06/16 11:14	1.42	12.01	0.64
2020/06/16 11:19	1.42	12.01	0.64
2020/06/16 11:24	1.42	12.01	0.64
2020/06/16 11:29	1.42	18.67	1.00
2020/06/16 11:34	1.38	17.89	1.00
2020/06/16 11:39	1.47	20.21	1.02
2020/06/16 11:44	1.47	20.21	1.02

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 19:19	1.69	17.31	0.71
2020/06/16 19:24	1.69	17.31	0.71
2020/06/16 19:29	1.60	14.12	0.63
2020/06/16 19:34	1.60	15.58	0.70
2020/06/16 19:39	1.61	16.10	0.71
2020/06/16 19:44	1.60	21.08	0.95
2020/06/16 19:49	1.53	14.62	0.70
2020/06/16 19:54	1.53	14.62	0.70
2020/06/16 19:59	1.51	15.56	0.75
2020/06/16 20:04	1.51	15.56	0.75
2020/06/16 20:09	1.51	15.56	0.75
2020/06/16 20:14	1.81	27.95	1.05
2020/06/16 20:19	1.81	27.95	1.05
2020/06/16 20:24	1.81	27.95	1.05
2020/06/16 20:29	1.69	23.67	0.98
2020/06/16 20:34	1.38	12.63	0.70
2020/06/16 20:39	1.38	12.63	0.70
2020/06/16 20:44	1.38	12.63	0.70
2020/06/16 20:49	1.38	16.65	0.93
2020/06/16 20:54	1.39	16.89	0.93
2020/06/16 20:59	1.40	17.14	0.93
2020/06/16 21:04	1.63	21.27	0.93
2020/06/16 21:09	1.63	21.27	0.93
2020/06/16 21:14	1.63	20.54	0.90
2020/06/16 21:19	1.60	20.04	0.90
2020/06/16 21:24	1.60	20.75	0.93
2020/06/16 21:29	1.53	19.01	0.91
2020/06/16 21:34	1.51	18.56	0.90
2020/06/16 21:39	1.51	18.76	0.91
2020/06/16 21:44	1.51	18.76	0.91
2020/06/16 21:49	1.36	12.64	0.71
2020/06/16 21:54	1.31	8.70	0.52
2020/06/16 21:59	1.29	11.35	0.69
2020/06/16 22:04	1.29	11.35	0.69
2020/06/16 22:09	1.29	11.35	0.69
2020/06/16 22:14	1.35	7.79	0.45
2020/06/16 22:19	1.49	9.91	0.49
2020/06/16 22:24	1.49	9.91	0.49
2020/06/16 22:29	1.49	9.46	0.47
2020/06/16 22:34	1.39	8.58	0.47
2020/06/16 22:39	1.25	7.72	0.49
2020/06/16 22:44	1.25	7.94	0.51
2020/06/16 22:49	1.25	8.77	0.56
2020/06/16 22:54	1.25	8.77	0.56
2020/06/16 22:59	1.25	8.77	0.56

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 15:34	1.44	23.09	1.20
2020/06/16 15:39	1.42	22.46	1.20
2020/06/16 15:44	1.42	11.08	0.59
2020/06/16 15:49	1.42	11.08	0.59
2020/06/16 15:54	1.42	10.87	0.58
2020/06/16 15:59	1.53	12.11	0.58
2020/06/16 16:04	1.53	11.61	0.56
2020/06/16 16:09	1.53	11.61	0.56
2020/06/16 16:14	1.40	9.15	0.50
2020/06/16 16:19	1.33	8.39	0.49
2020/06/16 16:24	1.22	7.40	0.49
2020/06/16 16:29	1.22	7.50	0.50
2020/06/16 16:34	1.22	7.54	0.50
2020/06/16 16:39	1.22	7.64	0.50
2020/06/16 16:44	1.22	10.89	0.72
2020/06/16 16:49	1.32	12.17	0.72
2020/06/16 16:54	1.32	9.54	0.56
2020/06/16 16:59	1.32	9.54	0.56
2020/06/16 17:04	1.56	12.09	0.56
2020/06/16 17:09	1.56	11.23	0.52
2020/06/16 17:14	1.57	12.24	0.56
2020/06/16 17:19	1.57	12.24	0.56
2020/06/16 17:24	1.60	13.05	0.59
2020/06/16 17:29	1.60	13.05	0.59
2020/06/16 17:34	1.60	18.94	0.85
2020/06/16 17:39	1.33	17.08	0.99
2020/06/16 17:44	1.33	17.08	0.99
2020/06/16 17:49	1.33	19.78	1.15
2020/06/16 17:54	1.39	18.12	0.99
2020/06/16 17:59	1.39	9.95	0.55
2020/06/16 18:04	1.42	9.97	0.53
2020/06/16 18:09	1.39	9.95	0.55
2020/06/16 18:14	1.39	9.95	0.55
2020/06/16 18:19	1.43	9.86	0.52
2020/06/16 18:24	1.44	10.00	0.52
2020/06/16 18:29	1.43	8.37	0.44
2020/06/16 18:34	1.43	7.70	0.41
2020/06/16 18:39	1.39	7.38	0.41
2020/06/16 18:44	1.39	8.02	0.44
2020/06/16 18:49	1.39	10.45	0.57
2020/06/16 18:54	1.36	11.19	0.63
2020/06/16 18:59	1.42	12.46	0.66
2020/06/16 19:04	1.46	15.99	0.82
2020/06/16 19:09	1.46	15.99	0.82
2020/06/16 19:14	1.46	12.99	0.66

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/16 23:04	1.14	5.52	0.40
2020/06/16 23:09	1.10	5.21	0.40
2020/06/16 23:14	1.10	5.21	0.40
2020/06/16 23:19	1.14	5.52	0.40
2020/06/16 23:24	1.21	5.20	0.35
2020/06/16 23:29	1.21	6.94	0.47
2020/06/16 23:34	1.21	10.28	0.69
2020/06/16 23:39	1.17	8.44	0.60
2020/06/16 23:44	1.11	7.86	0.60
2020/06/16 23:49	1.01	6.88	0.60
2020/06/16 23:54	0.99	6.20	0.56
2020/06/16 23:59	0.99	5.40	0.49
2020/06/17 00:04	1.01	3.64	0.32
2020/06/17 00:09	0.97	4.61	0.42
2020/06/17 00:14	0.97	4.16	0.38
2020/06/17 00:19	0.97	4.16	0.38
2020/06/17 00:24	0.97	4.57	0.42
2020/06/17 00:29	0.89	4.01	0.42
2020/06/17 00:34	0.89	4.01	0.42
2020/06/17 00:39	1.00	5.65	0.50
2020/06/17 00:44	1.04	9.02	0.75
2020/06/17 00:49	1.04	9.56	0.80
2020/06/17 00:54	1.04	9.56	0.80
2020/06/17 00:59	0.99	8.33	0.75
2020/06/17 01:04	0.97	7.30	0.67
2020/06/17 01:09	0.97	4.92	0.45
2020/06/17 01:14	0.97	4.92	0.45
2020/06/17 01:19	0.99	5.03	0.45
2020/06/17 01:24	0.99	8.01	0.72
2020/06/17 01:29	0.99	11.72	1.06
2020/06/17 01:34	1.14	14.45	1.06
2020/06/17 01:39	1.14	13.93	1.02
2020/06/17 01:44	1.11	13.37	1.01
2020/06/17 01:49	1.11	13.37	1.01
2020/06/17 01:54	1.03	8.62	0.73
2020/06/17 01:59	0.94	7.15	0.69
2020/06/17 02:04	0.94	7.15	0.69
2020/06/17 02:09	0.94	7.15	0.69
2020/06/17 02:14	0.94	7.15	0.69
2020/06/17 02:19	0.94	9.34	0.90
2020/06/17 02:24	0.92	9.24	0.93
2020/06/17 02:29	0.88	8.63	0.93
2020/06/17 02:34	0.88	8.29	0.89
2020/06/17 02:39	0.88	8.29	0.89
2020/06/17 02:44	0.97	8.96	0.83

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/17 02:49	0.97	8.52	0.79
2020/06/17 02:54	0.97	7.27	0.67
2020/06/17 02:59	0.92	6.67	0.67
2020/06/17 03:04	0.89	7.48	0.79
2020/06/17 03:09	0.89	7.87	0.83
2020/06/17 03:14	0.89	7.87	0.83
2020/06/17 03:19	1.10	12.09	0.93
2020/06/17 03:24	1.10	12.09	0.93
2020/06/17 03:29	1.10	10.93	0.84
2020/06/17 03:34	1.06	9.55	0.78
2020/06/17 03:39	1.04	9.37	0.78
2020/06/17 03:44	0.92	7.77	0.78
2020/06/17 03:49	0.88	7.86	0.84
2020/06/17 03:54	0.85	8.46	0.95
2020/06/17 03:59	0.83	8.26	0.95
2020/06/17 04:04	0.83	8.26	0.95
2020/06/17 04:09	0.85	7.28	0.82
2020/06/17 04:14	0.94	8.25	0.79
2020/06/17 04:19	0.94	8.22	0.79
2020/06/17 04:24	0.94	8.22	0.79
2020/06/17 04:29	0.93	8.04	0.79
2020/06/17 04:34	0.90	6.43	0.66
2020/06/17 04:39	0.88	6.14	0.66
2020/06/17 04:44	0.88	7.13	0.77
2020/06/17 04:49	0.88	7.13	0.77
2020/06/17 04:54	0.88	6.23	0.67
2020/06/17 04:59	0.92	7.13	0.72
2020/06/17 05:04	0.92	6.67	0.67
2020/06/17 05:09	0.92	6.67	0.67
2020/06/17 05:14	0.94	7.45	0.72
2020/06/17 05:19	0.92	7.26	0.73
2020/06/17 05:24	0.94	8.05	0.77
2020/06/17 05:29	1.10	11.49	0.89
2020/06/17 05:34	1.19	11.33	0.77
2020/06/17 05:39	1.19	11.33	0.77
2020/06/17 05:44	1.19	11.03	0.75
2020/06/17 05:49	1.19	11.03	0.75
2020/06/17 05:54	1.19	8.66	0.59
2020/06/17 05:59	1.17	10.66	0.75
2020/06/17 06:04	1.06	9.55	0.78
2020/06/17 06:09	1.00	10.02	0.89
2020/06/17 06:14	1.00	10.55	0.93
2020/06/17 06:19	1.00	10.55	0.93
2020/06/17 06:24	1.03	10.43	0.89
2020/06/17 06:29	1.03	10.43	0.89

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/17 06:34	1.13	11.57	0.86
2020/06/17 06:39	1.17	12.20	0.86
2020/06/17 06:44	1.18	10.96	0.76
2020/06/17 06:49	1.18	10.96	0.76
2020/06/17 06:54	1.24	8.46	0.55
2020/06/17 06:59	1.24	8.46	0.55
2020/06/17 07:04	1.24	8.46	0.55
2020/06/17 07:09	1.24	9.22	0.60
2020/06/17 07:14	1.24	11.32	0.74
2020/06/17 07:19	1.29	14.01	0.85
2020/06/17 07:24	1.29	14.01	0.85
2020/06/17 07:29	1.32	14.52	0.86
2020/06/17 07:34	1.32	14.52	0.86
2020/06/17 07:39	1.32	11.68	0.69
2020/06/17 07:44	1.32	11.38	0.67
2020/06/17 07:49	1.32	11.38	0.67
2020/06/17 07:54	1.33	11.20	0.65
2020/06/17 07:59	1.33	11.55	0.67
2020/06/17 08:04	1.33	11.20	0.65
2020/06/17 08:09	1.36	11.53	0.65
2020/06/17 08:14	1.47	10.79	0.54
2020/06/17 08:19	1.47	15.01	0.76
2020/06/17 08:24	1.47	11.36	0.57
2020/06/17 08:29	1.43	10.90	0.57
2020/06/17 08:34	1.43	10.90	0.57
2020/06/17 08:39	1.43	14.40	0.76
2020/06/17 08:44	1.42	17.41	0.93
2020/06/17 08:49	1.42	17.41	0.93
2020/06/17 08:54	1.42	17.41	0.93
2020/06/17 08:59	1.38	11.13	0.62
2020/06/17 09:04	1.38	11.13	0.62
2020/06/17 09:09	1.38	11.13	0.62
2020/06/17 09:14	1.72	26.45	1.07
2020/06/17 09:19	1.72	26.45	1.07
2020/06/17 09:24	1.72	26.45	1.07
2020/06/17 09:29	1.71	20.88	0.85
2020/06/17 09:34	1.51	16.91	0.82
2020/06/17 09:39	1.50	12.22	0.60
2020/06/17 09:44	1.49	12.06	0.60
2020/06/17 09:49	1.36	12.64	0.71
2020/06/17 09:54	1.32	10.84	0.64
2020/06/17 09:59	1.32	11.25	0.66
2020/06/17 10:04	1.32	12.09	0.71
2020/06/17 10:09	1.47	14.15	0.71
2020/06/17 10:14	1.47	17.32	0.87

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/17 10:19	1.47	17.32	0.87
2020/06/17 10:24	1.40	16.16	0.87
2020/06/17 10:29	1.26	9.45	0.59
2020/06/17 10:34	1.26	9.45	0.59
2020/06/17 10:39	1.26	9.37	0.59
2020/06/17 10:44	1.38	10.67	0.59
2020/06/17 10:49	1.38	15.90	0.89
2020/06/17 10:54	1.47	17.55	0.89
2020/06/17 10:59	1.38	15.90	0.89
2020/06/17 11:04	1.35	15.44	0.89
2020/06/17 11:09	1.28	14.31	0.89
2020/06/17 11:14	1.28	15.44	0.96
2020/06/17 11:19	1.25	14.96	0.96
2020/06/17 11:24	1.25	11.20	0.72
2020/06/17 11:29	1.25	10.20	0.65
2020/06/17 11:34	1.25	10.20	0.65
2020/06/17 11:39	1.25	9.32	0.60
2020/06/17 11:44	1.24	9.17	0.60
2020/06/17 11:49	1.25	10.20	0.65
2020/06/17 11:54	1.28	11.64	0.72
2020/06/17 11:59	1.25	9.32	0.60
2020/06/17 12:04	1.28	9.62	0.60
2020/06/17 12:09	1.35	10.39	0.60
2020/06/17 12:14	1.47	10.79	0.54
2020/06/17 12:19	1.35	9.49	0.54
2020/06/17 12:24	1.38	9.78	0.54
2020/06/17 12:29	1.38	9.92	0.55
2020/06/17 12:34	1.38	9.92	0.55
2020/06/17 12:39	1.38	9.92	0.55
2020/06/17 12:44	1.38	9.92	0.55
2020/06/17 12:49	1.32	9.35	0.55
2020/06/17 12:54	1.25	9.00	0.58
2020/06/17 12:59	1.25	9.00	0.58
2020/06/17 13:04	1.25	9.00	0.58
2020/06/17 13:09	1.35	11.20	0.64
2020/06/17 13:14	1.40	11.87	0.64
2020/06/17 13:19	1.40	11.87	0.64
2020/06/17 13:24	1.42	12.04	0.64
2020/06/17 13:29	1.43	12.21	0.64
2020/06/17 13:34	1.43	9.53	0.50
2020/06/17 13:39	1.43	9.53	0.50
2020/06/17 13:44	1.47	9.93	0.50
2020/06/17 13:49	1.50	22.95	1.13
2020/06/17 13:54	1.50	22.95	1.13
2020/06/17 13:59	1.50	22.95	1.13

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/17 17:49	1.43	8.59	0.45
2020/06/17 17:54	1.42	8.98	0.48
2020/06/17 17:59	1.42	9.01	0.48
2020/06/17 18:04	1.42	8.47	0.45
2020/06/17 18:09	1.38	8.63	0.48
2020/06/17 18:14	1.33	8.72	0.51
2020/06/17 18:19	1.33	8.72	0.51
2020/06/17 18:24	1.33	9.99	0.58
2020/06/17 18:29	1.29	9.80	0.60
2020/06/17 18:34	1.29	9.91	0.60
2020/06/17 18:39	1.31	9.95	0.60
2020/06/17 18:44	1.31	9.95	0.60
2020/06/17 18:49	1.33	10.37	0.60
2020/06/17 18:54	1.39	11.47	0.63
2020/06/17 18:59	1.42	14.89	0.79
2020/06/17 19:04	1.42	14.89	0.79
2020/06/17 19:09	1.42	14.89	0.79
2020/06/17 19:14	1.42	16.03	0.86
2020/06/17 19:19	1.42	16.15	0.86
2020/06/17 19:24	1.49	17.05	0.85
2020/06/17 19:29	1.49	17.05	0.85
2020/06/17 19:34	1.49	17.05	0.85
2020/06/17 19:39	1.35	14.47	0.83
2020/06/17 19:44	1.35	14.13	0.81
2020/06/17 19:49	1.33	10.76	0.63
2020/06/17 19:54	1.33	8.53	0.50
2020/06/17 19:59	1.36	8.79	0.50
2020/06/17 20:04	1.44	9.57	0.50
2020/06/17 20:09	1.44	10.93	0.57
2020/06/17 20:14	1.46	19.53	1.00
2020/06/17 20:19	1.51	22.23	1.08
2020/06/17 20:24	1.51	22.23	1.08
2020/06/17 20:29	1.60	24.00	1.08
2020/06/17 20:34	1.51	14.40	0.70
2020/06/17 20:39	1.50	14.21	0.70
2020/06/17 20:44	1.43	12.48	0.66
2020/06/17 20:49	1.40	12.91	0.70
2020/06/17 20:54	1.40	12.14	0.66
2020/06/17 20:59	1.50	17.73	0.87
2020/06/17 21:04	1.40	16.10	0.87
2020/06/17 21:09	1.40	16.10	0.87
2020/06/17 21:14	1.39	16.75	0.92
2020/06/17 21:19	1.39	16.75	0.92
2020/06/17 21:24	1.25	9.32	0.60
2020/06/17 21:29	1.25	9.32	0.60

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/17 14:04	1.43	21.16	1.11
2020/06/17 14:09	1.43	20.52	1.08
2020/06/17 14:14	1.43	20.52	1.08
2020/06/17 14:19	1.56	23.14	1.08
2020/06/17 14:24	1.57	18.19	0.84
2020/06/17 14:29	1.57	18.19	0.84
2020/06/17 14:34	1.56	17.96	0.84
2020/06/17 14:39	1.49	13.64	0.68
2020/06/17 14:44	1.49	13.64	0.68
2020/06/17 14:49	1.49	15.44	0.77
2020/06/17 14:54	1.39	11.85	0.65
2020/06/17 14:59	1.39	11.47	0.63
2020/06/17 15:04	1.46	15.02	0.77
2020/06/17 15:09	1.42	11.80	0.63
2020/06/17 15:14	1.42	11.80	0.63
2020/06/17 15:19	1.42	11.86	0.63
2020/06/17 15:24	1.42	11.86	0.63
2020/06/17 15:29	1.22	9.58	0.63
2020/06/17 15:34	1.22	12.57	0.83
2020/06/17 15:39	1.22	12.86	0.85
2020/06/17 15:44	1.25	13.28	0.85
2020/06/17 15:49	1.25	13.61	0.87
2020/06/17 15:54	1.28	14.05	0.87
2020/06/17 15:59	1.35	12.40	0.71
2020/06/17 16:04	1.31	9.58	0.58
2020/06/17 16:09	1.35	9.63	0.55
2020/06/17 16:14	1.35	9.63	0.55
2020/06/17 16:19	1.31	9.58	0.58
2020/06/17 16:24	1.31	9.93	0.60
2020/06/17 16:29	1.31	13.10	0.79
2020/06/17 16:34	1.31	13.10	0.79
2020/06/17 16:39	1.36	13.92	0.79
2020/06/17 16:44	1.42	14.89	0.79
2020/06/17 16:49	1.50	16.17	0.79
2020/06/17 16:54	1.50	16.69	0.82
2020/06/17 16:59	1.53	17.37	0.83
2020/06/17 17:04	1.53	17.37	0.83
2020/06/17 17:09	1.46	16.24	0.83
2020/06/17 17:14	1.39	11.85	0.65
2020/06/17 17:19	1.39	11.03	0.61
2020/06/17 17:24	1.39	9.48	0.52
2020/06/17 17:29	1.44	10.03	0.52
2020/06/17 17:34	1.44	10.03	0.52
2020/06/17 17:39	1.44	10.03	0.52
2020/06/17 17:44	1.43	9.10	0.48

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 01:19	0.96	7.73	0.73
2020/06/18 01:24	0.96	7.73	0.73
2020/06/18 01:29	0.96	7.73	0.73
2020/06/18 01:34	0.89	8.62	0.91
2020/06/18 01:39	0.83	11.36	1.31
2020/06/18 01:44	0.81	10.81	1.31
2020/06/18 01:49	0.81	10.74	1.30
2020/06/18 01:54	0.81	10.74	1.30
2020/06/18 01:59	0.81	10.74	1.30
2020/06/18 02:04	0.81	10.74	1.30
2020/06/18 02:09	0.81	10.91	1.32
2020/06/18 02:14	0.82	11.24	1.33
2020/06/18 02:19	0.82	11.24	1.33
2020/06/18 02:24	0.90	12.99	1.33
2020/06/18 02:29	0.92	13.18	1.32
2020/06/18 02:34	0.92	13.22	1.33
2020/06/18 02:39	0.92	13.22	1.33
2020/06/18 02:44	0.90	12.92	1.33
2020/06/18 02:49	0.90	7.20	0.74
2020/06/18 02:54	0.89	12.50	1.31
2020/06/18 02:59	0.88	6.87	0.74
2020/06/18 03:04	0.88	6.87	0.74
2020/06/18 03:09	0.92	8.75	0.88
2020/06/18 03:14	1.00	10.46	0.92
2020/06/18 03:19	1.00	9.93	0.88
2020/06/18 03:24	1.00	9.93	0.88
2020/06/18 03:29	1.00	9.84	0.87
2020/06/18 03:34	1.00	9.84	0.87
2020/06/18 03:39	0.99	8.91	0.80
2020/06/18 03:44	0.99	8.91	0.80
2020/06/18 03:49	0.99	9.14	0.83
2020/06/18 03:54	0.94	8.37	0.80
2020/06/18 03:59	0.94	8.17	0.79
2020/06/18 04:04	0.92	7.82	0.79
2020/06/18 04:09	0.92	7.82	0.79
2020/06/18 04:14	0.94	8.17	0.79
2020/06/18 04:19	0.92	8.20	0.82
2020/06/18 04:24	0.90	8.02	0.82
2020/06/18 04:29	0.92	8.20	0.82
2020/06/18 04:34	1.00	9.31	0.82
2020/06/18 04:39	0.99	8.40	0.76
2020/06/18 04:44	0.99	8.29	0.75
2020/06/18 04:49	0.99	8.29	0.75
2020/06/18 04:54	0.99	8.29	0.75
2020/06/18 04:59	0.99	8.40	0.76

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/17 21:34	1.25	9.32	0.60
2020/06/17 21:39	1.26	9.47	0.60
2020/06/17 21:44	1.26	9.88	0.62
2020/06/17 21:49	1.39	11.32	0.62
2020/06/17 21:54	1.51	10.96	0.53
2020/06/17 21:59	1.51	10.96	0.53
2020/06/17 22:04	1.36	9.41	0.53
2020/06/17 22:09	1.51	10.96	0.53
2020/06/17 22:14	1.46	11.83	0.61
2020/06/17 22:19	1.36	11.39	0.64
2020/06/17 22:24	1.26	10.24	0.64
2020/06/17 22:29	1.32	12.93	0.76
2020/06/17 22:34	1.32	15.28	0.90
2020/06/17 22:39	1.25	14.13	0.90
2020/06/17 22:44	1.25	13.51	0.86
2020/06/17 22:49	1.25	14.13	0.90
2020/06/17 22:54	1.25	13.51	0.86
2020/06/17 22:59	1.25	12.58	0.80
2020/06/17 23:04	1.39	12.43	0.68
2020/06/17 23:09	1.39	12.43	0.68
2020/06/17 23:14	1.39	11.18	0.61
2020/06/17 23:19	1.32	10.38	0.61
2020/06/17 23:24	1.32	10.95	0.65
2020/06/17 23:29	1.24	11.34	0.74
2020/06/17 23:34	1.24	11.47	0.75
2020/06/17 23:39	1.14	10.77	0.79
2020/06/17 23:44	1.11	10.39	0.79
2020/06/17 23:49	1.06	10.51	0.86
2020/06/17 23:54	1.00	8.92	0.79
2020/06/17 23:59	1.00	8.92	0.79
2020/06/18 00:04	1.06	10.86	0.89
2020/06/18 00:09	1.04	10.65	0.89
2020/06/18 00:14	1.06	11.20	0.91
2020/06/18 00:19	1.08	11.63	0.91
2020/06/18 00:24	1.08	10.57	0.83
2020/06/18 00:29	1.04	7.75	0.65
2020/06/18 00:34	1.00	8.12	0.72
2020/06/18 00:39	0.99	7.95	0.72
2020/06/18 00:44	0.97	8.02	0.74
2020/06/18 00:49	0.97	8.02	0.74
2020/06/18 00:54	0.99	8.19	0.74
2020/06/18 00:59	0.99	8.40	0.76
2020/06/18 01:04	0.93	9.19	0.90
2020/06/18 01:09	0.99	8.40	0.76
2020/06/18 01:14	0.99	7.99	0.72

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 05:04	0.99	9.11	0.82
2020/06/18 05:09	0.96	9.30	0.87
2020/06/18 05:14	0.99	9.69	0.87
2020/06/18 05:19	0.99	9.69	0.87
2020/06/18 05:24	0.96	9.30	0.87
2020/06/18 05:29	0.90	12.99	1.33
2020/06/18 05:34	0.89	12.69	1.33
2020/06/18 05:39	0.89	12.69	1.33
2020/06/18 05:44	0.89	12.69	1.33
2020/06/18 05:49	1.29	18.05	1.10
2020/06/18 05:54	1.29	17.97	1.10
2020/06/18 05:59	1.29	14.32	0.87
2020/06/18 06:04	1.24	13.44	0.87
2020/06/18 06:09	1.17	12.36	0.87
2020/06/18 06:14	1.11	12.02	0.91
2020/06/18 06:19	1.08	11.59	0.91
2020/06/18 06:24	1.07	11.37	0.91
2020/06/18 06:29	1.07	11.89	0.95
2020/06/18 06:34	1.08	12.42	0.98
2020/06/18 06:39	1.08	12.42	0.98
2020/06/18 06:44	1.17	13.06	0.92
2020/06/18 06:49	1.25	14.44	0.92
2020/06/18 06:54	1.38	10.70	0.60
2020/06/18 06:59	1.38	9.61	0.54
2020/06/18 07:04	1.38	9.61	0.54
2020/06/18 07:09	1.26	9.47	0.60
2020/06/18 07:14	1.26	9.47	0.60
2020/06/18 07:19	1.26	9.85	0.62
2020/06/18 07:24	1.26	9.85	0.62
2020/06/18 07:29	1.28	10.01	0.62
2020/06/18 07:34	1.28	10.01	0.62
2020/06/18 07:39	1.32	10.49	0.62
2020/06/18 07:44	1.31	12.81	0.77
2020/06/18 07:49	1.28	14.57	0.90
2020/06/18 07:54	1.31	15.02	0.90
2020/06/18 07:59	1.49	21.74	1.08
2020/06/18 08:04	1.49	21.74	1.08
2020/06/18 08:09	1.64	25.01	1.08
2020/06/18 08:14	1.67	21.30	0.90
2020/06/18 08:19	1.67	21.30	0.90
2020/06/18 08:24	1.67	20.31	0.86
2020/06/18 08:29	1.67	12.51	0.53
2020/06/18 08:34	1.42	9.91	0.53
2020/06/18 08:39	1.42	9.58	0.51
2020/06/18 08:44	1.42	9.58	0.51

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 08:49	1.42	12.13	0.65
2020/06/18 08:54	1.60	18.15	0.82
2020/06/18 08:59	1.64	25.53	1.11
2020/06/18 09:04	1.64	27.05	1.17
2020/06/18 09:09	1.64	27.67	1.20
2020/06/18 09:14	1.56	25.68	1.20
2020/06/18 09:19	1.44	21.30	1.11
2020/06/18 09:24	1.44	21.12	1.10
2020/06/18 09:29	1.44	18.09	0.94
2020/06/18 09:34	1.42	17.59	0.94
2020/06/18 09:39	1.42	17.59	0.94
2020/06/18 09:44	1.51	21.70	1.05
2020/06/18 09:49	1.38	18.89	1.05
2020/06/18 09:54	1.51	21.70	1.05
2020/06/18 09:59	1.51	18.13	0.88
2020/06/18 10:04	1.38	15.44	0.86
2020/06/18 10:09	1.38	13.49	0.75
2020/06/18 10:14	1.38	13.49	0.75
2020/06/18 10:19	1.35	10.92	0.63
2020/06/18 10:24	1.28	10.12	0.63
2020/06/18 10:29	1.28	10.12	0.63
2020/06/18 10:34	1.28	9.60	0.59
2020/06/18 10:39	1.31	9.90	0.59
2020/06/18 10:44	1.31	9.98	0.60
2020/06/18 10:49	1.33	10.29	0.60
2020/06/18 10:54	1.31	9.37	0.56
2020/06/18 10:59	1.31	9.98	0.60
2020/06/18 11:04	1.33	10.76	0.63
2020/06/18 11:09	1.33	9.66	0.56
2020/06/18 11:14	1.31	8.38	0.50
2020/06/18 11:19	1.42	9.91	0.53
2020/06/18 11:24	1.43	10.05	0.53
2020/06/18 11:29	1.43	10.05	0.53
2020/06/18 11:34	1.44	11.48	0.60
2020/06/18 11:39	1.58	22.82	1.04
2020/06/18 11:44	1.58	23.21	1.06
2020/06/18 11:49	1.44	20.01	1.04
2020/06/18 11:54	1.44	16.55	0.86
2020/06/18 11:59	1.44	16.55	0.86
2020/06/18 12:04	1.38	15.41	0.86
2020/06/18 12:09	1.31	10.14	0.61
2020/06/18 12:14	1.38	14.35	0.80
2020/06/18 12:19	1.38	10.93	0.61
2020/06/18 12:24	1.38	14.35	0.80
2020/06/18 12:29	1.49	16.05	0.80

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 12:34	1.50	16.26	0.80
2020/06/18 12:39	1.53	20.81	1.00
2020/06/18 12:44	1.60	22.18	1.00
2020/06/18 12:49	1.60	19.44	0.87
2020/06/18 12:54	1.60	19.15	0.86
2020/06/18 12:59	1.60	19.15	0.86
2020/06/18 13:04	1.51	17.41	0.84
2020/06/18 13:09	1.43	15.53	0.82
2020/06/18 13:14	1.40	10.51	0.57
2020/06/18 13:19	1.40	10.51	0.57
2020/06/18 13:24	1.40	9.15	0.50
2020/06/18 13:29	1.42	10.45	0.56
2020/06/18 13:34	1.42	10.45	0.56
2020/06/18 13:39	1.42	10.45	0.56
2020/06/18 13:44	1.42	8.47	0.45
2020/06/18 13:49	1.43	9.16	0.48
2020/06/18 13:54	1.40	8.35	0.45
2020/06/18 13:59	1.40	8.91	0.48
2020/06/18 14:04	1.40	7.81	0.42
2020/06/18 14:09	1.40	8.91	0.48
2020/06/18 14:14	1.39	8.02	0.44
2020/06/18 14:19	1.39	14.59	0.80
2020/06/18 14:24	1.43	13.18	0.69
2020/06/18 14:29	1.43	13.18	0.69
2020/06/18 14:34	1.42	8.47	0.45
2020/06/18 14:39	1.42	8.47	0.45
2020/06/18 14:44	1.36	7.99	0.45
2020/06/18 14:49	1.36	7.99	0.45
2020/06/18 14:54	1.36	7.45	0.42
2020/06/18 14:59	1.31	7.02	0.42
2020/06/18 15:04	1.31	8.54	0.51
2020/06/18 15:09	1.31	11.05	0.66
2020/06/18 15:14	1.28	9.13	0.57
2020/06/18 15:19	1.26	9.63	0.61
2020/06/18 15:24	1.26	9.63	0.61
2020/06/18 15:29	1.24	9.27	0.60
2020/06/18 15:34	1.19	8.56	0.58
2020/06/18 15:39	1.19	8.82	0.60
2020/06/18 15:44	1.19	8.56	0.58
2020/06/18 15:49	1.19	8.56	0.58
2020/06/18 15:54	1.17	7.57	0.54
2020/06/18 15:59	1.17	7.57	0.54
2020/06/18 16:04	1.17	6.96	0.49
2020/06/18 16:09	1.17	7.57	0.54
2020/06/18 16:14	1.17	7.76	0.55

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 16:19	1.17	8.12	0.57
2020/06/18 16:24	1.17	8.12	0.57
2020/06/18 16:29	1.21	12.55	0.84
2020/06/18 16:34	1.21	12.55	0.84
2020/06/18 16:39	1.25	13.18	0.84
2020/06/18 16:44	1.31	8.78	0.53
2020/06/18 16:49	1.31	8.97	0.54
2020/06/18 16:54	1.31	8.97	0.54
2020/06/18 16:59	1.31	8.97	0.54
2020/06/18 17:04	1.31	12.89	0.77
2020/06/18 17:09	1.32	15.15	0.90
2020/06/18 17:14	1.54	19.05	0.90
2020/06/18 17:19	1.54	18.95	0.90
2020/06/18 17:24	1.33	15.38	0.90
2020/06/18 17:29	1.33	15.46	0.90
2020/06/18 17:34	1.33	14.61	0.85
2020/06/18 17:39	1.33	9.85	0.57
2020/06/18 17:44	1.32	10.13	0.60
2020/06/18 17:49	1.32	10.13	0.60
2020/06/18 17:54	1.32	10.13	0.60
2020/06/18 17:59	1.28	9.26	0.57
2020/06/18 18:04	1.28	9.68	0.60
2020/06/18 18:09	1.28	10.40	0.64
2020/06/18 18:14	1.32	10.89	0.64
2020/06/18 18:19	1.33	8.50	0.50
2020/06/18 18:24	1.33	8.50	0.50
2020/06/18 18:29	1.33	8.50	0.50
2020/06/18 18:34	1.32	8.37	0.50
2020/06/18 18:39	1.28	7.48	0.46
2020/06/18 18:44	1.28	7.48	0.46
2020/06/18 18:49	1.28	8.10	0.50
2020/06/18 18:54	1.28	8.10	0.50
2020/06/18 18:59	1.32	8.54	0.50
2020/06/18 19:04	1.36	9.98	0.56
2020/06/18 19:09	1.36	9.98	0.56
2020/06/18 19:14	1.36	10.60	0.60
2020/06/18 19:19	1.32	10.13	0.60
2020/06/18 19:24	1.31	11.66	0.70
2020/06/18 19:29	1.31	11.66	0.70
2020/06/18 19:34	1.31	11.66	0.70
2020/06/18 19:39	1.31	7.02	0.42
2020/06/18 19:44	1.33	7.37	0.43
2020/06/18 19:49	1.36	7.45	0.42
2020/06/18 19:54	1.33	7.24	0.42
2020/06/18 19:59	1.33	7.37	0.43

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 23:49	1.07	10.83	0.87
2020/06/18 23:54	0.99	9.62	0.87
2020/06/18 23:59	0.99	9.94	0.90
2020/06/19 00:04	1.01	10.43	0.90
2020/06/19 00:09	1.07	11.27	0.90
2020/06/19 00:14	1.13	12.13	0.90
2020/06/19 00:19	1.14	17.34	1.27
2020/06/19 00:24	1.14	17.34	1.27
2020/06/19 00:29	1.13	13.34	0.99
2020/06/19 00:34	1.04	11.92	0.99
2020/06/19 00:39	1.01	11.46	0.99
2020/06/19 00:44	0.99	9.75	0.88
2020/06/19 00:49	0.99	9.75	0.88
2020/06/19 00:54	0.93	9.63	0.95
2020/06/19 00:59	0.92	13.15	1.32
2020/06/19 01:04	0.89	12.74	1.34
2020/06/19 01:09	0.89	12.74	1.34
2020/06/19 01:14	0.89	12.74	1.34
2020/06/19 01:19	0.90	9.72	1.00
2020/06/19 01:24	0.97	10.84	1.00
2020/06/19 01:29	1.00	10.46	0.92
2020/06/19 01:34	1.00	10.46	0.92
2020/06/19 01:39	1.01	10.67	0.92
2020/06/19 01:44	1.00	10.46	0.92
2020/06/19 01:49	0.92	9.21	0.92
2020/06/19 01:54	0.92	12.35	1.24
2020/06/19 01:59	0.82	7.19	0.85
2020/06/19 02:04	0.82	10.48	1.24
2020/06/19 02:09	0.81	10.22	1.24
2020/06/19 02:14	0.81	10.22	1.24
2020/06/19 02:19	0.81	10.59	1.28
2020/06/19 02:24	0.81	10.59	1.28
2020/06/19 02:29	0.81	4.78	0.58
2020/06/19 02:34	0.81	5.51	0.67
2020/06/19 02:39	0.79	5.37	0.67
2020/06/19 02:44	0.78	5.23	0.67
2020/06/19 02:49	0.78	5.23	0.67
2020/06/19 02:54	0.75	7.59	1.02
2020/06/19 02:59	0.72	7.24	1.03
2020/06/19 03:04	0.72	7.18	1.02
2020/06/19 03:09	0.72	4.67	0.66
2020/06/19 03:14	0.72	3.85	0.55
2020/06/19 03:19	0.72	3.85	0.55
2020/06/19 03:24	0.75	4.07	0.55
2020/06/19 03:29	0.75	3.60	0.49

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/18 20:04	1.33	7.98	0.46
2020/06/18 20:09	1.38	8.34	0.46
2020/06/18 20:14	1.40	9.21	0.50
2020/06/18 20:19	1.40	9.21	0.50
2020/06/18 20:24	1.40	9.21	0.50
2020/06/18 20:29	1.51	11.86	0.58
2020/06/18 20:34	1.51	11.99	0.58
2020/06/18 20:39	1.54	12.31	0.58
2020/06/18 20:44	1.54	12.10	0.57
2020/06/18 20:49	1.51	11.79	0.57
2020/06/18 20:54	1.54	12.10	0.57
2020/06/18 20:59	1.57	12.42	0.57
2020/06/18 21:04	1.50	21.09	1.04
2020/06/18 21:09	1.50	21.09	1.04
2020/06/18 21:14	1.58	22.79	1.04
2020/06/18 21:19	1.54	15.70	0.74
2020/06/18 21:24	1.49	13.25	0.66
2020/06/18 21:29	1.49	11.55	0.58
2020/06/18 21:34	1.49	11.55	0.58
2020/06/18 21:39	1.40	10.63	0.58
2020/06/18 21:44	1.40	10.63	0.58
2020/06/18 21:49	1.40	11.25	0.61
2020/06/18 21:54	1.47	12.66	0.64
2020/06/18 21:59	1.47	12.06	0.61
2020/06/18 22:04	1.47	11.42	0.58
2020/06/18 22:09	1.44	11.11	0.58
2020/06/18 22:14	1.44	10.71	0.56
2020/06/18 22:19	1.40	9.83	0.53
2020/06/18 22:24	1.39	9.60	0.53
2020/06/18 22:29	1.39	9.60	0.53
2020/06/18 22:34	1.33	9.05	0.53
2020/06/18 22:39	1.29	8.65	0.53
2020/06/18 22:44	1.25	11.40	0.73
2020/06/18 22:49	1.25	11.40	0.73
2020/06/18 22:54	1.25	11.40	0.73
2020/06/18 22:59	1.25	9.97	0.64
2020/06/18 23:04	1.22	9.66	0.64
2020/06/18 23:09	1.17	9.03	0.64
2020/06/18 23:14	1.15	8.87	0.64
2020/06/18 23:19	1.14	10.31	0.75
2020/06/18 23:24	1.14	15.22	1.11
2020/06/18 23:29	1.14	16.20	1.19
2020/06/18 23:34	1.11	14.68	1.11
2020/06/18 23:39	1.11	14.68	1.11
2020/06/18 23:44	1.11	11.45	0.87

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/19 07:19	1.18	9.46	0.66
2020/06/19 07:24	1.29	10.35	0.63
2020/06/19 07:29	1.31	10.51	0.63
2020/06/19 07:34	1.31	10.94	0.66
2020/06/19 07:39	1.36	14.71	0.83
2020/06/19 07:44	1.42	19.42	1.04
2020/06/19 07:49	1.42	19.42	1.04
2020/06/19 07:54	1.39	18.32	1.01
2020/06/19 07:59	1.39	15.14	0.83
2020/06/19 08:04	1.50	20.47	1.01
2020/06/19 08:09	1.50	20.47	1.01
2020/06/19 08:14	1.51	23.28	1.13
2020/06/19 08:19	1.67	26.72	1.13
2020/06/19 08:24	1.71	27.67	1.13
2020/06/19 08:29	1.71	24.46	1.00
2020/06/19 08:34	1.67	16.90	0.71
2020/06/19 08:39	1.49	12.06	0.60
2020/06/19 08:44	1.38	10.78	0.60
2020/06/19 08:49	1.36	10.63	0.60
2020/06/19 08:54	1.35	10.47	0.60
2020/06/19 08:59	1.31	10.01	0.60
2020/06/19 09:04	1.31	10.86	0.65
2020/06/19 09:09	1.31	10.86	0.65
2020/06/19 09:14	1.31	10.86	0.65
2020/06/19 09:19	1.35	11.37	0.65
2020/06/19 09:24	1.53	17.23	0.83
2020/06/19 09:29	1.50	16.79	0.83
2020/06/19 09:34	1.51	17.01	0.83
2020/06/19 09:39	1.53	16.93	0.81
2020/06/19 09:44	1.53	16.93	0.81
2020/06/19 09:49	1.51	15.89	0.77
2020/06/19 09:54	1.53	16.10	0.77
2020/06/19 09:59	1.57	16.73	0.77
2020/06/19 10:04	1.57	24.59	1.13
2020/06/19 10:09	1.71	27.75	1.13
2020/06/19 10:14	1.71	27.79	1.13
2020/06/19 10:19	1.71	28.03	1.14
2020/06/19 10:24	1.60	25.25	1.13
2020/06/19 10:29	1.60	25.25	1.13
2020/06/19 10:34	1.60	25.78	1.16
2020/06/19 10:39	1.76	29.95	1.17
2020/06/19 10:44	1.79	30.37	1.16
2020/06/19 10:49	1.79	30.37	1.16
2020/06/19 10:54	1.79	28.06	1.07
2020/06/19 10:59	1.67	25.32	1.07

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/19 03:34	0.75	4.08	0.55
2020/06/19 03:39	0.75	4.08	0.55
2020/06/19 03:44	0.76	4.01	0.53
2020/06/19 03:49	0.79	4.22	0.53
2020/06/19 03:54	0.79	4.22	0.53
2020/06/19 03:59	0.79	4.22	0.53
2020/06/19 04:04	0.82	6.27	0.74
2020/06/19 04:09	0.82	7.98	0.94
2020/06/19 04:14	0.82	7.19	0.85
2020/06/19 04:19	0.86	8.58	0.94
2020/06/19 04:24	0.86	11.52	1.27
2020/06/19 04:29	0.83	10.22	1.18
2020/06/19 04:34	0.83	11.09	1.28
2020/06/19 04:39	0.83	11.09	1.28
2020/06/19 04:44	0.83	10.22	1.18
2020/06/19 04:49	0.83	9.59	1.11
2020/06/19 04:54	0.79	8.32	1.04
2020/06/19 04:59	0.79	8.32	1.04
2020/06/19 05:04	0.79	7.49	0.93
2020/06/19 05:09	0.79	7.26	0.90
2020/06/19 05:14	0.79	7.26	0.90
2020/06/19 05:19	0.86	5.30	0.58
2020/06/19 05:24	0.90	5.68	0.58
2020/06/19 05:29	1.01	6.97	0.60
2020/06/19 05:34	1.11	10.12	0.77
2020/06/19 05:39	1.11	10.12	0.77
2020/06/19 05:44	1.11	12.32	0.93
2020/06/19 05:49	1.31	15.56	0.93
2020/06/19 05:54	1.33	16.04	0.93
2020/06/19 05:59	1.33	12.96	0.75
2020/06/19 06:04	1.31	12.57	0.75
2020/06/19 06:09	1.10	9.77	0.75
2020/06/19 06:14	1.08	10.79	0.85
2020/06/19 06:19	0.99	9.41	0.85
2020/06/19 06:24	0.99	9.50	0.86
2020/06/19 06:29	1.10	13.55	1.05
2020/06/19 06:34	1.13	14.05	1.05
2020/06/19 06:39	1.13	12.24	0.91
2020/06/19 06:44	1.13	13.16	0.98
2020/06/19 06:49	1.13	13.16	0.98
2020/06/19 06:54	1.13	12.24	0.91
2020/06/19 06:59	1.13	13.16	0.98
2020/06/19 07:04	1.13	14.65	1.09
2020/06/19 07:09	1.18	15.71	1.09
2020/06/19 07:14	1.18	11.05	0.77

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/19 11:04	1.67	25.32	1.07
2020/06/19 11:09	1.63	25.18	1.10
2020/06/19 11:14	1.56	23.66	1.10
2020/06/19 11:19	1.56	24.14	1.13
2020/06/19 11:24	1.44	21.70	1.13
2020/06/19 11:29	1.44	18.86	0.98
2020/06/19 11:34	1.53	19.14	0.92
2020/06/19 11:39	1.53	19.14	0.92
2020/06/19 11:44	1.53	19.14	0.92
2020/06/19 11:49	1.65	21.42	0.92
2020/06/19 11:54	1.65	21.42	0.92
2020/06/19 11:59	1.58	19.33	0.88
2020/06/19 12:04	1.58	13.24	0.60
2020/06/19 12:09	1.56	12.91	0.60
2020/06/19 12:14	1.56	11.43	0.53
2020/06/19 12:19	1.54	12.10	0.57
2020/06/19 12:24	1.40	10.57	0.57
2020/06/19 12:29	1.40	11.25	0.61
2020/06/19 12:34	1.40	10.57	0.57
2020/06/19 12:39	1.38	10.27	0.57
2020/06/19 12:44	1.40	9.74	0.53
2020/06/19 12:49	1.42	9.88	0.53
2020/06/19 12:54	1.42	9.34	0.50
2020/06/19 12:59	1.44	10.16	0.53
2020/06/19 13:04	1.44	11.36	0.59
2020/06/19 13:09	1.42	12.19	0.65
2020/06/19 13:14	1.29	10.67	0.65
2020/06/19 13:19	1.25	11.43	0.73
2020/06/19 13:24	1.25	15.24	0.97
2020/06/19 13:29	1.25	17.02	1.09
2020/06/19 13:34	1.36	19.24	1.09
2020/06/19 13:39	1.38	19.53	1.09
2020/06/19 13:44	1.43	20.80	1.09
2020/06/19 13:49	1.43	20.80	1.09
2020/06/19 13:54	1.38	14.93	0.83
2020/06/19 13:59	1.36	17.54	0.99
2020/06/19 14:04	1.36	14.79	0.84
2020/06/19 14:09	1.36	10.60	0.60
2020/06/19 14:14	1.36	14.79	0.84
2020/06/19 14:19	1.33	14.36	0.84
2020/06/19 14:24	1.33	10.59	0.62
2020/06/19 14:29	1.33	10.59	0.62
2020/06/19 14:34	1.43	11.72	0.62
2020/06/19 14:39	1.57	13.39	0.62
2020/06/19 14:44	1.57	17.67	0.81

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/19 14:49	1.57	17.67	0.81
2020/06/19 14:54	1.57	16.35	0.75
2020/06/19 14:59	1.50	15.32	0.75
2020/06/19 15:04	1.46	12.08	0.62
2020/06/19 15:09	1.46	12.08	0.62
2020/06/19 15:14	1.46	14.71	0.75
2020/06/19 15:19	1.40	12.05	0.65
2020/06/19 15:24	1.40	14.62	0.79
2020/06/19 15:29	1.36	14.00	0.79
2020/06/19 15:34	1.33	11.20	0.65
2020/06/19 15:39	1.29	8.09	0.49
2020/06/19 15:44	1.33	8.47	0.49
2020/06/19 15:49	1.32	8.35	0.49
2020/06/19 15:54	1.32	8.54	0.50
2020/06/19 15:59	1.36	13.86	0.78
2020/06/19 16:04	1.39	16.89	0.93
2020/06/19 16:09	1.39	16.89	0.93
2020/06/19 16:14	1.39	19.67	1.08
2020/06/19 16:19	1.39	19.52	1.07
2020/06/19 16:24	1.40	19.95	1.08
2020/06/19 16:29	1.40	19.83	1.07
2020/06/19 16:34	1.40	19.95	1.08
2020/06/19 16:39	1.40	19.83	1.07
2020/06/19 16:44	1.39	19.55	1.07
2020/06/19 16:49	1.39	11.32	0.62
2020/06/19 16:54	1.38	10.41	0.58
2020/06/19 16:59	1.39	10.56	0.58
2020/06/19 17:04	1.39	11.32	0.62
2020/06/19 17:09	1.39	10.56	0.58
2020/06/19 17:14	1.39	13.01	0.71
2020/06/19 17:19	1.53	14.92	0.71
2020/06/19 17:24	1.53	11.14	0.53
2020/06/19 17:29	1.36	9.44	0.53
2020/06/19 17:34	1.33	9.49	0.55
2020/06/19 17:39	1.32	9.35	0.55
2020/06/19 17:44	1.32	10.16	0.60
2020/06/19 17:49	1.31	10.49	0.63
2020/06/19 17:54	1.31	10.49	0.63
2020/06/19 17:59	1.31	10.73	0.64
2020/06/19 18:04	1.28	10.40	0.64
2020/06/19 18:09	1.28	11.20	0.69
2020/06/19 18:14	1.28	10.40	0.64
2020/06/19 18:19	1.26	11.87	0.75
2020/06/19 18:24	1.28	12.08	0.75
2020/06/19 18:29	1.39	13.60	0.75

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/19 22:19	1.67	15.23	0.64
2020/06/19 22:24	1.75	18.53	0.73
2020/06/19 22:29	1.75	22.26	0.88
2020/06/19 22:34	1.75	22.26	0.88
2020/06/19 22:39	1.67	21.11	0.89
2020/06/19 22:44	1.56	18.82	0.88
2020/06/19 22:49	1.56	18.82	0.88
2020/06/19 22:54	1.50	12.09	0.59
2020/06/19 22:59	1.38	10.67	0.59
2020/06/19 23:04	1.38	8.92	0.50
2020/06/19 23:09	1.39	9.05	0.50
2020/06/19 23:14	1.38	8.54	0.48
2020/06/19 23:19	1.38	8.54	0.48
2020/06/19 23:24	1.36	8.42	0.48
2020/06/19 23:29	1.39	10.65	0.58
2020/06/19 23:34	1.36	10.34	0.58
2020/06/19 23:39	1.36	10.34	0.58
2020/06/19 23:44	1.36	10.34	0.58
2020/06/19 23:49	1.29	9.59	0.58
2020/06/19 23:54	1.28	8.41	0.52
2020/06/19 23:59	1.28	8.41	0.52
2020/06/20 00:04	1.26	9.65	0.61
2020/06/20 00:09	1.26	9.65	0.61
2020/06/20 00:14	1.25	9.50	0.61
2020/06/20 00:19	1.25	9.50	0.61
2020/06/20 00:24	1.25	9.50	0.61
2020/06/20 00:29	1.21	10.43	0.70
2020/06/20 00:34	1.21	10.76	0.72
2020/06/20 00:39	1.21	10.76	0.72
2020/06/20 00:44	1.17	11.00	0.78
2020/06/20 00:49	1.14	14.30	1.05
2020/06/20 00:54	1.18	14.88	1.03
2020/06/20 00:59	1.14	13.69	1.00
2020/06/20 01:04	1.13	13.87	1.03
2020/06/20 01:09	1.13	14.05	1.05
2020/06/20 01:14	1.07	12.89	1.03
2020/06/20 01:19	1.07	12.87	1.03
2020/06/20 01:24	1.06	12.63	1.03
2020/06/20 01:29	1.06	12.63	1.03
2020/06/20 01:34	1.06	12.63	1.03
2020/06/20 01:39	1.06	10.43	0.85
2020/06/20 01:44	1.06	9.86	0.81
2020/06/20 01:49	1.08	10.73	0.84
2020/06/20 01:54	1.10	10.93	0.84
2020/06/20 01:59	1.10	10.93	0.84

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/19 18:34	1.39	13.60	0.75
2020/06/19 18:39	1.39	16.02	0.88
2020/06/19 18:44	1.53	22.19	1.06
2020/06/19 18:49	1.53	22.92	1.10
2020/06/19 18:54	1.54	23.22	1.10
2020/06/19 18:59	1.74	27.51	1.10
2020/06/19 19:04	1.61	21.48	0.95
2020/06/19 19:09	1.61	16.68	0.74
2020/06/19 19:14	1.67	17.51	0.74
2020/06/19 19:19	1.61	16.36	0.73
2020/06/19 19:24	1.54	15.36	0.73
2020/06/19 19:29	1.53	13.28	0.64
2020/06/19 19:34	1.54	10.68	0.50
2020/06/19 19:39	1.54	10.68	0.50
2020/06/19 19:44	1.53	10.27	0.49
2020/06/19 19:49	1.53	8.83	0.42
2020/06/19 19:54	1.50	10.27	0.50
2020/06/19 19:59	1.44	10.84	0.56
2020/06/19 20:04	1.43	16.23	0.85
2020/06/19 20:09	1.44	17.07	0.89
2020/06/19 20:14	1.42	16.60	0.89
2020/06/19 20:19	1.39	16.14	0.89
2020/06/19 20:24	1.42	16.00	0.85
2020/06/19 20:29	1.44	16.21	0.84
2020/06/19 20:34	1.51	17.34	0.84
2020/06/19 20:39	1.51	17.34	0.84
2020/06/19 20:44	1.51	15.72	0.76
2020/06/19 20:49	1.51	12.48	0.61
2020/06/19 20:54	1.44	10.62	0.55
2020/06/19 20:59	1.44	10.50	0.54
2020/06/19 21:04	1.44	10.19	0.53
2020/06/19 21:09	1.44	10.19	0.53
2020/06/19 21:14	1.44	10.19	0.53
2020/06/19 21:19	1.39	16.72	0.92
2020/06/19 21:24	1.39	16.72	0.92
2020/06/19 21:29	1.50	19.26	0.95
2020/06/19 21:34	1.50	18.68	0.92
2020/06/19 21:39	1.50	18.25	0.90
2020/06/19 21:44	1.50	14.28	0.70
2020/06/19 21:49	1.64	14.43	0.62
2020/06/19 21:54	1.49	12.54	0.62
2020/06/19 21:59	1.38	8.77	0.49
2020/06/19 22:04	1.36	11.05	0.62
2020/06/19 22:09	1.49	12.64	0.63
2020/06/19 22:14	1.49	12.93	0.64

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 02:04	1.10	11.06	0.85
2020/06/20 02:09	1.08	11.32	0.89
2020/06/20 02:14	1.08	11.48	0.90
2020/06/20 02:19	1.06	11.06	0.90
2020/06/20 02:24	1.06	12.51	1.02
2020/06/20 02:29	1.07	12.99	1.04
2020/06/20 02:34	1.06	12.74	1.04
2020/06/20 02:39	1.06	12.73	1.04
2020/06/20 02:44	1.06	12.73	1.04
2020/06/20 02:49	1.06	12.73	1.04
2020/06/20 02:54	1.06	10.65	0.87
2020/06/20 02:59	1.03	10.24	0.87
2020/06/20 03:04	1.03	10.60	0.90
2020/06/20 03:09	1.03	10.60	0.90
2020/06/20 03:14	1.06	11.02	0.90
2020/06/20 03:19	1.07	11.23	0.90
2020/06/20 03:24	1.10	11.66	0.90
2020/06/20 03:29	1.10	11.51	0.89
2020/06/20 03:34	1.10	11.51	0.89
2020/06/20 03:39	1.10	13.65	1.05
2020/06/20 03:44	1.10	13.65	1.05
2020/06/20 03:49	1.10	12.69	0.98
2020/06/20 03:54	1.10	12.69	0.98
2020/06/20 03:59	1.10	12.69	0.98
2020/06/20 04:04	1.07	11.97	0.96
2020/06/20 04:09	1.07	12.23	0.98
2020/06/20 04:14	1.06	11.74	0.96
2020/06/20 04:19	1.03	10.79	0.92
2020/06/20 04:24	1.03	10.79	0.92
2020/06/20 04:29	1.03	11.56	0.98
2020/06/20 04:34	1.03	11.56	0.98
2020/06/20 04:39	1.06	13.43	1.10
2020/06/20 04:44	1.06	13.43	1.10
2020/06/20 04:49	1.06	13.43	1.10
2020/06/20 04:54	1.04	12.58	1.05
2020/06/20 04:59	1.01	10.35	0.90
2020/06/20 05:04	1.01	10.35	0.90
2020/06/20 05:09	1.00	10.15	0.90
2020/06/20 05:14	1.00	10.66	0.94
2020/06/20 05:19	1.03	11.09	0.94
2020/06/20 05:24	1.10	13.46	1.04
2020/06/20 05:29	1.10	13.21	1.02
2020/06/20 05:34	1.10	13.46	1.04
2020/06/20 05:39	1.07	12.95	1.04
2020/06/20 05:44	1.04	12.46	1.04

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 05:49	1.04	12.46	1.04
2020/06/20 05:54	1.04	12.71	1.06
2020/06/20 05:59	1.04	12.46	1.04
2020/06/20 06:04	1.11	13.18	1.00
2020/06/20 06:09	1.11	13.96	1.06
2020/06/20 06:14	1.11	14.39	1.09
2020/06/20 06:19	1.11	14.39	1.09
2020/06/20 06:24	1.10	14.13	1.09
2020/06/20 06:29	1.08	13.97	1.10
2020/06/20 06:34	1.10	14.13	1.09
2020/06/20 06:39	1.08	13.87	1.09
2020/06/20 06:44	1.08	13.87	1.09
2020/06/20 06:49	1.10	14.13	1.09
2020/06/20 06:54	1.18	10.50	0.73
2020/06/20 06:59	1.22	10.21	0.67
2020/06/20 07:04	1.22	10.55	0.70
2020/06/20 07:09	1.22	10.55	0.70
2020/06/20 07:14	1.22	11.04	0.73
2020/06/20 07:19	1.22	10.55	0.70
2020/06/20 07:24	1.31	13.29	0.80
2020/06/20 07:29	1.31	13.29	0.80
2020/06/20 07:34	1.31	12.86	0.77
2020/06/20 07:39	1.21	11.50	0.77
2020/06/20 07:44	1.21	11.50	0.77
2020/06/20 07:49	1.21	11.50	0.77
2020/06/20 07:54	1.21	11.50	0.77
2020/06/20 07:59	1.22	10.14	0.67
2020/06/20 08:04	1.22	10.14	0.67
2020/06/20 08:09	1.26	19.43	1.22
2020/06/20 08:14	1.26	10.06	0.63
2020/06/20 08:19	1.29	11.19	0.68
2020/06/20 08:24	1.29	12.98	0.79
2020/06/20 08:29	1.39	12.43	0.68
2020/06/20 08:34	1.33	10.67	0.62
2020/06/20 08:39	1.33	10.95	0.64
2020/06/20 08:44	1.46	12.46	0.64
2020/06/20 08:49	1.47	12.31	0.62
2020/06/20 08:54	1.47	12.63	0.64
2020/06/20 08:59	1.51	17.27	0.84
2020/06/20 09:04	1.54	21.02	0.99
2020/06/20 09:09	1.54	21.93	1.04
2020/06/20 09:14	1.64	23.94	1.04
2020/06/20 09:19	1.64	22.94	0.99
2020/06/20 09:24	1.51	12.81	0.62
2020/06/20 09:29	1.43	11.81	0.62

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 13:19	1.64	16.21	0.70
2020/06/20 13:24	1.64	16.21	0.70
2020/06/20 13:29	1.56	15.04	0.70
2020/06/20 13:34	1.46	11.55	0.59
2020/06/20 13:39	1.46	11.55	0.59
2020/06/20 13:44	1.46	12.36	0.63
2020/06/20 13:49	1.46	12.36	0.63
2020/06/20 13:54	1.58	23.88	1.09
2020/06/20 13:59	1.58	23.88	1.09
2020/06/20 14:04	1.58	23.88	1.09
2020/06/20 14:09	1.53	21.28	1.02
2020/06/20 14:14	1.53	21.28	1.02
2020/06/20 14:19	1.53	19.24	0.92
2020/06/20 14:24	1.53	19.17	0.92
2020/06/20 14:29	1.60	18.15	0.82
2020/06/20 14:34	1.60	18.15	0.82
2020/06/20 14:39	1.53	14.82	0.71
2020/06/20 14:44	1.40	11.66	0.63
2020/06/20 14:49	1.38	11.33	0.63
2020/06/20 14:54	1.32	7.91	0.47
2020/06/20 14:59	1.32	7.91	0.47
2020/06/20 15:04	1.32	7.91	0.47
2020/06/20 15:09	1.31	8.54	0.51
2020/06/20 15:14	1.33	10.32	0.60
2020/06/20 15:19	1.35	11.81	0.68
2020/06/20 15:24	1.35	14.94	0.86
2020/06/20 15:29	1.50	20.14	0.99
2020/06/20 15:34	1.57	23.23	1.07
2020/06/20 15:39	1.58	23.88	1.09
2020/06/20 15:44	1.58	24.76	1.13
2020/06/20 15:49	1.57	24.45	1.13
2020/06/20 15:54	1.47	21.51	1.09
2020/06/20 15:59	1.44	18.15	0.94
2020/06/20 16:04	1.33	16.18	0.94
2020/06/20 16:09	1.28	13.50	0.84
2020/06/20 16:14	1.28	15.21	0.94
2020/06/20 16:19	1.28	13.27	0.82
2020/06/20 16:24	1.54	17.39	0.82
2020/06/20 16:29	1.54	12.88	0.61
2020/06/20 16:34	1.69	19.28	0.80
2020/06/20 16:39	1.54	12.88	0.61
2020/06/20 16:44	1.54	12.71	0.60
2020/06/20 16:49	1.50	11.80	0.58
2020/06/20 16:54	1.50	11.80	0.58
2020/06/20 16:59	1.42	10.21	0.54

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 09:34	1.51	12.81	0.62
2020/06/20 09:39	1.51	23.38	1.13
2020/06/20 09:44	1.51	24.47	1.19
2020/06/20 09:49	1.75	30.10	1.19
2020/06/20 09:54	1.75	30.10	1.19
2020/06/20 09:59	1.75	28.36	1.12
2020/06/20 10:04	1.63	21.49	0.94
2020/06/20 10:09	1.53	10.17	0.49
2020/06/20 10:14	1.46	9.52	0.49
2020/06/20 10:19	1.46	9.52	0.49
2020/06/20 10:24	1.42	9.94	0.53
2020/06/20 10:29	1.46	10.89	0.56
2020/06/20 10:34	1.46	11.30	0.58
2020/06/20 10:39	1.67	20.65	0.87
2020/06/20 10:44	1.68	20.90	0.87
2020/06/20 10:49	1.69	21.15	0.87
2020/06/20 10:54	1.69	18.97	0.78
2020/06/20 10:59	1.69	18.97	0.78
2020/06/20 11:04	1.69	15.52	0.64
2020/06/20 11:09	1.57	12.83	0.59
2020/06/20 11:14	1.47	11.71	0.59
2020/06/20 11:19	1.39	9.92	0.54
2020/06/20 11:24	1.39	9.92	0.54
2020/06/20 11:29	1.39	15.87	0.87
2020/06/20 11:34	1.40	16.10	0.87
2020/06/20 11:39	1.64	20.13	0.87
2020/06/20 11:44	1.64	20.13	0.87
2020/06/20 11:49	1.64	19.91	0.86
2020/06/20 11:54	1.49	17.30	0.86
2020/06/20 11:59	1.49	17.53	0.87
2020/06/20 12:04	1.49	17.53	0.87
2020/06/20 12:09	1.49	17.75	0.88
2020/06/20 12:14	1.49	21.64	1.08
2020/06/20 12:19	1.64	20.42	0.88
2020/06/20 12:24	1.65	24.83	1.06
2020/06/20 12:29	1.68	21.17	0.88
2020/06/20 12:34	1.65	24.83	1.06
2020/06/20 12:39	1.64	17.43	0.75
2020/06/20 12:44	1.60	23.64	1.06
2020/06/20 12:49	1.60	16.80	0.75
2020/06/20 12:54	1.53	15.76	0.75
2020/06/20 12:59	1.53	15.76	0.75
2020/06/20 13:04	1.60	15.41	0.69
2020/06/20 13:09	1.60	15.41	0.69
2020/06/20 13:14	1.64	16.21	0.70

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 17:04	1.42	10.21	0.54
2020/06/20 17:09	1.42	10.21	0.54
2020/06/20 17:14	1.53	11.38	0.54
2020/06/20 17:19	1.53	12.55	0.60
2020/06/20 17:24	1.53	12.55	0.60
2020/06/20 17:29	1.38	10.78	0.60
2020/06/20 17:34	1.38	8.40	0.47
2020/06/20 17:39	1.38	9.98	0.56
2020/06/20 17:44	1.40	10.27	0.56
2020/06/20 17:49	1.40	10.83	0.59
2020/06/20 17:54	1.40	10.83	0.59
2020/06/20 17:59	1.35	11.25	0.65
2020/06/20 18:04	1.28	10.43	0.65
2020/06/20 18:09	1.28	10.43	0.65
2020/06/20 18:14	1.28	10.43	0.65
2020/06/20 18:19	1.31	10.09	0.61
2020/06/20 18:24	1.32	10.24	0.61
2020/06/20 18:29	1.32	11.44	0.68
2020/06/20 18:34	1.35	11.78	0.68
2020/06/20 18:39	1.39	12.31	0.68
2020/06/20 18:44	1.35	11.78	0.68
2020/06/20 18:49	1.33	11.61	0.68
2020/06/20 18:54	1.39	11.85	0.65
2020/06/20 18:59	1.33	11.17	0.65
2020/06/20 19:04	1.28	10.50	0.65
2020/06/20 19:09	1.28	10.50	0.65
2020/06/20 19:14	1.39	11.85	0.65
2020/06/20 19:19	1.29	17.90	1.09
2020/06/20 19:24	1.36	19.30	1.09
2020/06/20 19:29	1.36	13.01	0.74
2020/06/20 19:34	1.36	13.01	0.74
2020/06/20 19:39	1.36	12.41	0.70
2020/06/20 19:44	1.44	11.15	0.58
2020/06/20 19:49	1.47	9.80	0.50
2020/06/20 19:54	1.60	12.87	0.58
2020/06/20 19:59	1.60	15.62	0.70
2020/06/20 20:04	1.71	12.72	0.52
2020/06/20 20:09	1.71	12.72	0.52
2020/06/20 20:14	1.71	15.03	0.61
2020/06/20 20:19	1.56	11.13	0.52
2020/06/20 20:24	1.51	10.70	0.52
2020/06/20 20:29	1.44	11.67	0.61
2020/06/20 20:34	1.40	11.19	0.61
2020/06/20 20:39	1.40	11.19	0.61
2020/06/20 20:44	1.44	16.36	0.85

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/20 20:49	1.43	16.90	0.89
2020/06/20 20:54	1.43	17.14	0.90
2020/06/20 20:59	1.56	19.33	0.90
2020/06/20 21:04	1.56	19.33	0.90
2020/06/20 21:09	1.47	14.09	0.71
2020/06/20 21:14	1.47	11.90	0.60
2020/06/20 21:19	1.33	10.32	0.60
2020/06/20 21:24	1.32	9.62	0.57
2020/06/20 21:29	1.32	9.62	0.57
2020/06/20 21:34	1.33	14.53	0.85
2020/06/20 21:39	1.46	16.53	0.85
2020/06/20 21:44	1.46	14.09	0.72
2020/06/20 21:49	1.53	15.06	0.72
2020/06/20 21:54	1.53	15.06	0.72
2020/06/20 21:59	1.53	15.06	0.72
2020/06/20 22:04	1.53	15.89	0.76
2020/06/20 22:09	1.49	17.85	0.89
2020/06/20 22:14	1.43	20.95	1.10
2020/06/20 22:19	1.43	20.95	1.10
2020/06/20 22:24	1.43	20.95	1.10
2020/06/20 22:29	1.43	20.95	1.10
2020/06/20 22:34	1.43	20.95	1.10
2020/06/20 22:39	1.38	16.77	0.93
2020/06/20 22:44	1.44	18.00	0.93
2020/06/20 22:49	1.44	19.76	1.03
2020/06/20 22:54	1.47	15.07	0.76
2020/06/20 22:59	1.56	21.98	1.03
2020/06/20 23:04	1.56	21.98	1.03
2020/06/20 23:09	1.47	15.45	0.78
2020/06/20 23:14	1.47	15.45	0.78
2020/06/20 23:19	1.47	20.15	1.02
2020/06/20 23:24	1.47	20.15	1.02
2020/06/20 23:29	1.28	16.43	1.02
2020/06/20 23:34	1.28	16.43	1.02
2020/06/20 23:39	1.11	10.92	0.83
2020/06/20 23:44	1.11	10.92	0.83
2020/06/20 23:49	1.11	10.92	0.83
2020/06/20 23:54	1.13	11.12	0.83
2020/06/20 23:59	1.14	11.32	0.83
2020/06/21 00:04	1.14	10.88	0.80
2020/06/21 00:09	1.14	9.53	0.70
2020/06/21 00:14	1.14	9.53	0.70
2020/06/21 00:19	1.14	10.12	0.74
2020/06/21 00:24	1.13	9.66	0.72
2020/06/21 00:29	1.18	10.36	0.72

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 00:34	1.18	10.66	0.74
2020/06/21 00:39	1.28	11.62	0.72
2020/06/21 00:44	1.14	9.83	0.72
2020/06/21 00:49	1.14	9.72	0.71
2020/06/21 00:54	1.04	8.54	0.71
2020/06/21 00:59	1.11	9.25	0.70
2020/06/21 01:04	1.11	9.25	0.70
2020/06/21 01:09	1.10	9.09	0.70
2020/06/21 01:14	1.11	13.52	1.03
2020/06/21 01:19	1.21	15.27	1.03
2020/06/21 01:24	1.21	16.42	1.10
2020/06/21 01:29	1.19	16.80	1.15
2020/06/21 01:34	1.19	16.80	1.15
2020/06/21 01:39	1.13	14.41	1.07
2020/06/21 01:44	1.11	14.15	1.07
2020/06/21 01:49	1.06	12.27	1.00
2020/06/21 01:54	1.06	11.10	0.91
2020/06/21 01:59	1.01	8.69	0.75
2020/06/21 02:04	0.99	8.35	0.75
2020/06/21 02:09	0.99	8.35	0.75
2020/06/21 02:14	0.99	8.31	0.75
2020/06/21 02:19	0.97	8.17	0.75
2020/06/21 02:24	0.99	8.38	0.76
2020/06/21 02:29	1.04	11.48	0.96
2020/06/21 02:34	1.01	9.61	0.83
2020/06/21 02:39	1.01	9.61	0.83
2020/06/21 02:44	1.03	10.26	0.87
2020/06/21 02:49	1.01	9.61	0.83
2020/06/21 02:54	1.01	8.82	0.76
2020/06/21 02:59	0.99	8.47	0.76
2020/06/21 03:04	0.97	8.47	0.78
2020/06/21 03:09	0.97	8.30	0.76
2020/06/21 03:14	0.93	7.41	0.73
2020/06/21 03:19	0.93	7.49	0.74
2020/06/21 03:24	0.93	7.39	0.73
2020/06/21 03:29	0.93	7.39	0.73
2020/06/21 03:34	0.93	6.97	0.68
2020/06/21 03:39	0.97	7.88	0.73
2020/06/21 03:44	0.97	7.88	0.73
2020/06/21 03:49	0.97	8.17	0.75
2020/06/21 03:54	0.93	7.70	0.76
2020/06/21 03:59	0.92	7.58	0.76
2020/06/21 04:04	0.90	7.37	0.76
2020/06/21 04:09	0.88	7.04	0.76
2020/06/21 04:14	0.86	6.92	0.76

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 04:19	0.86	6.92	0.76
2020/06/21 04:24	0.86	6.70	0.74
2020/06/21 04:29	0.83	7.48	0.86
2020/06/21 04:34	0.82	7.30	0.86
2020/06/21 04:39	0.81	6.04	0.73
2020/06/21 04:44	0.79	5.82	0.72
2020/06/21 04:49	0.79	5.81	0.72
2020/06/21 04:54	0.79	5.52	0.69
2020/06/21 04:59	0.78	5.36	0.68
2020/06/21 05:04	0.78	4.96	0.63
2020/06/21 05:09	0.79	5.09	0.63
2020/06/21 05:14	0.79	5.45	0.68
2020/06/21 05:19	0.79	5.50	0.68
2020/06/21 05:24	0.79	5.69	0.71
2020/06/21 05:29	0.79	5.69	0.71
2020/06/21 05:34	0.81	5.75	0.70
2020/06/21 05:39	0.82	5.99	0.71
2020/06/21 05:44	0.82	6.16	0.73
2020/06/21 05:49	0.86	6.63	0.73
2020/06/21 05:54	0.86	6.87	0.76
2020/06/21 05:59	0.92	8.22	0.83
2020/06/21 06:04	1.08	12.95	1.02
2020/06/21 06:09	1.08	12.97	1.02
2020/06/21 06:14	1.08	12.97	1.02
2020/06/21 06:19	1.04	12.25	1.02
2020/06/21 06:24	1.01	10.04	0.87
2020/06/21 06:29	1.00	9.21	0.81
2020/06/21 06:34	0.97	8.71	0.80
2020/06/21 06:39	0.97	8.71	0.80
2020/06/21 06:44	0.97	7.46	0.69
2020/06/21 06:49	0.92	7.85	0.79
2020/06/21 06:54	0.92	7.85	0.79
2020/06/21 06:59	0.92	7.85	0.79
2020/06/21 07:04	0.92	7.85	0.79
2020/06/21 07:09	0.94	8.22	0.79
2020/06/21 07:14	1.04	11.02	0.92
2020/06/21 07:19	1.04	11.19	0.93
2020/06/21 07:24	1.07	12.15	0.97
2020/06/21 07:29	1.10	12.72	0.98
2020/06/21 07:34	1.33	16.86	0.98
2020/06/21 07:39	1.33	16.01	0.93
2020/06/21 07:44	1.33	14.20	0.83
2020/06/21 07:49	1.29	13.09	0.80
2020/06/21 07:54	1.15	10.81	0.78
2020/06/21 07:59	1.15	10.96	0.79

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 11:49	1.75	18.20	0.72
2020/06/21 11:54	1.67	17.39	0.74
2020/06/21 11:59	1.56	15.80	0.74
2020/06/21 12:04	1.56	16.72	0.78
2020/06/21 12:09	1.56	16.72	0.78
2020/06/21 12:14	1.61	16.61	0.74
2020/06/21 12:19	1.64	16.39	0.71
2020/06/21 12:24	1.64	15.98	0.69
2020/06/21 12:29	1.64	15.98	0.69
2020/06/21 12:34	1.64	15.32	0.66
2020/06/21 12:39	1.57	14.40	0.66
2020/06/21 12:44	1.53	13.85	0.66
2020/06/21 12:49	1.49	14.95	0.75
2020/06/21 12:54	1.42	13.57	0.72
2020/06/21 12:59	1.35	12.62	0.72
2020/06/21 13:04	1.32	12.25	0.72
2020/06/21 13:09	1.32	12.06	0.71
2020/06/21 13:14	1.32	12.06	0.71
2020/06/21 13:19	1.33	12.16	0.71
2020/06/21 13:24	1.39	12.90	0.71
2020/06/21 13:29	1.43	13.34	0.70
2020/06/21 13:34	1.53	13.79	0.66
2020/06/21 13:39	1.53	13.79	0.66
2020/06/21 13:44	1.58	14.51	0.66
2020/06/21 13:49	1.58	14.44	0.66
2020/06/21 13:54	1.53	15.93	0.76
2020/06/21 13:59	1.46	15.21	0.78
2020/06/21 14:04	1.19	11.40	0.78
2020/06/21 14:09	1.19	11.17	0.76
2020/06/21 14:14	1.17	11.02	0.78
2020/06/21 14:19	1.17	11.11	0.79
2020/06/21 14:24	1.25	12.28	0.79
2020/06/21 14:29	1.25	10.53	0.67
2020/06/21 14:34	1.44	15.13	0.79
2020/06/21 14:39	1.44	15.13	0.79
2020/06/21 14:44	1.44	14.08	0.73
2020/06/21 14:49	1.36	15.19	0.86
2020/06/21 14:54	1.32	14.52	0.86
2020/06/21 14:59	1.32	14.52	0.86
2020/06/21 15:04	1.36	12.92	0.73
2020/06/21 15:09	1.54	15.05	0.71
2020/06/21 15:14	1.54	12.88	0.61
2020/06/21 15:19	1.56	13.05	0.61
2020/06/21 15:24	1.56	13.05	0.61
2020/06/21 15:29	1.54	20.58	0.97

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 08:04	1.15	10.96	0.79
2020/06/21 08:09	1.15	10.96	0.79
2020/06/21 08:14	1.15	10.30	0.74
2020/06/21 08:19	1.18	11.35	0.79
2020/06/21 08:24	1.21	11.02	0.74
2020/06/21 08:29	1.22	11.21	0.74
2020/06/21 08:34	1.24	11.91	0.77
2020/06/21 08:39	1.24	13.07	0.85
2020/06/21 08:44	1.33	14.58	0.85
2020/06/21 08:49	1.31	14.14	0.85
2020/06/21 08:54	1.33	15.79	0.92
2020/06/21 08:59	1.33	15.79	0.92
2020/06/21 09:04	1.33	15.35	0.89
2020/06/21 09:09	1.35	14.74	0.85
2020/06/21 09:14	1.53	18.67	0.89
2020/06/21 09:19	1.35	13.74	0.79
2020/06/21 09:24	1.35	15.58	0.89
2020/06/21 09:29	1.57	17.11	0.79
2020/06/21 09:34	1.63	17.98	0.79
2020/06/21 09:39	1.57	14.36	0.66
2020/06/21 09:44	1.57	14.36	0.66
2020/06/21 09:49	1.54	14.00	0.66
2020/06/21 09:54	1.54	18.00	0.85
2020/06/21 09:59	1.50	17.31	0.85
2020/06/21 10:04	1.49	17.08	0.85
2020/06/21 10:09	1.49	17.53	0.87
2020/06/21 10:14	1.49	16.95	0.84
2020/06/21 10:19	1.49	16.95	0.84
2020/06/21 10:24	1.75	21.94	0.87
2020/06/21 10:29	1.75	22.14	0.87
2020/06/21 10:34	1.61	19.50	0.87
2020/06/21 10:39	1.61	19.50	0.87
2020/06/21 10:44	1.61	17.58	0.78
2020/06/21 10:49	1.58	14.86	0.68
2020/06/21 10:54	1.51	13.94	0.68
2020/06/21 10:59	1.49	15.66	0.78
2020/06/21 11:04	1.58	17.43	0.79
2020/06/21 11:09	1.58	17.43	0.79
2020/06/21 11:14	1.61	17.87	0.79
2020/06/21 11:19	1.61	15.99	0.71
2020/06/21 11:24	1.71	17.15	0.70
2020/06/21 11:29	1.71	16.88	0.69
2020/06/21 11:34	1.75	17.75	0.70
2020/06/21 11:39	1.79	18.36	0.70
2020/06/21 11:44	1.79	18.36	0.70

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 19:19	1.61	28.02	1.24
2020/06/21 19:24	1.61	28.02	1.24
2020/06/21 19:29	1.65	17.67	0.76
2020/06/21 19:34	1.65	17.67	0.76
2020/06/21 19:39	1.65	16.66	0.71
2020/06/21 19:44	1.63	17.25	0.76
2020/06/21 19:49	1.63	16.27	0.71
2020/06/21 19:54	1.63	18.20	0.80
2020/06/21 19:59	1.58	15.57	0.71
2020/06/21 20:04	1.63	18.06	0.79
2020/06/21 20:09	1.65	15.65	0.67
2020/06/21 20:14	1.69	19.17	0.79
2020/06/21 20:19	1.88	22.13	0.79
2020/06/21 20:24	1.88	22.13	0.79
2020/06/21 20:29	1.88	17.97	0.64
2020/06/21 20:34	1.69	16.10	0.66
2020/06/21 20:39	1.69	13.54	0.56
2020/06/21 20:44	1.65	13.07	0.56
2020/06/21 20:49	1.47	11.07	0.56
2020/06/21 20:54	1.63	15.17	0.66
2020/06/21 20:59	1.63	16.01	0.70
2020/06/21 21:04	1.65	16.40	0.70
2020/06/21 21:09	1.65	16.40	0.70
2020/06/21 21:14	1.69	21.65	0.89
2020/06/21 21:19	1.69	16.99	0.70
2020/06/21 21:24	1.69	14.20	0.59
2020/06/21 21:29	1.67	13.87	0.59
2020/06/21 21:34	1.67	13.87	0.59
2020/06/21 21:39	1.67	13.87	0.59
2020/06/21 21:44	1.60	10.63	0.48
2020/06/21 21:49	1.60	11.88	0.53
2020/06/21 21:54	1.60	11.88	0.53
2020/06/21 21:59	1.60	11.88	0.53
2020/06/21 22:04	1.60	11.88	0.53
2020/06/21 22:09	1.78	17.82	0.69
2020/06/21 22:14	1.78	17.82	0.69
2020/06/21 22:19	1.78	17.82	0.69
2020/06/21 22:24	1.78	17.82	0.69
2020/06/21 22:29	1.63	12.76	0.56
2020/06/21 22:34	1.51	11.53	0.56
2020/06/21 22:39	1.51	11.53	0.56
2020/06/21 22:44	1.46	10.92	0.56
2020/06/21 22:49	1.46	9.70	0.50
2020/06/21 22:54	1.44	8.68	0.45
2020/06/21 22:59	1.38	8.08	0.45

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 15:34	1.54	27.12	1.28
2020/06/21 15:39	1.60	28.53	1.28
2020/06/21 15:44	1.57	21.11	0.97
2020/06/21 15:49	1.54	19.15	0.91
2020/06/21 15:54	1.57	19.65	0.91
2020/06/21 15:59	1.58	15.78	0.72
2020/06/21 16:04	1.58	11.76	0.54
2020/06/21 16:09	1.58	9.76	0.44
2020/06/21 16:14	1.58	11.76	0.54
2020/06/21 16:19	1.60	11.91	0.54
2020/06/21 16:24	1.60	13.30	0.60
2020/06/21 16:29	1.54	12.64	0.60
2020/06/21 16:34	1.46	14.18	0.73
2020/06/21 16:39	1.42	14.71	0.79
2020/06/21 16:44	1.39	13.22	0.73
2020/06/21 16:49	1.39	11.35	0.62
2020/06/21 16:54	1.35	13.68	0.79
2020/06/21 16:59	1.35	10.86	0.62
2020/06/21 17:04	1.42	11.68	0.62
2020/06/21 17:09	1.46	12.18	0.62
2020/06/21 17:14	1.47	11.55	0.58
2020/06/21 17:19	1.57	12.66	0.58
2020/06/21 17:24	1.57	13.74	0.63
2020/06/21 17:29	1.57	13.74	0.63
2020/06/21 17:34	1.57	13.74	0.63
2020/06/21 17:39	1.57	13.74	0.63
2020/06/21 17:44	1.56	11.61	0.54
2020/06/21 17:49	1.54	10.07	0.48
2020/06/21 17:54	1.46	9.30	0.48
2020/06/21 17:59	1.46	9.30	0.48
2020/06/21 18:04	1.46	9.95	0.51
2020/06/21 18:09	1.46	12.86	0.66
2020/06/21 18:14	1.46	14.68	0.75
2020/06/21 18:19	1.53	17.00	0.81
2020/06/21 18:24	1.53	17.17	0.82
2020/06/21 18:29	1.53	17.17	0.82
2020/06/21 18:34	1.49	16.34	0.81
2020/06/21 18:39	1.49	13.22	0.66
2020/06/21 18:44	1.49	13.22	0.66
2020/06/21 18:49	1.49	13.22	0.66
2020/06/21 18:54	1.56	14.97	0.70
2020/06/21 18:59	1.68	16.72	0.70
2020/06/21 19:04	1.56	18.06	0.84
2020/06/21 19:09	1.61	27.95	1.24
2020/06/21 19:14	1.61	28.02	1.24

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/22 02:49	1.04	8.02	0.67
2020/06/22 02:54	0.99	9.02	0.81
2020/06/22 02:59	0.99	9.02	0.81
2020/06/22 03:04	0.99	9.02	0.81
2020/06/22 03:09	1.13	10.80	0.80
2020/06/22 03:14	1.17	10.91	0.77
2020/06/22 03:19	1.17	10.32	0.73
2020/06/22 03:24	1.17	9.18	0.65
2020/06/22 03:29	1.15	6.78	0.49
2020/06/22 03:34	1.15	6.78	0.49
2020/06/22 03:39	1.13	6.54	0.49
2020/06/22 03:44	1.07	6.69	0.54
2020/06/22 03:49	1.03	6.56	0.56
2020/06/22 03:54	1.00	7.90	0.70
2020/06/22 03:59	0.99	6.80	0.61
2020/06/22 04:04	0.99	6.98	0.63
2020/06/22 04:09	0.94	6.55	0.63
2020/06/22 04:14	0.90	5.98	0.61
2020/06/22 04:19	0.90	5.74	0.59
2020/06/22 04:24	0.88	5.34	0.57
2020/06/22 04:29	0.86	4.14	0.46
2020/06/22 04:34	0.86	4.06	0.45
2020/06/22 04:39	0.83	3.87	0.45
2020/06/22 04:44	0.79	3.57	0.44
2020/06/22 04:49	0.79	3.57	0.44
2020/06/22 04:54	0.79	3.57	0.44
2020/06/22 04:59	0.79	3.58	0.45
2020/06/22 05:04	0.82	3.97	0.47
2020/06/22 05:09	1.00	6.71	0.59
2020/06/22 05:14	1.14	8.58	0.63
2020/06/22 05:19	1.14	8.58	0.63
2020/06/22 05:24	1.00	6.71	0.59
2020/06/22 05:29	0.81	3.94	0.48
2020/06/22 05:34	0.81	3.78	0.46
2020/06/22 05:39	0.81	3.78	0.46
2020/06/22 05:44	0.90	4.65	0.48
2020/06/22 05:49	0.97	6.21	0.57
2020/06/22 05:54	1.03	6.83	0.58
2020/06/22 05:59	1.07	9.35	0.75
2020/06/22 06:04	1.03	6.83	0.58
2020/06/22 06:09	1.07	8.01	0.64
2020/06/22 06:14	1.07	9.35	0.75
2020/06/22 06:19	1.07	8.01	0.64
2020/06/22 06:24	1.07	6.61	0.53
2020/06/22 06:29	1.07	8.01	0.64

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/21 23:04	1.38	8.40	0.47
2020/06/21 23:09	1.33	8.53	0.50
2020/06/21 23:14	1.32	8.70	0.51
2020/06/21 23:19	1.28	11.59	0.72
2020/06/21 23:24	1.22	10.87	0.72
2020/06/21 23:29	1.15	9.98	0.72
2020/06/21 23:34	1.15	9.27	0.67
2020/06/21 23:39	1.15	8.71	0.63
2020/06/21 23:44	1.19	9.17	0.63
2020/06/21 23:49	1.29	10.93	0.67
2020/06/21 23:54	1.31	11.29	0.68
2020/06/21 23:59	1.31	12.09	0.73
2020/06/22 00:04	1.31	12.09	0.73
2020/06/22 00:09	1.44	13.99	0.73
2020/06/22 00:14	1.44	13.99	0.73
2020/06/22 00:19	1.44	10.40	0.54
2020/06/22 00:24	1.39	9.83	0.54
2020/06/22 00:29	1.25	9.37	0.60
2020/06/22 00:34	1.13	8.05	0.60
2020/06/22 00:39	1.13	8.05	0.60
2020/06/22 00:44	1.11	8.01	0.61
2020/06/22 00:49	1.11	8.01	0.61
2020/06/22 00:54	1.18	9.62	0.67
2020/06/22 00:59	1.18	9.62	0.67
2020/06/22 01:04	1.29	9.99	0.61
2020/06/22 01:09	1.29	10.98	0.67
2020/06/22 01:14	1.19	8.92	0.61
2020/06/22 01:19	1.17	7.35	0.52
2020/06/22 01:24	1.08	6.60	0.52
2020/06/22 01:29	1.04	6.23	0.52
2020/06/22 01:34	1.01	5.99	0.52
2020/06/22 01:39	0.93	5.89	0.58
2020/06/22 01:44	0.93	6.90	0.68
2020/06/22 01:49	0.93	8.29	0.81
2020/06/22 01:54	0.92	8.32	0.83
2020/06/22 01:59	0.92	8.11	0.81
2020/06/22 02:04	0.92	7.85	0.79
2020/06/22 02:09	0.92	7.85	0.79
2020/06/22 02:14	0.92	7.85	0.79
2020/06/22 02:19	0.92	7.49	0.75
2020/06/22 02:24	0.93	5.89	0.58
2020/06/22 02:29	0.96	6.15	0.58
2020/06/22 02:34	1.07	7.21	0.58
2020/06/22 02:39	1.07	7.21	0.58
2020/06/22 02:44	1.07	7.47	0.60

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/22 10:19	1.58	12.43	0.57
2020/06/22 10:24	1.56	12.12	0.57
2020/06/22 10:29	1.46	11.05	0.57
2020/06/22 10:34	1.46	10.83	0.55
2020/06/22 10:39	1.46	11.05	0.57
2020/06/22 10:44	1.46	11.80	0.60
2020/06/22 10:49	1.46	11.80	0.60
2020/06/22 10:54	1.53	12.62	0.60
2020/06/22 10:59	1.60	27.03	1.21
2020/06/22 11:04	1.63	27.71	1.21
2020/06/22 11:09	1.69	29.41	1.21
2020/06/22 11:14	1.69	24.99	1.03
2020/06/22 11:19	1.71	25.28	1.03
2020/06/22 11:24	1.71	21.08	0.86
2020/06/22 11:29	1.69	20.84	0.86
2020/06/22 11:34	1.71	18.84	0.77
2020/06/22 11:39	1.64	17.76	0.77
2020/06/22 11:44	1.61	16.46	0.73
2020/06/22 11:49	1.50	12.97	0.64
2020/06/22 11:54	1.50	12.97	0.64
2020/06/22 11:59	1.38	9.98	0.56
2020/06/22 12:04	1.31	9.26	0.56
2020/06/22 12:09	1.26	8.84	0.56
2020/06/22 12:14	1.21	8.83	0.59
2020/06/22 12:19	1.18	11.35	0.79
2020/06/22 12:24	1.18	11.35	0.79
2020/06/22 12:29	1.26	12.71	0.80
2020/06/22 12:34	1.49	15.82	0.79
2020/06/22 12:39	1.54	16.92	0.80
2020/06/22 12:44	1.54	16.37	0.77
2020/06/22 12:49	1.53	18.17	0.87
2020/06/22 12:54	1.53	16.13	0.77
2020/06/22 12:59	1.61	19.75	0.88
2020/06/22 13:04	1.56	15.62	0.73
2020/06/22 13:09	1.56	15.62	0.73
2020/06/22 13:14	1.56	12.88	0.60
2020/06/22 13:19	1.42	11.26	0.60
2020/06/22 13:24	1.32	10.16	0.60
2020/06/22 13:29	1.32	12.95	0.77
2020/06/22 13:34	1.32	12.95	0.77
2020/06/22 13:39	1.33	13.87	0.81
2020/06/22 13:44	1.46	14.96	0.77
2020/06/22 13:49	1.46	15.78	0.81
2020/06/22 13:54	1.46	12.40	0.63
2020/06/22 13:59	1.46	12.40	0.63

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/22 06:34	1.13	8.07	0.60
2020/06/22 06:39	1.14	8.21	0.60
2020/06/22 06:44	1.14	8.58	0.63
2020/06/22 06:49	1.14	9.83	0.72
2020/06/22 06:54	1.14	9.44	0.69
2020/06/22 06:59	1.11	9.11	0.69
2020/06/22 07:04	1.11	9.11	0.69
2020/06/22 07:09	1.11	9.49	0.72
2020/06/22 07:14	1.25	10.80	0.69
2020/06/22 07:19	1.29	10.41	0.63
2020/06/22 07:24	1.36	11.22	0.63
2020/06/22 07:29	1.29	10.41	0.63
2020/06/22 07:34	1.29	10.33	0.63
2020/06/22 07:39	1.38	11.30	0.63
2020/06/22 07:44	1.38	11.30	0.63
2020/06/22 07:49	1.68	15.07	0.63
2020/06/22 07:54	1.68	14.38	0.60
2020/06/22 07:59	1.79	15.75	0.60
2020/06/22 08:04	1.79	16.68	0.64
2020/06/22 08:09	1.71	15.58	0.64
2020/06/22 08:14	1.57	13.81	0.64
2020/06/22 08:19	1.42	11.92	0.64
2020/06/22 08:24	1.40	11.75	0.64
2020/06/22 08:29	1.40	13.41	0.73
2020/06/22 08:34	1.42	14.47	0.77
2020/06/22 08:39	1.49	15.50	0.77
2020/06/22 08:44	1.69	20.41	0.84
2020/06/22 08:49	1.69	18.70	0.77
2020/06/22 08:54	1.63	14.91	0.65
2020/06/22 08:59	1.63	14.91	0.65
2020/06/22 09:04	1.63	14.91	0.65
2020/06/22 09:09	1.57	14.19	0.65
2020/06/22 09:14	1.57	12.24	0.56
2020/06/22 09:19	1.57	14.29	0.66
2020/06/22 09:24	1.57	14.29	0.66
2020/06/22 09:29	1.57	14.29	0.66
2020/06/22 09:34	1.58	16.09	0.73
2020/06/22 09:39	1.58	16.09	0.73
2020/06/22 09:44	1.57	14.12	0.65
2020/06/22 09:49	1.57	14.12	0.65
2020/06/22 09:54	1.58	15.00	0.68
2020/06/22 09:59	1.58	15.00	0.68
2020/06/22 10:04	1.61	15.38	0.68
2020/06/22 10:09	1.61	15.38	0.68
2020/06/22 10:14	1.58	14.09	0.64

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/22 17:49	1.51	11.82	0.57
2020/06/22 17:54	1.51	11.53	0.56
2020/06/22 17:59	1.51	11.53	0.56
2020/06/22 18:04	1.51	11.53	0.56
2020/06/22 18:09	1.44	10.77	0.56
2020/06/22 18:14	1.40	14.41	0.78
2020/06/22 18:19	1.39	14.21	0.78
2020/06/22 18:24	1.26	12.40	0.78
2020/06/22 18:29	1.26	11.76	0.74
2020/06/22 18:34	1.22	9.92	0.66
2020/06/22 18:39	1.26	10.42	0.66
2020/06/22 18:44	1.31	11.26	0.68
2020/06/22 18:49	1.44	14.26	0.74
2020/06/22 18:54	1.50	14.93	0.73
2020/06/22 18:59	1.50	14.93	0.73
2020/06/22 19:04	1.64	18.02	0.78
2020/06/22 19:09	1.64	18.02	0.78
2020/06/22 19:14	1.50	14.93	0.73
2020/06/22 19:19	1.43	14.74	0.78
2020/06/22 19:24	1.43	14.74	0.78
2020/06/22 19:29	1.43	14.16	0.75
2020/06/22 19:34	1.43	9.50	0.50
2020/06/22 19:39	1.56	15.97	0.75
2020/06/22 19:44	1.56	10.20	0.48
2020/06/22 19:49	1.56	9.48	0.44
2020/06/22 19:54	1.56	10.20	0.48
2020/06/22 19:59	1.56	12.74	0.59
2020/06/22 20:04	1.51	11.06	0.54
2020/06/22 20:09	1.56	12.74	0.59
2020/06/22 20:14	1.57	19.58	0.90
2020/06/22 20:19	1.57	19.79	0.91
2020/06/22 20:24	1.68	21.59	0.90
2020/06/22 20:29	1.68	21.82	0.91
2020/06/22 20:34	1.72	22.60	0.91
2020/06/22 20:39	1.72	22.60	0.91
2020/06/22 20:44	1.68	21.01	0.88
2020/06/22 20:49	1.72	23.47	0.95
2020/06/22 20:54	1.79	24.83	0.95
2020/06/22 20:59	1.79	24.83	0.95
2020/06/22 21:04	1.68	21.86	0.91
2020/06/22 21:09	1.42	17.11	0.91
2020/06/22 21:14	1.42	17.11	0.91
2020/06/22 21:19	1.42	11.38	0.61
2020/06/22 21:24	1.61	15.99	0.71
2020/06/22 21:29	1.64	14.61	0.63

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/22 14:04	1.44	12.23	0.63
2020/06/22 14:09	1.35	11.06	0.63
2020/06/22 14:14	1.28	10.24	0.63
2020/06/22 14:19	1.24	14.03	0.91
2020/06/22 14:24	1.24	14.03	0.91
2020/06/22 14:29	1.24	12.43	0.81
2020/06/22 14:34	1.32	13.66	0.81
2020/06/22 14:39	1.42	15.13	0.81
2020/06/22 14:44	1.42	15.13	0.81
2020/06/22 14:49	1.42	15.13	0.81
2020/06/22 14:54	1.22	12.78	0.84
2020/06/22 14:59	1.22	13.29	0.88
2020/06/22 15:04	1.22	12.78	0.84
2020/06/22 15:09	1.22	12.76	0.84
2020/06/22 15:14	1.31	14.04	0.84
2020/06/22 15:19	1.33	11.61	0.68
2020/06/22 15:24	1.33	11.61	0.68
2020/06/22 15:29	1.31	11.26	0.68
2020/06/22 15:34	1.31	11.34	0.68
2020/06/22 15:39	1.31	13.50	0.81
2020/06/22 15:44	1.31	20.55	1.23
2020/06/22 15:49	1.31	20.55	1.23
2020/06/22 15:54	1.33	21.18	1.23
2020/06/22 15:59	1.33	17.77	1.04
2020/06/22 16:04	1.33	14.69	0.86
2020/06/22 16:09	1.31	11.90	0.71
2020/06/22 16:14	1.31	14.25	0.86
2020/06/22 16:19	1.26	11.36	0.71
2020/06/22 16:24	1.26	12.99	0.82
2020/06/22 16:29	1.26	9.93	0.62
2020/06/22 16:34	1.33	10.73	0.62
2020/06/22 16:39	1.60	13.91	0.62
2020/06/22 16:44	1.60	14.48	0.65
2020/06/22 16:49	1.56	13.94	0.65
2020/06/22 16:54	1.56	13.94	0.65
2020/06/22 16:59	1.40	12.28	0.66
2020/06/22 17:04	1.40	12.02	0.65
2020/06/22 17:09	1.39	12.98	0.71
2020/06/22 17:14	1.33	12.24	0.71
2020/06/22 17:19	1.33	12.24	0.71
2020/06/22 17:24	1.31	11.88	0.71
2020/06/22 17:29	1.31	11.88	0.71
2020/06/22 17:34	1.33	11.36	0.66
2020/06/22 17:39	1.39	12.05	0.66
2020/06/22 17:44	1.46	12.93	0.66

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 01:19	0.83	4.03	0.46
2020/06/23 01:24	0.81	3.83	0.46
2020/06/23 01:29	0.81	4.11	0.50
2020/06/23 01:34	0.81	5.38	0.65
2020/06/23 01:39	0.86	6.80	0.75
2020/06/23 01:44	0.88	7.04	0.76
2020/06/23 01:49	0.88	7.04	0.76
2020/06/23 01:54	0.88	6.96	0.75
2020/06/23 01:59	0.90	7.16	0.74
2020/06/23 02:04	0.90	6.88	0.71
2020/06/23 02:09	0.92	6.96	0.70
2020/06/23 02:14	1.01	8.15	0.71
2020/06/23 02:19	1.01	8.15	0.71
2020/06/23 02:24	0.99	7.83	0.71
2020/06/23 02:29	0.99	9.82	0.89
2020/06/23 02:34	0.96	9.42	0.89
2020/06/23 02:39	0.93	9.02	0.89
2020/06/23 02:44	0.92	10.87	1.09
2020/06/23 02:49	0.90	10.71	1.10
2020/06/23 02:54	0.90	10.66	1.09
2020/06/23 02:59	0.90	10.66	1.09
2020/06/23 03:04	0.88	11.29	1.21
2020/06/23 03:09	0.88	10.18	1.09
2020/06/23 03:14	0.88	9.50	1.02
2020/06/23 03:19	0.92	7.77	0.78
2020/06/23 03:24	0.92	7.39	0.74
2020/06/23 03:29	0.92	7.39	0.74
2020/06/23 03:34	0.94	7.54	0.72
2020/06/23 03:39	0.94	7.54	0.72
2020/06/23 03:44	1.03	9.19	0.78
2020/06/23 03:49	1.04	12.06	1.00
2020/06/23 03:54	1.10	13.01	1.00
2020/06/23 03:59	1.17	14.22	1.00
2020/06/23 04:04	1.17	14.22	1.00
2020/06/23 04:09	1.17	11.72	0.83
2020/06/23 04:14	1.17	9.84	0.70
2020/06/23 04:19	1.14	9.50	0.70
2020/06/23 04:24	1.14	9.50	0.70
2020/06/23 04:29	1.14	8.82	0.65
2020/06/23 04:34	1.14	10.88	0.80
2020/06/23 04:39	1.15	11.08	0.80
2020/06/23 04:44	1.18	13.75	0.95
2020/06/23 04:49	1.18	10.84	0.75
2020/06/23 04:54	1.18	15.96	1.11
2020/06/23 04:59	1.19	15.74	1.08

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/22 21:34	1.64	14.76	0.64
2020/06/22 21:39	1.64	14.76	0.64
2020/06/22 21:44	1.61	14.41	0.64
2020/06/22 21:49	1.54	13.39	0.63
2020/06/22 21:54	1.54	13.53	0.64
2020/06/22 21:59	1.53	15.33	0.73
2020/06/22 22:04	1.51	12.55	0.61
2020/06/22 22:09	1.51	14.17	0.69
2020/06/22 22:14	1.51	14.17	0.69
2020/06/22 22:19	1.49	12.03	0.60
2020/06/22 22:24	1.39	8.72	0.48
2020/06/22 22:29	1.39	8.72	0.48
2020/06/22 22:34	1.29	7.86	0.48
2020/06/22 22:39	1.28	8.72	0.54
2020/06/22 22:44	1.28	8.74	0.54
2020/06/22 22:49	1.26	8.61	0.54
2020/06/22 22:54	1.26	8.61	0.54
2020/06/22 22:59	1.24	12.48	0.81
2020/06/22 23:04	1.21	12.07	0.81
2020/06/22 23:09	1.17	8.55	0.60
2020/06/22 23:14	1.17	8.62	0.61
2020/06/22 23:19	1.06	7.39	0.60
2020/06/22 23:24	1.06	7.39	0.60
2020/06/22 23:29	1.06	7.45	0.61
2020/06/22 23:34	1.10	7.88	0.61
2020/06/22 23:39	1.13	9.40	0.70
2020/06/22 23:44	1.13	9.40	0.70
2020/06/22 23:49	1.14	8.91	0.65
2020/06/22 23:54	1.17	9.23	0.65
2020/06/22 23:59	1.15	9.76	0.70
2020/06/23 00:04	1.17	10.09	0.71
2020/06/23 00:09	1.17	10.11	0.71
2020/06/23 00:14	1.15	9.94	0.71
2020/06/23 00:19	1.15	9.92	0.71
2020/06/23 00:24	1.17	9.43	0.67
2020/06/23 00:29	1.15	9.14	0.66
2020/06/23 00:34	1.17	9.30	0.66
2020/06/23 00:39	1.17	9.30	0.66
2020/06/23 00:44	1.17	9.30	0.66
2020/06/23 00:49	1.15	8.58	0.62
2020/06/23 00:54	1.15	8.36	0.60
2020/06/23 00:59	1.06	7.35	0.60
2020/06/23 01:04	0.99	6.48	0.58
2020/06/23 01:09	0.89	5.28	0.55
2020/06/23 01:14	0.83	4.32	0.50

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 08:49	1.54	12.10	0.57
2020/06/23 08:54	1.54	12.10	0.57
2020/06/23 08:59	1.54	14.14	0.67
2020/06/23 09:04	1.75	16.94	0.67
2020/06/23 09:09	1.76	17.13	0.67
2020/06/23 09:14	1.76	18.12	0.71
2020/06/23 09:19	1.75	16.94	0.67
2020/06/23 09:24	1.46	18.06	0.92
2020/06/23 09:29	1.35	12.20	0.70
2020/06/23 09:34	1.35	12.20	0.70
2020/06/23 09:39	1.35	12.20	0.70
2020/06/23 09:44	1.35	12.20	0.70
2020/06/23 09:49	1.42	11.80	0.63
2020/06/23 09:54	1.42	10.15	0.54
2020/06/23 09:59	1.35	9.44	0.54
2020/06/23 10:04	1.32	8.08	0.48
2020/06/23 10:09	1.32	9.16	0.54
2020/06/23 10:14	1.25	9.00	0.58
2020/06/23 10:19	1.22	14.92	0.99
2020/06/23 10:24	1.25	16.14	1.03
2020/06/23 10:29	1.38	18.52	1.03
2020/06/23 10:34	1.38	18.52	1.03
2020/06/23 10:39	1.39	15.79	0.87
2020/06/23 10:44	1.39	12.66	0.70
2020/06/23 10:49	1.47	13.77	0.70
2020/06/23 10:54	1.51	14.33	0.70
2020/06/23 10:59	1.51	11.46	0.56
2020/06/23 11:04	1.51	11.46	0.56
2020/06/23 11:09	1.51	12.75	0.62
2020/06/23 11:14	1.50	12.58	0.62
2020/06/23 11:19	1.42	11.59	0.62
2020/06/23 11:24	1.42	13.09	0.70
2020/06/23 11:29	1.50	15.74	0.77
2020/06/23 11:34	1.53	16.76	0.80
2020/06/23 11:39	1.69	19.44	0.80
2020/06/23 11:44	1.69	19.44	0.80
2020/06/23 11:49	1.69	20.60	0.85
2020/06/23 11:54	1.65	19.88	0.85
2020/06/23 11:59	1.65	21.72	0.93
2020/06/23 12:04	1.54	19.66	0.93
2020/06/23 12:09	1.54	19.66	0.93
2020/06/23 12:14	1.65	21.87	0.94
2020/06/23 12:19	1.54	19.80	0.94
2020/06/23 12:24	1.54	17.90	0.85
2020/06/23 12:29	1.54	16.75	0.79

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 05:04	1.17	15.22	1.08
2020/06/23 05:09	1.17	15.22	1.08
2020/06/23 05:14	1.17	15.22	1.08
2020/06/23 05:19	1.17	12.61	0.89
2020/06/23 05:24	1.17	9.27	0.66
2020/06/23 05:29	1.15	11.59	0.83
2020/06/23 05:34	1.14	9.59	0.70
2020/06/23 05:39	1.14	9.59	0.70
2020/06/23 05:44	1.14	11.32	0.83
2020/06/23 05:49	1.25	12.96	0.83
2020/06/23 05:54	1.25	10.98	0.70
2020/06/23 05:59	1.38	14.87	0.83
2020/06/23 06:04	1.38	14.87	0.83
2020/06/23 06:09	1.33	11.94	0.70
2020/06/23 06:14	1.33	11.94	0.70
2020/06/23 06:19	1.33	11.94	0.70
2020/06/23 06:24	1.15	9.12	0.66
2020/06/23 06:29	1.14	8.96	0.66
2020/06/23 06:34	1.13	8.69	0.65
2020/06/23 06:39	1.13	8.69	0.65
2020/06/23 06:44	1.13	9.14	0.68
2020/06/23 06:49	1.13	9.81	0.73
2020/06/23 06:54	1.21	16.42	1.10
2020/06/23 06:59	1.21	16.42	1.10
2020/06/23 07:04	1.21	16.42	1.10
2020/06/23 07:09	1.10	10.41	0.80
2020/06/23 07:14	1.07	9.55	0.77
2020/06/23 07:19	1.04	8.00	0.67
2020/06/23 07:24	1.07	8.31	0.67
2020/06/23 07:29	1.10	8.92	0.69
2020/06/23 07:34	1.22	10.09	0.67
2020/06/23 07:39	1.22	10.09	0.67
2020/06/23 07:44	1.24	9.79	0.64
2020/06/23 07:49	1.47	12.34	0.62
2020/06/23 07:54	1.47	12.34	0.62
2020/06/23 07:59	1.54	13.19	0.62
2020/06/23 08:04	1.58	13.45	0.61
2020/06/23 08:09	1.61	14.05	0.62
2020/06/23 08:14	1.58	14.02	0.64
2020/06/23 08:19	1.58	13.45	0.61
2020/06/23 08:24	1.50	12.12	0.60
2020/06/23 08:29	1.50	12.97	0.64
2020/06/23 08:34	1.50	12.12	0.60
2020/06/23 08:39	1.54	12.61	0.60
2020/06/23 08:44	1.54	12.61	0.60

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 16:19	1.32	11.35	0.67
2020/06/23 16:24	1.29	10.59	0.65
2020/06/23 16:29	1.29	10.59	0.65
2020/06/23 16:34	1.29	11.01	0.67
2020/06/23 16:39	1.29	11.80	0.72
2020/06/23 16:44	1.38	12.02	0.67
2020/06/23 16:49	1.39	13.10	0.72
2020/06/23 16:54	1.42	13.48	0.72
2020/06/23 16:59	1.39	12.20	0.67
2020/06/23 17:04	1.44	12.90	0.67
2020/06/23 17:09	1.60	21.04	0.95
2020/06/23 17:14	1.51	13.38	0.65
2020/06/23 17:19	1.51	13.38	0.65
2020/06/23 17:24	1.51	13.38	0.65
2020/06/23 17:29	1.40	11.99	0.65
2020/06/23 17:34	1.29	10.54	0.64
2020/06/23 17:39	1.29	10.54	0.64
2020/06/23 17:44	1.29	11.64	0.71
2020/06/23 17:49	1.33	15.21	0.89
2020/06/23 17:54	1.33	15.21	0.89
2020/06/23 17:59	1.46	18.09	0.93
2020/06/23 18:04	1.40	16.37	0.89
2020/06/23 18:09	1.40	16.37	0.89
2020/06/23 18:14	1.40	12.37	0.67
2020/06/23 18:19	1.40	12.58	0.68
2020/06/23 18:24	1.40	12.37	0.67
2020/06/23 18:29	1.36	11.62	0.66
2020/06/23 18:34	1.36	11.17	0.63
2020/06/23 18:39	1.39	11.50	0.63
2020/06/23 18:44	1.39	10.85	0.60
2020/06/23 18:49	1.39	11.50	0.63
2020/06/23 18:54	1.54	13.36	0.63
2020/06/23 18:59	1.54	15.19	0.72
2020/06/23 19:04	1.54	15.19	0.72
2020/06/23 19:09	1.57	16.80	0.77
2020/06/23 19:14	1.63	17.65	0.77
2020/06/23 19:19	1.63	17.69	0.78
2020/06/23 19:24	1.63	17.54	0.77
2020/06/23 19:29	1.56	16.48	0.77
2020/06/23 19:34	1.35	11.64	0.67
2020/06/23 19:39	1.35	11.42	0.66
2020/06/23 19:44	1.33	10.73	0.62
2020/06/23 19:49	1.35	11.42	0.66
2020/06/23 19:54	1.36	11.05	0.62
2020/06/23 19:59	1.36	11.05	0.62

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 12:34	1.57	16.59	0.76
2020/06/23 12:39	1.54	14.51	0.69
2020/06/23 12:44	1.50	15.55	0.76
2020/06/23 12:49	1.40	14.62	0.79
2020/06/23 12:54	1.40	12.79	0.69
2020/06/23 12:59	1.40	12.79	0.69
2020/06/23 13:04	1.44	13.34	0.69
2020/06/23 13:09	1.44	13.34	0.69
2020/06/23 13:14	1.51	14.27	0.69
2020/06/23 13:19	1.51	12.85	0.62
2020/06/23 13:24	1.47	15.48	0.78
2020/06/23 13:29	1.44	17.26	0.90
2020/06/23 13:34	1.47	15.48	0.78
2020/06/23 13:39	1.38	12.19	0.68
2020/06/23 13:44	1.38	12.19	0.68
2020/06/23 13:49	1.38	12.17	0.68
2020/06/23 13:54	1.50	13.56	0.67
2020/06/23 13:59	1.46	12.40	0.63
2020/06/23 14:04	1.50	12.91	0.63
2020/06/23 14:09	1.53	13.92	0.67
2020/06/23 14:14	1.54	14.34	0.68
2020/06/23 14:19	1.54	14.34	0.68
2020/06/23 14:24	1.54	14.34	0.68
2020/06/23 14:29	1.54	14.27	0.67
2020/06/23 14:34	1.47	10.47	0.53
2020/06/23 14:39	1.31	8.81	0.53
2020/06/23 14:44	1.31	11.24	0.67
2020/06/23 14:49	1.29	11.06	0.67
2020/06/23 14:54	1.29	11.33	0.69
2020/06/23 14:59	1.28	11.15	0.69
2020/06/23 15:04	1.25	10.80	0.69
2020/06/23 15:09	1.25	10.80	0.69
2020/06/23 15:14	1.25	10.80	0.69
2020/06/23 15:19	1.29	10.75	0.66
2020/06/23 15:24	1.42	12.76	0.68
2020/06/23 15:29	1.43	12.45	0.66
2020/06/23 15:34	1.42	11.26	0.60
2020/06/23 15:39	1.43	11.42	0.60
2020/06/23 15:44	1.49	13.67	0.68
2020/06/23 15:49	1.61	13.54	0.60
2020/06/23 15:54	1.61	13.54	0.60
2020/06/23 15:59	1.61	15.45	0.69
2020/06/23 16:04	1.58	13.03	0.59
2020/06/23 16:09	1.50	12.06	0.59
2020/06/23 16:14	1.36	10.49	0.59

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 20:04	1.51	13.90	0.67
2020/06/23 20:09	1.72	23.07	0.93
2020/06/23 20:14	1.51	13.90	0.67
2020/06/23 20:19	1.38	12.11	0.67
2020/06/23 20:24	1.38	12.11	0.67
2020/06/23 20:29	1.38	12.11	0.67
2020/06/23 20:34	1.38	12.11	0.67
2020/06/23 20:39	1.38	12.11	0.67
2020/06/23 20:44	1.43	12.45	0.66
2020/06/23 20:49	1.51	15.16	0.74
2020/06/23 20:54	1.53	11.44	0.55
2020/06/23 20:59	1.51	11.30	0.55
2020/06/23 21:04	1.43	10.41	0.55
2020/06/23 21:09	1.38	10.70	0.60
2020/06/23 21:14	1.38	10.70	0.60
2020/06/23 21:19	1.38	10.76	0.60
2020/06/23 21:24	1.44	11.55	0.60
2020/06/23 21:29	1.44	14.08	0.73
2020/06/23 21:34	1.50	14.86	0.73
2020/06/23 21:39	1.44	14.08	0.73
2020/06/23 21:44	1.44	14.08	0.73
2020/06/23 21:49	1.35	12.79	0.73
2020/06/23 21:54	1.31	12.38	0.74
2020/06/23 21:59	1.31	12.38	0.74
2020/06/23 22:04	1.42	9.76	0.52
2020/06/23 22:09	1.36	13.29	0.75
2020/06/23 22:14	1.42	9.91	0.53
2020/06/23 22:19	1.42	9.79	0.52
2020/06/23 22:24	1.36	9.35	0.53
2020/06/23 22:29	1.35	13.21	0.76
2020/06/23 22:34	1.26	11.56	0.73
2020/06/23 22:39	1.26	11.56	0.73
2020/06/23 22:44	1.26	11.56	0.73
2020/06/23 22:49	1.35	12.68	0.73
2020/06/23 22:54	1.39	10.18	0.56
2020/06/23 22:59	1.39	9.19	0.50
2020/06/23 23:04	1.39	10.18	0.56
2020/06/23 23:09	1.29	9.17	0.56
2020/06/23 23:14	1.17	7.35	0.52
2020/06/23 23:19	1.06	6.35	0.52
2020/06/23 23:24	1.03	6.11	0.52
2020/06/23 23:29	1.03	6.11	0.52
2020/06/23 23:34	1.06	6.35	0.52
2020/06/23 23:39	1.14	7.16	0.52
2020/06/23 23:44	1.21	7.75	0.52

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/23 23:49	1.21	7.75	0.52
2020/06/23 23:54	1.15	7.24	0.52
2020/06/23 23:59	1.14	7.16	0.52
2020/06/24 00:04	1.10	7.80	0.60
2020/06/24 00:09	1.06	8.20	0.67
2020/06/24 00:14	1.04	8.14	0.68
2020/06/24 00:19	1.04	8.04	0.67
2020/06/24 00:24	1.06	8.20	0.67
2020/06/24 00:29	1.13	8.99	0.67
2020/06/24 00:34	1.13	8.09	0.60
2020/06/24 00:39	1.13	7.31	0.54
2020/06/24 00:44	1.03	6.41	0.54
2020/06/24 00:49	0.99	5.74	0.52
2020/06/24 00:54	0.93	4.86	0.48
2020/06/24 00:59	0.90	4.65	0.48
2020/06/24 01:04	0.88	4.25	0.46
2020/06/24 01:09	0.86	3.92	0.43
2020/06/24 01:14	0.86	4.15	0.46
2020/06/24 01:19	0.90	4.78	0.49
2020/06/24 01:24	1.03	5.77	0.49
2020/06/24 01:29	1.03	6.02	0.51
2020/06/24 01:34	1.03	6.47	0.55
2020/06/24 01:39	0.97	5.55	0.51
2020/06/24 01:44	0.90	5.35	0.55
2020/06/24 01:49	0.88	5.11	0.55
2020/06/24 01:54	0.88	5.11	0.55
2020/06/24 01:59	0.88	5.44	0.58
2020/06/24 02:04	0.88	5.44	0.58
2020/06/24 02:09	0.88	5.40	0.58
2020/06/24 02:14	0.88	5.64	0.61
2020/06/24 02:19	0.81	4.99	0.61
2020/06/24 02:24	0.78	6.75	0.86
2020/06/24 02:29	0.76	6.57	0.86
2020/06/24 02:34	0.76	6.57	0.86
2020/06/24 02:39	0.76	4.62	0.61
2020/06/24 02:44	0.81	4.99	0.61
2020/06/24 02:49	0.86	5.51	0.61
2020/06/24 02:54	0.86	5.56	0.61
2020/06/24 02:59	0.86	5.56	0.61
2020/06/24 03:04	0.83	5.30	0.61
2020/06/24 03:09	0.83	5.51	0.64
2020/06/24 03:14	0.83	5.80	0.67
2020/06/24 03:19	0.83	5.51	0.64
2020/06/24 03:24	0.83	5.47	0.63
2020/06/24 03:29	0.88	5.87	0.63

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/24 07:19	1.22	10.24	0.68
2020/06/24 07:24	1.26	10.75	0.68
2020/06/24 07:29	1.32	9.76	0.58
2020/06/24 07:34	1.32	9.67	0.57
2020/06/24 07:39	1.40	10.66	0.58
2020/06/24 07:44	1.32	9.67	0.57
2020/06/24 07:49	1.31	8.22	0.49
2020/06/24 07:54	1.31	8.22	0.49
2020/06/24 07:59	1.40	10.54	0.57
2020/06/24 08:04	1.47	9.77	0.49
2020/06/24 08:09	1.53	11.91	0.57
2020/06/24 08:14	1.69	17.11	0.71
2020/06/24 08:19	1.69	17.54	0.72
2020/06/24 08:24	1.60	16.12	0.72
2020/06/24 08:29	1.60	16.12	0.72
2020/06/24 08:34	1.60	16.23	0.73
2020/06/24 08:39	1.60	16.12	0.72
2020/06/24 08:44	1.60	16.23	0.73
2020/06/24 08:49	1.63	16.63	0.73
2020/06/24 08:54	1.65	19.14	0.82
2020/06/24 08:59	1.75	21.00	0.83
2020/06/24 09:04	1.75	21.00	0.83
2020/06/24 09:09	1.75	20.76	0.82
2020/06/24 09:14	1.54	13.93	0.66
2020/06/24 09:19	1.46	11.17	0.57
2020/06/24 09:24	1.42	10.72	0.57
2020/06/24 09:29	1.42	10.30	0.55
2020/06/24 09:34	1.46	10.67	0.55
2020/06/24 09:39	1.46	9.67	0.50
2020/06/24 09:44	1.33	8.50	0.50
2020/06/24 09:49	1.49	9.94	0.50
2020/06/24 09:54	1.50	10.07	0.50
2020/06/24 09:59	1.51	12.55	0.61
2020/06/24 10:04	1.51	12.68	0.62
2020/06/24 10:09	1.51	12.68	0.62
2020/06/24 10:14	1.50	13.56	0.67
2020/06/24 10:19	1.50	13.56	0.67
2020/06/24 10:24	1.50	12.52	0.62
2020/06/24 10:29	1.50	10.17	0.50
2020/06/24 10:34	1.50	11.73	0.58
2020/06/24 10:39	1.46	11.27	0.58
2020/06/24 10:44	1.44	11.11	0.58
2020/06/24 10:49	1.42	10.81	0.58
2020/06/24 10:54	1.42	10.81	0.58
2020/06/24 10:59	1.39	10.13	0.56

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/24 03:34	0.88	5.44	0.58
2020/06/24 03:39	0.88	4.95	0.53
2020/06/24 03:44	0.89	5.07	0.53
2020/06/24 03:49	0.99	5.90	0.53
2020/06/24 03:54	0.99	7.03	0.63
2020/06/24 03:59	0.99	7.03	0.63
2020/06/24 04:04	0.94	6.60	0.63
2020/06/24 04:09	0.92	6.13	0.62
2020/06/24 04:14	0.92	5.97	0.60
2020/06/24 04:19	0.82	4.92	0.58
2020/06/24 04:24	0.81	4.48	0.54
2020/06/24 04:29	0.81	4.35	0.53
2020/06/24 04:34	0.81	4.35	0.53
2020/06/24 04:39	0.81	4.29	0.52
2020/06/24 04:44	0.83	4.51	0.52
2020/06/24 04:49	0.83	4.51	0.52
2020/06/24 04:54	0.83	4.51	0.52
2020/06/24 04:59	0.83	4.40	0.51
2020/06/24 05:04	0.83	4.40	0.51
2020/06/24 05:09	0.89	4.53	0.48
2020/06/24 05:14	0.92	5.46	0.55
2020/06/24 05:19	0.94	5.70	0.55
2020/06/24 05:24	0.99	6.84	0.62
2020/06/24 05:29	0.99	6.07	0.55
2020/06/24 05:34	0.99	6.48	0.58
2020/06/24 05:39	0.99	7.07	0.64
2020/06/24 05:44	1.01	7.10	0.62
2020/06/24 05:49	1.01	7.10	0.62
2020/06/24 05:54	1.03	8.07	0.69
2020/06/24 05:59	1.03	10.58	0.90
2020/06/24 06:04	1.01	7.91	0.69
2020/06/24 06:09	0.99	7.60	0.69
2020/06/24 06:14	0.99	6.29	0.57
2020/06/24 06:19	0.99	6.29	0.57
2020/06/24 06:24	1.00	6.27	0.55
2020/06/24 06:29	1.00	6.27	0.55
2020/06/24 06:34	1.01	6.21	0.54
2020/06/24 06:39	1.01	6.21	0.54
2020/06/24 06:44	1.08	6.68	0.53
2020/06/24 06:49	1.08	6.84	0.54
2020/06/24 06:54	1.17	8.71	0.62
2020/06/24 06:59	1.17	8.71	0.62
2020/06/24 07:04	1.22	9.66	0.64
2020/06/24 07:09	1.17	9.18	0.65
2020/06/24 07:14	1.22	9.66	0.64

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2020/06/24 11:04	1.32	9.40	0.56
2020/06/24 11:09	1.39	9.63	0.53
2020/06/24 11:14	1.42	10.42	0.56
2020/06/24 11:19	1.39	10.13	0.56
2020/06/24 11:24	1.42	11.68	0.62
2020/06/24 11:29	1.53	13.02	0.62
2020/06/24 11:34	1.42	11.68	0.62
2020/06/24 11:39	1.42	11.14	0.59
2020/06/24 11:44	1.42	11.14	0.59
2020/06/24 11:49	1.42	11.14	0.59
2020/06/24 11:54	1.42	11.14	0.59
2020/06/24 11:59	1.42	11.86	0.63
2020/06/24 12:04	1.53	13.22	0.63
2020/06/24 12:09	1.53	13.22	0.63
2020/06/24 12:14	1.57	11.34	0.52
2020/06/24 12:19	1.54	11.05	0.52
2020/06/24 12:24	1.54	11.05	0.52
2020/06/24 12:29	1.57	21.01	0.97
2020/06/24 12:34	1.65	23.25	0.99
2020/06/24 12:39	1.65	23.25	0.99
2020/06/24 12:44	1.65	23.25	0.99
2020/06/24 12:49	1.47	9.36	0.47
2020/06/24 12:54	1.42	8.86	0.47
2020/06/24 12:59	1.42	8.86	0.47
2020/06/24 13:04	1.42	12.25	0.65
2020/06/24 13:09	1.36	11.56	0.65
2020/06/24 13:14	1.36	11.56	0.65

Appendix 7

City of Placentia Study Guidelines

City of Placentia

DEPARTMENT OF PUBLIC WORKS

SUBJECT: SEWER CAPACITY STUDY GUIDELINES

Developer is required to determine the impact of certain projects on the City's sewer system. The sanitary sewer capacity study shall analyze the impact of the proposed project on the capacity of the existing sanitary sewer system. The developer is responsible for all costs associated with this study. The following is a guideline for performing this study:

TRIGGER

A sanitary sewer study shall be required for a proposed project if it exceeds one or more of the following criteria:

1. 10 or more residential dwelling units
2. 10,000 square feet of office or commercial facility
3. 1,000 square feet of restaurant
4. Laundromat and/or industrial laundry

CRITERIA

1. At a minimum, two manhole locations shall be flow monitored for a two-week wet weather period to determine existing flow characteristics. The locations shall be at the sewer line nearest the project site, and at the nearest trunk line. The monitoring shall be dynamic, continuous and be recorded at 15-minute intervals.
2. The analysis of this data will use the following peaking factors for dry weather flow: 4.5 for local lines and 1.5 for trunk lines
3. In lieu of wet weather monitoring, wet weather flow will be calculated at 400% of peak dry weather flow.
4. Fixture unit equivalents shall be used to determine the amount of proposed project flow.
5. The average family unit shall be 3.0 persons per residence and 100 gal/person/day for proposed residential flows.

FINDINGS

1. Existing capacity of system.
2. The post-development capacity of system.
3. Percent (%) of pipe full at peak flow.
4. Confirm adequacy of existing local and trunk lines for both existing and anticipated future flows. Recommended actions required to mitigate any impact that overcharges the system.

FLOW MONITORING

Developers shall use a professional Engineer licensed in the State of California and/or a Contractor with at least 5 years' experience in flow monitoring to perform requirements of the Sanitary Sewer Capacity Study.

APPENDIX H – TRANSPORTATION ASSESSMENT

FEHR & PEERS

MEMORANDUM

Date: September 29, 2020

To: Sarah Walker, National Community Renaissance

From: Ethan Yue Sun and Spencer Reed, PE

Subject: Santa Angelina Senior Affordable Apartment Homes Transportation Assessment

OC18-0592

This memorandum documents a trip generation, site access, and Vehicle Miles Traveled (VMT) assessment conducted by Fehr & Peers for the proposed senior housing community and church expansion project (Project) located at 1314 North Angelina Drive in Placentia, California.

PROJECT DESCRIPTION

The Project is located at 1314 N. Angelina Drive, on the northeast corner of the intersection of N. Angelina Drive and Morse Avenue. The Project includes the development of two residential buildings accommodating 65 senior housing units and a 1,500 square feet (sf) senior-oriented community center to serve project residents. In addition to the senior housing units onsite, the Project will also include a 600 sf expansion to the existing parish hall (including the building and covered patio).

PROJECT TRIP GENERATION

Trip generation rates from *Trip Generation, 10th Edition* (Institute of Transportation Engineers [ITE], 2017) were used to estimate the number of trips associated with the Project. ITE trip generation rates for Senior Adult Housing - Attached (ITE Code 252) and Church (ITE Code 560) were used to estimate trips for the various land uses. The 1,500 sf senior-oriented community center was not used to estimate external trips, since it was designed to only serve the Project residents.

PROJECT TRIP GENERATION ESTIMATES

As presented in Table 1, the Project is expected to generate an estimated net new external 245 daily trips (inbound and outbound), including 13 trips (5 inbound/8 outbound) during the AM peak hour and 19 trips (10 inbound/9 outbound) during the PM peak hour.

SITE ACCESS AND ON-SITE CIRCULATION EVALUATION

Fehr & Peers has reviewed the Project site plan for site access and on-site circulation considerations.

VEHICLE ACCESS

Access to the Project is proposed from three driveways. The site has an existing driveway along Morse Avenue and along N. Angelina Drive. A new twenty five foot wide driveway is proposed along N. Angelina Drive south of the property line to provide access for residents to a parking area.

Sight distances were reviewed at the Project site's existing and proposed driveways. As seen in Figures 1 – 6, existing landscaping and infrastructure can limit visibility from the existing and proposed driveways. It is recommended that landscaping and infrastructure be reviewed and maintained to provide adequate sight distances for the Project driveways.

EMERGENCY VEHICLE ACCESS

A review of the site plan indicates that emergency vehicles can access the site through the three access locations. It can be concluded that the emergency vehicle access is sufficient. However, it is recommended that the Fire Department review the site plan to determine if adequate internal street widths and turning radii are provided.

PEDESTRIAN ACCESS

Pedestrians can access the Project site from pathways on N. Angelina Drive and Morse Avenue. Therefore, sufficient pedestrian access is provided for the Project site.

BICYCLE ACCESS

The Project will provide access to the existing Class III bicycle facility along N. Angelina Drive. Bicyclists can access the Project site from pathways on N. Angelina Drive and Morse Avenue. Therefore, sufficient bicycle access is provided for the Project site.

TRANSIT ACCESS

Transit routes operate along Kramer Boulevard within approximately 500 feet of the Project site. The pedestrian pathways described above connect to Kramer Boulevard, where bus stops are located, less than ¼ mile from the Project. Pathways and access routes to the transit stops are straightforward, direct, and clear to all users. Transit riders can access the Project site from pathways on N. Angelina Drive and Morse Avenue. Therefore, sufficient transit access is provided for the Project site.

ON-SITE CIRCULATION

On-site circulation is provided by an internal system of two-way roadways that provide access from the driveways to dedicated parking spaces. Roadways that have dead ends should be designed to allow adequate space for vehicles to turn around.

VMT ASSESSMENT

Senate Bill 743 (SB 743), signed by the Governor in 2013, changed the way transportation impacts are identified. Specifically, the legislation has directed the Office of Planning and Research (OPR) to look at different metrics for identifying transportation as an impact in the California Environmental Quality Act (CEQA). The Final OPR guidelines, released in November 2017, identify VMT as the preferred metric for traffic impact analysis moving forward. The City of Placentia is currently in the process of updating their Traffic Impact Study Guidelines and adopting thresholds of significance related to VMT. The City's Draft Guidelines include screening criteria for project types that can be presumed to result in a less-than-significant transportation impact.

OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA includes a section titled "Presumption of Less Than Significant Impact for Affordable Residential Development." This section states that adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT. Additionally, this document also states: "Evidence supports a presumption of less than significant impact for a 100 percent affordable residential development (or the residential component of a mixed-use development) in infill locations. Lead agencies may develop their own presumption of less than significant impact for residential projects (or residential portions of mixed use projects) containing a particular amount of affordable housing, based on local circumstances and evidence (OPR, 2018, pp. 14-15). Therefore, the project would have a less than significant impact regarding conflict or inconsistency with CEQA Guidelines section 15064.3.

Based on the City's Draft Guidelines and recommendations in the Technical Advisory, the Project can be screened out from a full VMT assessment as it is presumed to result in a less-than-significant transportation impact.

CONCLUSION

The Project is anticipated to add 19 or less trips during the peak hour. The Project provides site access for a variety of transportation modes and access from driveways to dedicated parking spaces. The project type (affordable senior housing) can also be screened from full VMT assessment based on OPR and City guidance. Therefore, the amount of traffic added to the street network by the Project would result in less-than-significant transportation impacts in the vicinity of the Project.

TABLE 1
TRIP GENERATION ESTIMATE

Land Use	ITE Land Use Code	Size		Trip Generation Rates								Estimated Trip Generation						
				Daily Rate	AM Peak Hour			PM Peak Hour			Trip	Daily Trips	AM Peak Hour			PM Peak Hour		
					Rate	% In	% Out	Rate	% In	% Out	Rate		In	Out	Total	In	Out	Total
Senior Adult Housing - Attached	252	65	Units	3.7	0.20	35%	65%	0.26	55%	45%	per du	241	5	8	13	9	8	17
Church	560	0.6	ksf	6.95	0.33	60%	40%	3.81	45%	55%	per ksf	4	0	0	0	1	1	2
External Total Project Trips												245	5	8	13	10	9	19

Notes:

a. Source: Institute of Transportation Engineers (ITE), Trip Generation, 10th Edition, 2017, unless otherwise noted.

Figure 1

Left Turn View of Existing Driveway of Morse Ave

Figure 2
Right Turn View of Existing Driveway of Morse Ave

Figure 3
Left Turn View of Existing Driveway of Angelina Drive

Figure 4

Right Turn View of Existing Driveway of Angelina Drive

Figure 5

Left Turn View of Proposed Driveway of Angelina Drive

APPENDIX I – DNL CALCULATIONS

Home (/) > **Programs (/programs/)** > **Environmental Review (/programs/environmental-review/)** > DNL Calculator

DNL Calculator

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the **Day/Night Noise Level Calculator Electronic Assessment Tool Overview (/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/)**.

Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	Santa Angelina
Record Date	12/02/2020
User's Name	GT

Road # 1 Name:	**Kraemer Blvd**

Road #1

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	390	390	390
Distance to Stop Sign			
Average Speed	40	40	40
Average Daily Trips (ADT)	25242	1230	729
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	56	52	58
Calculate Road #1 DNL	61	Reset	

Road # 2 Name:	**Yorba Linda Blvd**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	660	660	660
Distance to Stop Sign			
Average Speed	40	40	40
Average Daily Trips (ADT)	26903	1311	776
Night Fraction of ADT	15	15	15
Road Gradient (%)			0
Vehicle DNL	52	49	55
Calculate Road #2 DNL	58	Reset	

Add Road Source | Add Rail Source

Airport Noise Level	
Loud Impulse Sounds?	◯Yes ◯No
Combined DNL for all Road and Rail sources	**62**
Combined DNL including Airport	**N/A**
Site DNL with Loud Impulse Sound	

Calculate | Reset

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See ***The Noise Guidebook (/resource/313/hud-noise-guidebook/)***
  - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

Road Noise (major roads within 1,000 feet)

Road name:	Kraemer Blvd			
Vehicle Type	**Cars**	**Med Trucks**	**Heavy Trucks**	
Effective Dist	390	390	390	
Dist to Stop Sign				
Avg Speed	40	40	40	posted speed limit
ADT	25,242	1,230	729	According to User Guide ADT is 10 year projected traffic
Night Fraction of ADT	15	15	15	According to Ch 5 Assessment Guidelines if unknown assume .15
Road Gradient			0	
Vehicle DNL	56	52	58	
Road DNL	**61**			

Table 4.13-2 for year 2035

ADT	27200

Caltrans 2016 Daily Truck Traffic

State Route 90 west of Rte 142

	Cars	Med Trucks	Heavy Trucks
Percentage	92.8%	4.5%	2.7%

Road Noise (major roads within 1,000 feet)

Road name:	Yorba Linda Blvd			
Vehicle Type	**Cars**	**Med Trucks**	**Heavy Trucks**	
Effective Dist	660	660	660	
Dist to Stop Sign				
Avg Speed	40	40	40	posted speed limit
ADT	26,903	1,311	776	According to User Guide ADT is 10 year projected traffic
Night Fraction of ADT	15	15	15	According to Ch 5 Assessment Guidelines if unknown assume .15
Road Gradient			0	
Vehicle DNL	52	49	55	
Road DNL	**58**			

Table 4.13-2 for year 2035

ADT	28990

Caltrans 2016 Daily Truck Traffic

State Route 90 west of Rte 142

	Cars	Med Trucks	Heavy Trucks
Percentage	92.8%	4.5%	2.7%