ENVIRONMENTAL CHECKLIST FORM
CITY OF HUNTINGTON BEACH
PLANNING & BUILDING DEPARTMENT
ENVIRONMENTAL ASSESSMENT NO. 12-02

1. PROJECT TITLE: **Warner Avenue Sewer Lift Station Project**

2. LEAD AGENCY: City of Huntington Beach
2000 Main Street
Huntington Beach, CA 92648

Contact: Hayden Beckman
Phone: (714) 374-5317

3. PROJECT LOCATION:

The project site is located along segments of Warner Avenue and Pacific Coast Highway in the City of Huntington Beach (refer to Attachment 1A, Site Vicinity, and Attachment 1B, Site Aerial). Specifically, the project site includes improvements within and immediately adjacent to Warner Avenue, between North Pacific Avenue and Edgewater Lane, and within and immediately adjacent to a 600-foot segment of northbound Pacific Coast Highway (PCH), north of Warner Avenue. Within the Warner Avenue segment, Warner Avenue is bridged approximately 100 feet over a channel connecting Huntington Harbour with Upper Bolsa Bay.

4. **PROJECT PROPONENT:** City of Huntington Beach, Department of Public Works
2000 Main Street
Huntington Beach, CA 92648

Contact Person: Andrew Ferrigno, P.E.
Phone: (714) 536-5291

5. GENERAL PLAN DESIGNATION:

The project site is located within the following general plan designations: ROW (Right-of-Way); P (OS-CR) (Public – Open Space – Commercial Recreation); CV-F1 (Commercial Visitor – 0.35 FAR); RMH-25 (Residential Medium High Density – 25 units per acre); Recently Annexed Area, Land Use Not Certified and unincorporated Bolsa Chica Wetlands (County of Orange) area.

6. ZONING:

The project site is located within the following zoning designations: ROW (Right-of-Way); PS (Public Semi-Public); CG (General Commercial); RMH (Residential Medium High Density); Recently Annexed Area, Land Use Not Certified; and unincorporated Bolsa Chica Wetlands (County of Orange) area.

7. PROJECT DESCRIPTION

In 2006 the City of Huntington Beach (City) began construction of the Warner Avenue Gravity Sewer Project. The purpose of that project was to upgrade existing gravity sewers in Pacific Coast Highway (PCH) and Warner Avenue, and to eliminate existing Lift Stations #B and #C and an existing Sunset Beach Sanitary District Lift Station. Also included in the project was the upgrade of Lift Station #D, located on Warner Avenue near Los Patos Avenue. Unfortunately, due to issues related to construction, only the upgrade of Lift Station #D was completed. Most of the reaches of sewer that were installed were found to have floated, creating numerous sags in the pipe, rendering most of the installation unusable.

The project has been redesigned and the new Warner Avenue Sewer Lift Station Project (proposed project) consists of the following elements: elimination of existing Lift Stations #B and #C, former Lift Station #D, and existing Sunset Beach Sanitary District Lift Station; construction of new gravity sewers from the existing Sunset Beach Sanitary District Lift Station and existing Lift Stations #B and #C to a new Lift Station #C; a new 12-inch forcemain from new Lift Station #C across the Warner Avenue Bridge to Weatherly Lane; and a new 15-inch gravity sewer from the new 12-inch forcemain terminus near Weatherly Lane to Edgewater Avenue, connecting to an existing 18-inch sewer which was salvaged from the 2006 improvement project (refer to Attachment 2, Proposed Project). The proposed project has been designed to serve existing demand with no net increase in overall sewer capacity. As such, the new sewer facilities will replace existing facilities only. The proposed location for the new Lift Station #C is in the planter area in front of the City-owned yacht club parking lot, on the north side of Warner Avenue, west of the Warner Avenue Fire Station. Note that although former Lift Station #D will be eliminated, existing Lift Station #D will be retained. Additional details of these proposed project elements are provided below. It should also be noted that Warner Avenue Bridge will be undergoing structural rehabilitation as part of the City's Huntington Beach Bridge Rehabilitation at Warner Avenue Project. Improvements associated with the proposed project will be constructed in coordination with this separate bridge rehabilitation project. The two projects may have coinciding construction schedules but will be subject to separate environmental and Coastal Commission review and approvals.

New Lift Station #C

The submersible Lift Station #C will incorporate a 12-foot by 30-foot by 22-foot deep wet well, two submersible pumps capable of pumping peak wet weather influent flow (i.e., 1,200 gallons per minute) installed in the wet well, a 15-foot by 10- foot by 8-foot deep valve vault, a 60 kW natural gas outdoor emergency generator, a 125 gallon natural gas and liquid propane gas (LPG) emergency backup tank, and outdoor electrical service and motor control center. A 100 amp, 480 volt, 3-phase electrical service will be required from Southern California Edison (SCE). The motor control center will contain the main breaker, automatic transfer switch, pump starters, single phase transformer, load center, and the pump control panel. All electrical equipment will be located in an outdoor enclosure. Lift Station #C will also include two 18-foot-high, 100-watt pole-mounted yard lights.

Gravity and Force Sewer Mains

All sewer mains will require trenching within the Warner Avenue and PCH public street rights-of-way. Construction activities within these public streets will result in temporary lane closures. Approximately 1,000 lineal feet (L.F.) of new 15-inch gravity sewer will be constructed within PCH and Warner Avenue from existing Lift Station #B to the new Lift Station #C. Approximately 300 L.F. of new 10-inch gravity sewer will be constructed in Warner Avenue, from the existing Sunset Beach Sanitary District Lift Station, across PCH, to connect to the new 15-inch gravity sewer. Approximately 750 L.F. of new 12-inch forcemain (i.e., pressurized main pipe) will be constructed within Warner Avenue from new Lift Station #C, across Warner Avenue Bridge, to a manhole near the intersection of Warner Avenue and Weatherly Lane. The forcemain will be attached to the south side of Warner Avenue Bridge with the use of a support system. Approximately 2,100 L.F. of new 15-inch gravity sewer will be constructed in Warner Avenue from the new 12-inch forcemain terminus to near the intersection of Warner Avenue and Edgewater Lane, where it will connect to an existing section of 24-inch sewer with an 18-inch liner.

Demolition

The installation of new gravity sewer mains and a new Lift Station #C will eliminate the need for existing Lift Stations #B and #C and the existing Sunset Beach Sanitary District Lift Station. Also, former Lift Station #D is no longer needed due to improvements as part of the 2006 improvement project. All four lift stations, including concrete pads, will be demolished. Following demolition, former Lift Station #D and existing Lift Station #C, both situated on the south side of Warner Avenue, will be planted with native vegetation. Approximately 80.5 cubic yards (CY) of demolished material related to the four lift stations is anticipated to be disposed of at a landfill. In addition to lift station demolition, a total of twelve sanitary manholes located within the Warner Avenue and PCH public street rights-of-way will be demolished. These sanitary manholes are associated with the failed 2006 improvement project. Demolition will be accomplished by excavating the vertical section of the pipe and manhole and then abandoning the associated failed horizontal sewer main by filling it with concrete. Following demolition, abandoned sanitary manholes within the street will be repaved and six sanitary manholes, located along the unpaved south side of Warner Avenue, will be backfilled and replanted with native vegetation.

Dewatering

Due to the shallow depth of groundwater, construction of the proposed project will require dewatering during sewer main trenching and excavation/construction for Lift Station #C. Dewatering will be accomplished with the use of casing pipe and pumps, and by drilling eight-inch-diameter, 40-foot-deep holes for wellpoints around the perimeter of sewer main trenches. In addition, an estimated four wellpoints will be drilled in the City-owned yacht club parking lot for the construction of Lift Station #C.

Additional Construction Information

Construction of the proposed project is expected to take approximately 220 working days. A crew of approximately 10-15 construction workers will be at the project site during construction. Construction equipment would include the following: asphalt concrete cutting equipment, drill rig 8-inch auger, backhoe, dump trucks, flat bed pipe trailer, excavators, backhoe, drill rig 16-inch auger, hydraulic press, crane, concrete delivery truck, bridge inspection truck, loader, asphalt truck, roller, and jackhammer. Construction staging will be in the City-owned yacht club parking lot located on the north side of Warner Avenue, west of the Warner Avenue Fire Station. Construction personnel parking will be in the City-

owned yacht club parking lot or along Warner Avenue. Throughout the duration of construction, there will be a loss of approximately 25 parking spaces within the City-owned parking lot.

All components of the proposed project, including Lift Station #C, gravity sewers, and forcemain, will be constructed, tested, and deemed fully operational, prior to the decommissioning and demolition of the existing sanitary sewage system. All at-grade features of the existing sewage system, including manholes, will be removed and these areas will be either replanted or repaved.

Operation of the Proposed Project

Operation and maintenance activities associated with the proposed project, such as regular testing of lift stations and regular cleaning of forcemains, will decrease over existing conditions because there will be fewer lift stations and forcemains. Maintenance of the 125 gallon storage tank and emergency generator, including testing and refilling any used natural gas and LPG, will be minimal.

8. SURROUNDING LAND USES AND SETTING:

The project site is surrounded by residential, general commercial, and open space/park uses. Huntington Harbour is located immediately north of the project site, Bolsa Bay and the Bolsa Chica Ecological Reserve are located immediately south of the project site, and Bolsa Chica State Beach and Sunset Beach are located less than 500 feet west of PCH.

9. OTHER PREVIOUS RELATED ENVIRONMENTAL DOCUMENTATION:

City of Huntington Beach Mitigated Negative Declaration No. 03-01 (Warner Sewer Lift Station), State Clearinghouse No. 2004091154.

10. OTHER AGENCIES WHOSE APPROVAL IS REQUIRED (AND PERMITS NEEDED)

State of California Department of Transportation (Caltrans) Encroachment Permit; California State Lands Commission (easement to abandon Lift Station #C); California Coastal Commission (Coastal Development Permit); City of Huntington Beach (Coastal Development Permit per the Local Coastal Plan); Santa Ana Regional Water Quality Control Board (General Construction); and South Coast Air Quality Management District (SCAQMD) for Generator (Authority to Construct).

The City of Huntington Beach has an agreement with the Orange County Sanitation District for the proposed project.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or is "Potentially Significant Unless Mitigated," as indicated by the checklist on the following pages.

☐ Land Use / Planning	☒ Transportation / Traffic	☐ Public Services
☐ Population / Housing	☒ Biological Resources	☐ Utilities / Service Systems
☒ Geology / Soils	☐ Mineral Resources	☒ Aesthetics
☒ Hydrology / Water Quality	☒ Hazards and Hazardous Materials	☒ Cultural Resources
☐ Air Quality	☐ Noise	☐ Recreation
☐ Agriculture Resources	☐ Greenhouse Gas Emissions	☒ Mandatory Findings of Significance

DETERMINATION

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared. ☐

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. **A MITIGATED NEGATIVE DECLARATION** will be prepared. ☒

I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required. ☐

I find that the proposed project **MAY** have a "potentially significant impact" or a "potentially significant unless mitigated impact" on the environment, but at least one impact (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed. ☐

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, **nothing further is required.** ☐

Signature — Date: JULY 12, 2012

HAYDEN BECKMAN — Printed Name

PLANNING AIDE — Title

EVALUATION OF ENVIRONMENTAL IMPACTS:

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to the project. A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards.

2. All answers must take account of the whole action involved. Answers should address off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. "Potentially Significant Impact" is appropriate, if an effect is significant or potentially significant, or if the lead agency lacks information to make a finding of insignificance. If there are one or more "Potentially Significant Impact" entries when the determination is made, preparation of an Environmental Impact Report is warranted.

4. Potentially Significant Impact Unless Mitigated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other California Environmental Quality Act (CEQA) process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). Earlier analyses are discussed in Section XIX at the end of the checklist.

6. References to information sources for potential impacts (e.g., general plans, zoning ordinances) have been incorporated into the checklist. A source list has been provided in Section XIX. Other sources used or individuals contacted have been cited in the respective discussions.

7. The following checklist has been formatted after Appendix G of Chapter 3, Title 14, California Code of Regulations, but has been augmented to reflect the City of Huntington Beach's requirements.

SAMPLE QUESTION:

ISSUES (and Supporting Information Sources):	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the proposal result in or expose people to potential impacts involving:				
Landslides? (Sources: 1, 6)	☐	☐	☐	☒
Discussion: The attached source list explains that 1 is the Huntington Beach General Plan and 6 is a topographical map of the area which show that the area is located in a flat area. (Note: This response probably would not require further explanation).				

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

I. LAND USE AND PLANNING. Would the project:

a) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? (Sources: 1 and 2) ☐ ☐ ☐ ☒

Discussion: The City of Huntington Beach General Plan Land Use designations for the project site are: ROW (Right-of-Way); P (OS-CR) (Public – Open Space – Commercial Recreation); CV-F1 (Commercial Visitor – 0.35 FAR (floor area ratio)); RMH-25 (Residential Medium High Density – 25 units per acre); Recently Annexed Area, Land Use Not Certified; and unincorporated Bolsa Chica Wetlands (County of Orange) area. The City of Huntington Beach General Plan Land Use designations for other land uses immediately adjacent to the project site are: RL-7 (Residential Low Density – 7 units per acre); M-sp (Mixed use – Specific Plan); and OS-P (Open Space – Park). The proposed project consists of improvements to an existing sewer system and would not conflict with these existing land use types. Additionally, Goal C 9/Policy C 9.1.3 of the City of Huntington Beach Local Coastal Plan states "new sewer systems and substantial improvements to existing sewer systems shall incorporate monitoring systems which verify the operational integrity of the sewer system to assure that coastal waters area protected." The proposed project would incorporate a remotely monitored system control and data acquisition (SCADA) system that continuously monitors and records outflow, pump stops/starts, water levels, potential flooding issues, emergency generator start-up, etc. Thus, implementation of the proposed project would not conflict with either the existing land use or zoning designations or applicable land use plans, policies, or regulations. No impacts would occur and no mitigation measures would be required.

b) Conflict with any applicable habitat conservation plan or natural community conservation plan? (Sources: 1) ☐ ☐ ☐ ☒

Discussion: The project site is not included in any adopted conservation plan, and therefore would not conflict with any conservation plans. No impacts would occur and no mitigation measures would be required.

c) Physically divide an established community? (Sources: 1, 4 and 5) ☐ ☐ ☐ ☒

Discussion: The proposed project consists of improvements to an existing sewer system only. These improvements would be constructed within and immediately adjacent to the roadway rights-of-way along segments of Warner Avenue and PCH. Thus, the proposed project has no potential to divide an established community. All existing land uses in the vicinity of the project site are accessible via roadway and access ways. The proposed project would not affect any location or configuration of those roadways and access ways. Implementation of the proposed project would not disrupt or divide the physical arrangement of the surrounding community. No impacts would occur and no mitigation measures would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

II. POPULATION AND HOUSING. Would the project:

a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extensions of roads or other infrastructure)? (Sources: 4 and 5) ☐ ☐ ☐ ☒

Discussion: The proposed project consists of improvements to an existing sewer system and does not propose any new homes or businesses, nor would it result in an increase in sewer capacity that would induce growth. The proposed project has been designed to serve existing demand with no net increase in overall sewer capacity. As such, the new sewer facilities will replace existing facilities only. Construction workers would either be existing City employees or come from the existing local labor pool. Implementation of the proposed project would not result in the generation of new jobs and would not contribute to any substantial population growth. Therefore, project implementation would not induce growth, either directly or indirectly. No impacts would occur and no mitigation measures would be required.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? (Sources: 4 and 5) ☐ ☐ ☐ ☒

Discussion: The proposed project consists of improvements to an existing sewer system. These improvements would be constructed within and immediately adjacent to the roadway rights-of-way along segments of Warner Avenue and PCH. The project site does not include residential structures and would not displace any existing housing. Therefore, no impacts would occur and no mitigation measures would be required.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? (Sources: 4 and 5) ☐ ☐ ☐ ☒

Discussion: Please refer to the response in item II b., above.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

III. GEOLOGY AND SOILS. Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault ? (Sources: 6) ☐ ☐ ☒ ☐

Discussion: Primary ground rupture or fault rupture is defined as surface displacement that occurs along a fault during an earthquake. According to the Geotechnical Report for the proposed project, the nearest active fault is the Newport-Inglewood fault, located approximately 2 miles from the project site. The project site is not located within an Alquist-Priolo Earthquake Fault Zone. Therefore, impacts related to rupture of a known fault delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map would be less than significant and no mitigation measures would be required.

ii) Strong seismic ground shaking? (Sources: 6) ☐ ☒ ☐ ☐

Discussion: The project site is located in the seismically active Southern California region which is prone to earthquakes that may result in hazardous conditions to people within the region. According to the Geotechnical Report for the proposed project, the nearest active fault is the Newport-Inglewood fault, located approximately 2 miles from the project site. Earthquakes and ground motion can affect a widespread area. The potential severity of ground shaking depends on many factors, including distance from the originating fault, the earthquake magnitude and the nature of the earth materials below the site. The proposed project consists of improvements to an existing sewer system. This type of project poses relatively minimal threat to people who may be using the road during a seismic event. Damage could be caused to the sewer system during a seismic event. However, a site specific Geotechnical Report was prepared for the proposed project, which provides detailed recommendations for the design and construction of the proposed project, including recommendations to address seismic ground shaking. Therefore, compliance with a mitigation measure, which requires the project to be constructed in accordance with the geotechnical recommendations identified in the Geotechnical Report, would reduce impacts associated with seismic ground shaking to below a level of significance (see G-1, Attachment 3). The primary recommendations in the Geotechnical Report include recommendations related to mat foundation, lateral earth pressures, wall backfill, waterproofing, uplift, differential settlement, pipe bedding, and lateral pressure for thrust block.

iii) Seismic-related ground failure, including liquefaction? (Sources: 6) ☐ ☒ ☐ ☐

Discussion: According to the Geotechnical Report for the proposed project, the project site is mostly located within a potential liquefaction hazard zone, as designated by the California Geological Survey (CGS). The general makeup of the earth material at the project site consists of soft to very stiff cohesive soil and loose to very dense granular material. Groundwater was encountered within geotechnical survey borings at depths ranging between 3 and 18 feet beneath the existing ground surface and ranging between depths of 4 feet to 10 feet in monitoring wells. A liquefaction potential analysis was performed for the project site. Based on the test results it was concluded that the potential for liquefaction at the site is high. In addition, it was concluded that other geologic hazards related to ground failure, such as lateral spreading, are also high. However, compliance with a mitigation measure, which

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

requires the proposed project to be constructed in accordance with the geotechnical recommendations identified in the Geotechnical Report, would reduce seismic-related ground failure impacts to below a level of significance (see G-1, Attachment 3). The primary recommendations in the Geotechnical Report include recommendations related to mat foundation, lateral earth pressures, wall backfill, waterproofing, uplift, differential settlement, pipe bedding, and lateral pressure for thrust block.

iv) Landslides? (Sources: 1 and 6) ☐ ☐ ☐ ☒

Discussion: The project site is characterized by flat topography. Therefore, no impacts would occur and no mitigation measures would be required.

b) Result in substantial soil erosion, loss of topsoil, or changes in topography or unstable soil conditions from excavation, grading, or fill? (Sources: 1 and 6) ☐ ☐ ☒ ☐

Discussion: During construction, the proposed project could result in some soil erosion or loss of topsoil. However, as described in the responses in item IV, below, the proposed project is required to adhere to the requirements of the National Pollutant Discharge Elimination System (NPDES) permit for construction, which specifies best management practices (BMPs) to prevent erosion and loss of topsoil. Adherence to this permit would reduce construction impacts related to erosion and loss of topsoil. Therefore, construction impacts associated with soil erosion and loss of topsoil would be less than significant and no mitigation measures would be required.

After construction, the project site will be returned to its original grade. Due to the flat topography of the site, potential impacts related to soil erosion or loss would be minimal. Operational impacts to soil erosion or loss of topsoil would be less than significant and no mitigation measures would be required.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? (Sources: 6) ☐ ☒ ☐ ☐

Discussion: Please refer to the response in item III a. iii., above.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? (Sources: 6) ☐ ☒ ☐ ☐

Discussion: Please refer to the response in item III a. iii., above.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater (Sources: 5 and 6)	☐	☐	☐	☒

Discussion: The proposed project does not include septic tanks or other alternative wastewater disposal systems. No impact would occur and no mitigation measures would be required.

IV. HYDROLOGY AND WATER QUALITY. Would the project:

a) Violate any water quality standards or waste discharge requirements? (Sources: 1 and 6)	☐	☒	☐	☐

Discussion: The proposed project consists of improvements to an existing sewer system that would serve existing demand with no net increase in overall sewer capacity. There would be no increase in the amount of sewerage and treatment and discharge of the effluent would be the same as under current conditions. Therefore, operation of the proposed project would not result in any violation of water quality standards or waste discharge requirements. However, there is the potential for debris or other contaminants to enter Huntington Harbour or Bolsa Bay during construction activities. Contaminants would be associated with discharge from excavation and backfilling activities or from construction equipment (e.g., backhoes, excavators, loaders, trucks, etc.). While these discharges could occur, their effect on water quality would be minimized through the incorporation of BMPs as required in the General NPDES Permit for Construction Activities issued by the California Water Resources Control Board and the Areawide Urban Storm water Runoff Permit for Orange County issued by the California Regional Water Quality Control Board. BMPs, such as soil stabilization, sediment control, wind erosion control, tracking control, non-storm water management, waste management, etc., would reduce these types of potential construction impacts to water quality to below a level of significance.

Additionally, due to the shallow depth of groundwater at the project site, construction of the proposed project would require dewatering during sewer main trenching and excavation/construction for Lift Station #C. Construction-related dewatering waste would be subject to the requirements of the De Minimus Permit (Order No. R8-2009-0003, NPDES No. CAG998001) prior to the discharge of water to Huntington Harbour/Bolsa Bay. However, as described under the response to item IX b., below, multiple rounds of groundwater sampling conducted in 2002 indicated the presence of the gasoline additive methyl tert-butyl ether (MTBE) in all studied monitoring wells, as well as the occasional presence of gasoline-range organics (GRO). Further, groundwater sampling from monitoring wells installed for the January 2012 geotechnical investigation indicated low levels of MTBE in the groundwater in some wells. Under the general permit, MTBE is listed as a constituent of concern to be monitored during discharge of groundwater. Therefore, should De Minimus permit groundwater sampling activities indicate sustained MTBE levels above the discharge limits set by the Santa Ana Regional Water Quality Control Board (SARWQCB), a potentially significant impact related to water quality standards or waste discharge requirements could occur. However, a mitigation measure requiring handling procedures for potentially impacted groundwater would reduce this potential construction impact to below a level of significance (see HM-2, Attachment 3).

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted? (Sources: 5 and 6)	☐	☐	☒	☐

Discussion: The proposed project would not result in an increase in the demand for water production because the improvements to the existing sewer system would not require any additional water beyond that used for the existing sewer system. Groundwater was encountered within geotechnical survey borings at depths ranging between 3 and 18 feet beneath the existing ground surface and ranging between depths of 4 feet to 10 feet in monitoring wells. As such, dewatering will be required during the construction of the new lift station and sewer lines. Groundwater will be required to be lowered to a minimum of 3 feet below the depth of excavation, both inside and outside of excavation. Construction-related dewatering waste would be subject to the requirements of the De Minimus Permit (Order No. R8-2009-0003, NPDES No. CAG998001) prior to the discharge of water to Huntington Harbour/Bolsa Bay. No improvements are proposed that would substantially interfere with groundwater recharge, as there would be a minor net decrease in impervious surfaces with the proposed project. The proposed project will result in the construction of approximately 447 square feet of new impervious surfaces and demolition of approximately 655 square feet of existing impervious surfaces; a minor decrease of 208 square feet. Therefore, impacts to groundwater supplies or recharge would be less than significant and no mitigation measures would be required.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off-site? (Sources: 5)	☐	☐	☐	☒

Discussion: The proposed project would not result in substantial changes to the existing drainage pattern of the site because following construction the topography of the project site will be similar to the existing condition. Also, the proposed project would not require any changes to the existing storm water drainage system in the area. A minor net decrease in impervious surfaces would occur due to demolition of existing lift stations and sanitary manholes. With implementation of the proposed project, storm water would continue the same drainage pattern as existing conditions. Therefore, no impacts would occur and no mitigation measures would be required.

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount or surface runoff in a manner which would result in flooding on or off-site? (Sources: 5)	☐	☐	☐	☒

Discussion: As described in the response to item IV c., above, the proposed project would not alter the existing drainage pattern of the site and therefore would not result in on- or off-site flooding. No impacts would occur and no mitigation measures would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? (Sources: 5)	☐	☐	☐	☒

Discussion: As described in the response to item IV c., above, the proposed project would not alter the existing drainage pattern of the site. In addition, as described in the response to item IV b., above, the proposed project will result in the construction of approximately 447 square feet of new impervious surfaces and demolition of approximately 655 square feet of existing impervious surfaces; a minor decrease of 208 square feet. Therefore, no impacts would occur and no mitigation measures would be required.

f) Otherwise substantially degrade water quality? (Sources: 6)	☐	☐	☒	☐

Discussion: Other than the potential impacts identified in the response to item IV a., above, there would be no additional impacts to water quality. Therefore, impacts would be less than significant and no additional mitigation measures would be required.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? (Sources: 5 and 7)	☐	☐	☐	☒

Discussion: The project site is not located within the 100-year flood zone as designated by the Federal Emergency Management Agency (FEMA) flood map panel #06059C0233H and #06059C0229H. No houses or structures would be placed within the 100-year flood zone as part of the proposed project. No impacts would occur and no mitigation measures would be required.

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? (Sources: 5 and 7)	☐	☐	☐	☒

Discussion: Please refer to the response in item IV g., above.

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? (Sources: 5 and 7)	☐	☐	☐	☒

Discussion: As described previously, the project site is not located within a designated 100-year flood zone. Moreover, the proposed project consists of improvements to an existing sewer system and does not include the construction of residential units or other structures that would be occupied. The proposed project would not expose people or property to greater flooding hazards than currently exist at the project site. Therefore, no impacts would occur and no mitigation measures would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
j) Inundation by seiche, tsunami, or mudflow? (Sources: 1 and 6)	☐	☐	☒	☐

Discussion: Seiches are extensive wave actions on lakes, reservoirs, or other enclosed bodies of water caused by meteorological or seismic activity, such as earthquakes. Tsunamis are seismically induced sea waves generated by offshore earthquake, submarine landslide, or volcanic activity. Although the project site is located near the ocean, according to Figure EH-8, Moderate Tsunami Run-up Area, of the City of Huntington Beach General Plan, the project site is not identified within the moderate tsunami run-up area. The project site is located near two enclosed bodies of water (i.e., Huntington Harbour and Bolsa Bay) and, therefore, could be subject to seiches. However, because the proposed project consists of improvements to an existing sewer system, risks associated with seiches would not increase and would be the same as under existing conditions. Also, as described in the response to item III a. iv., above, the project site is characterized by flat topography and therefore would not be subject to mudflows. Therefore, impacts would be less than significant and no mitigation measures would be required.

k) Potentially impact stormwater runoff from construction activities? (Sources: 6)	☐	☐	☒	☐

Discussion: Please refer to the response in item IV a., above.

l) Potentially impact stormwater runoff from post-construction activities? (Sources: 6)	☐	☐	☐	☒

Discussion: During post-operation activities, the proposed project would not discharge contaminants to storm water because sewerage would be contained within the sewer pipelines located below the ground surface. Above-ground project components (e.g., 60 kW natural gas emergency generator and electrical service and motor control center) would be self-contained such that contaminants are prevented from being discharged into storm water flows. Therefore, no impacts would occur and no mitigation measures would be required.

m) Result in a potential for discharge of stormwater pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas, loading docks or other outdoor work areas? (Sources: 6)	☐	☐	☒	☐

Discussion: As discussed in the response in item IV a., above, there is the potential for debris or other contaminants to enter Huntington Harbour or Bolsa Bay during construction activities. Contaminants would be associated with discharge from excavation and backfilling activities or from construction equipment (e.g., backhoes, excavators, loaders, trucks, etc.). While these discharges could occur, their effect on water quality would be minimized through the incorporation of BMPs as required in the General NPDES Permit for Construction Activities issued by the California Water Resources Control Board and the Areawide Urban Storm water Runoff Permit for Orange County issued by the California Regional Water Quality Control Board. BMPs, such as soil stabilization, sediment control, wind erosion control, tracking control, non-storm water management, waste management, etc., would reduce these types of potential impacts to water quality to below a level of significance. During operation, the proposed project would not discharge contaminants to storm water because sewerage would be contained within the sewer pipelines located below the ground surface. Above-ground project components (e.g., 60 kW natural gas emergency generator and electrical service and motor control center) would be self-contained

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

such that contaminants are prevented from being discharged into storm water flows. Therefore, impacts related to the discharge of storm water pollutants would be less than significant and no mitigation measures would be required.

n) Result in the potential for discharge of stormwater to affect the beneficial uses of the receiving waters? (Sources: 6) ☐ ☐ ☒ ☐

Discussion: Refer to the responses in item IV a., and IV m., above.

o) Create or contribute significant increases in the flow velocity or volume of stormwater runoff to cause environmental harm? (Sources: 5) ☐ ☐ ☐ ☒

Discussion: Refer to the response in item IV e., above.

p) Create or contribute significant increases in erosion of the project site or surrounding areas? (Sources: 5) ☐ ☐ ☐ ☒

Discussion: Refer to the response in item IV c., above.

V. AIR QUALITY.

Would the project:

a) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? (Sources: 8, 18 and 19) ☐ ☐ ☒ ☐

Construction activities will generate short-term, temporary criteria pollutant emissions from the operation of gasoline and diesel-powered on- and off-road equipment. Fugitive dust will also be generated during earthmoving activities associated with trenching, excavation, and demolition. Based on the Geotechnical Report completed by AESCO for the proposed project site, volatile organic compounds (VOC)-containing soils have been identified and could result in atmospheric releases of VOC emissions during subsurface activities such as trenching and excavation. Sensitive receptor locations for air quality impacts are defined as areas where the individuals are considered to be more sensitive to pollutants than average locations; these include residences, businesses, schools, day care facilities, convalescent homes and hospitals (SCAQMD 2005). As described in the Project Description, the proposed project includes 750 linear feet of new forcemain, demolition of three existing lift stations, and construction of a new lift station. Therefore, proximity to sensitive receptors has been evaluated for each project component. There are sensitive receptors located approximately 165 feet north of the proposed new Lift Station C; there are sensitive receptors located approximately 165 feet east of existing Lift Station D proposed for demolition; there are sensitive receptors located within approximately 430 feet of existing Lift Stations C and B, as well as the Sunset Beach Sanitary District Lift Station; and, there are sensitive receptors located within approximately 165 feet north of the proposed forcemain located within the existing Warner Avenue roadway.

The City has identified the significance criteria established by the applicable air quality management district as appropriate to make the following determinations.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Discussion: Short-term Construction Impacts Discussion: The project is located within the South Coast Air Basin (SCAB), which is currently designated as extreme non-attainment for 8-hr ozone and nonattainment for PM_{10} and $PM_{2.5}$. The South Coast Air Quality Management District (SCAQMD) is responsible for monitoring and maintaining compliance with air quality standards within the SCAB. The SCAQMD has established thresholds of significance for construction and operation for evaluating air quality impacts under the California Environmental Quality Act (CEQA).

Construction of the proposed project, including lift station and forcemain installation, demolition, and site rehabilitation will generate temporary emissions of criteria pollutants (carbon monoxide [CO], sulfur oxides [SO_x], PM_{10} and $PM_{2.5}$, ozone precursors (VOCs and oxides of nitrogen [NO_X]). Criteria pollutant emissions would be generated during the operation of gas and diesel-powered equipment. Fugitive PM_{10} and $PM_{2.5}$ emissions would also be generated by earthmoving activities, such as excavation.

Construction emissions from the operation of diesel-fueled off-road equipment were estimated by multiplying peak daily usage by equipment-specific emission factors. Horsepower-based composite factors, with built-in load factors, were utilized to estimate peak daily emissions. The emission factors were obtained from the SCAQMD's website (SCAQMD 2011) and represent the fleet-wide average emission factors during 2012 within the SCAB. The equipment-specific load factors have been updated by multiplying the emission factor by 0.67, consistent with the California Air Resources Board's (CARB's) recently released off-road mobile source emission inventory model (OFFROAD 2011). Criteria pollutant emissions from on-road motor vehicles were estimated using CARB's On-Road EMFAC2011 mobile source emission factors, obtained from the EMFAC2011 model output. Fugitive dust emissions were estimated using USEPA's Compilation of Air Pollutant Factors (AP-42), from Chapter 11, Section 11.9.1, Western Surface Coal Mining (per Chapter 13.2.3 Heavy Construction Operations) and Section 13.2.4, Aggregate Handling and Storage Piles, and based on material loading (in cubic yards per day).

Peak daily emissions include both on-site and off-site emissions; on-site emissions are generated by sources within the footprint of the project site; off-site emissions are generated by sources such as vendor haul trips due to import or export of construction materials. Peak daily construction emissions are summarized in Table 1 and are also compared to the established SCAQMD regional mass daily emission thresholds for construction.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

TABLE 1: PEAK DAILY CONSTRUCTION EMISSIONS, REGIONAL EMISSIONS IMPACT SUMMARY (LB/DAY)1

Activity Description	Criteria Pollutant					
	ROG	CO	NOX	SOX	PM_{10}[2]	$PM_{2.5}$[2]
Dewatering	1.62	10.01	11.99	0.02	0.73	0.58
Wet Well Excavation	4.60	21.16	44.88	0.07	2.10	1.81
Wet Well Construction	1.70	9.34	11.64	0.02	0.71	0.57
Forcemain Construction	3.45	16.48	26.89	0.04	1.58	1.35
Gravity Sewer Construction – Edgewater Lane	6.01	27.11	61.49	0.09	3.24	2.76
Gravity Sewer Construction – Lift Station C	5.25	24.05	52.21	0.07	2.79	2.38
Valve Vault Excavation	2.24	11.99	16.27	0.03	1.02	0.84
Valve Vault Installation	1.89	10.01	13.35	0.02	0.79	0.64
Site Restoration	3.32	16.41	27.12	0.04	1.67	1.42
Lift Station Demolition	3.67	17.68	36.98	0.05	1.98	1.66
Peak Day =	6.01	27.11	61.49	0.09	3.24	2.76
SCAQMD Mass-Daily Threshold (Construction)	75	550	100	150	150	55
Exceed SCAQMD Mass-Daily Threshold (Y/N)?	No	No	No	No	No	No

Notes:

1. Air quality assumptions including anticipated schedule, equipment list, and emission factors are presented in Reference #8, Criteria Pollutant and GHG Emission Calculations.
2. The applicant will implement fugitive dust control measures including site watering, in accordance with Rule 403.
3. SCAQMD Air Quality Significance Thresholds, July 2009

Source: Modeled by AECOM, 2012

As presented in Table 1, construction emissions would not exceed the SCAQMD's regional mass daily significance thresholds. Therefore, regional construction impacts would be less than significant.

The SCAQMD has developed a Localized Significance Threshold (LST) Methodology to evaluate the potential localized impacts of criteria pollutants from on-site emissions sources during construction and operation, as applicable (SCAQMD 2008b). An LST analysis is not required for SOx and VOC emissions because these pollutants do not contribute to localized criteria pollutant air quality impacts, although VOC may be analyzed as an air toxic.

The LST Methodology consists of performing dispersion modeling for CO, NOx, PM10, and PM2.5 from on-site equipment to determine whether or not the proposed project may cause exceedances of the applicable LSTs at the nearest sensitive receptors. For small projects less than or equal to 5 acres, the SCAQMD (2008b) has developed look-up tables showing the maximum emissions that would not cause an exceedance of any LST, based on distance to the nearest sensitive receptor, size of the project, and meteorology of each source receptor area (SRA) to assist with determining whether or not any LSTs would be exceeded. If dispersion modeling shows that on-site

emissions cause or contribute to an exceedance of any LST or if daily on-site mass emissions equal or exceed any of the values in the lookup tables, local air quality impacts to nearby sensitive receptors are concluded to be significant.

In order to evaluate the potential localized impacts from project construction, peak daily on-site emissions were compared to the applicable values in the SCAQMD lookup tables. The area of each project component is less than 2 acres and is located in Source Receptor Area (SRA) No. 18 (Huntington Beach), with the nearest residents located approximately 165 feet or more from the construction locations. Therefore, the SCAQMD LSTs for a 1- and 2-acre project and a receptor distance of 165 feet were utilized.

Table 2 compares peak daily on-site construction emissions to the applicable values in the SCAQMD lookup tables. Off-site emissions would not result in exposure to residential receptors located in proximity to the site. Therefore, off-site sources and emissions are not included in the localized impacts evaluation. As shown in Table 2, on-site CO, NOx, PM_{10} and $PM_{2.5}$ construction emissions are below the applicable values in the lookup tables. Therefore, CO, NOx, PM_{10} and $PM_{2.5}$ emissions would not cause significant localized air quality impacts.

TABLE 2: PEAK DAILY CONSTRUCTION EMISSIONS - LOCALIZED EMISSIONS SUMMARY (LB/DAY)

Description	CO	NO_X	PM_{10}	$PM_{2.5}$
Wet Well Excavation	16.6	44.4	2.0	1.8
LST - 2-acre site, 165 feet	1089	128	21	7
Exceed SCAQMD LST (Y/N)?	No	No	No	No
Area 2 - Forcemain Construction	11.5	25.2	1.5	1.3
LST - 1-acre site; 165 feet	738	93	13	5
Exceed SCAQMD LST (Y/N)?	No	No	No	No
Area 3 - Gravity Sewer Construction	11.5	27.6	1.6	1.3
LST - 1-acre site; 165 feet	738	93	13	5
Exceed SCAQMD LST (Y/N)?	No	No	No	No
Area 4 - Lift Station Demolition	2.0	3.1	0.3	0.2
LST - 1-acre site; 165 feet	738	93	13	5
Exceed SCAQMD LST (Y/N)?	No	No	No	No
LSTs for SRA 18, receptor distance of 165 feet, obtained from: www.aqmd.gov/ceqa/handbook/LST/appC.pdf Source: Modeled by AECOM, 2012				

Although short-term construction emissions would not result in a significant adverse air quality impact, SCAMQD Rule 403 *Fugitive Dust* requires implementation of best management practices (BMPs) to reduce and control the generation and impacts of fugitive dust emissions resulting from various earthmoving and excavation activities.

Based on the potential to encounter VOC-impacted soils during excavation, SCAQMD Rule 1166 would apply to project construction. Applicable requirements include obtaining a site-specific permit from the SCAQMD, providing SCAQMD notification prior to excavation, recordkeeping, and monitoring to ensure proper handling and

disposal in the event VOC-contaminated soils are encountered.

In addition, the CARB has established a 5-minute idling restriction for off-road vehicles, 25 horsepower or greater, during operations except when vehicles are in queue, testing or safety checks, or if equipment is necessarily idling for operation, such as operation of a water truck or crane. Medium and large fleet owners are required to have an idling policy in place, in accordance with the CARB idling requirement.

As shown in Tables 1 and 2, the proposed project would not exceed the SCAQMD's mass daily thresholds or LSTs for construction and therefore would not violate or contribute to a violation of the air quality standards. In addition, any construction impacts resulting from the proposed project would be temporary in nature and would cease once construction has completed. Project construction will result in less-than-significant regional and localized impacts.

Therefore, construction impacts related to violation of air quality standards would be less than significant and no mitigation measures would be required.

Operational Impacts Discussion: Operational emission sources include worker trips associated with routine maintenance activities and the operation of the 60 kilowatt (kW), or 80 horsepower (HP) emergency generator within the new Lift Station C. Criteria pollutant emissions from maintenance trips were estimated using CARB's On-Road EMFAC2011 mobile source emission factors, obtained from the EMFAC2011 model output. For this analysis, it has been assumed that maintenance personnel travel a roundtrip distance of 60 miles. Emissions from the emergency generator have been estimated using emission factors obtained from manufacturer specifications for the Cummins GGHE natural-gas powered generator; daily emissions were estimated based on up to 30 minutes per day of operation for maintenance and testing, not to exceed 50 hours per year. The estimated project criteria pollutant emissions from operations are shown in Table 3.

TABLE 3: PEAK DAILY OPERATIONAL EMISSIONS, REGIONAL EMISSIONS IMPACT SUMMARY LB/DAY

Emission Source	VOC	CO	NOx	SOX	PM_{10}	$PM_{2.5}$
Emergency Generator	0.19	1.43	2.06	--	--	--
Maintenance Worker Trips	0.05	0.46	0.05	--	--	--
Total =	0.24	1.89	2.11	--	--	--
SCAQMD Thresholds	55	550	55	150	150	55
Exceed Threshold (Y/N)?	No	No	No	No	No	No
"—" indicates emissions are less than 0.01 lb/day						
Source: Modeled by AECOM 2012						

As shown in Table 3, operational emissions would not exceed the SCAQMD's mass daily operational emission thresholds. Therefore, regional operational impacts related to violation of air quality standards would be less than significant and no mitigation measures would be required.

Localized impacts from operations were evaluated based on on-site emission sources. On-site emission sources include the 80-HP emergency generator. Estimated on-site criteria pollutant emissions from operations are presented in Table 4.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

TABLE 4: PEAK DAILY OPERATIONAL EMISSIONS, LOCALIZED EMISSIONS IMPACT SUMMARY LB/DAY

Emission Source	CO	NOx	PM_{10}	$PM_{2.5}$
Emergency Generator	1.43	2.06	--	--
Total =	1.43	2.06	--	--
SCAQMD Thresholds, LST 2-acre site with receptor at 50-feet receptor	1,089	128	6	2
Exceed Threshold (Y/N)?	No	No	No	No
"—" indicates emission factors not available; not a significant source of PM10/2.5 emissions Source: Modeled by AECOM 2012				

As shown in Table 4, peak daily operational emissions would not exceed the SCAMQD's LST for operations. Therefore, localized operational impacts related to violation of air quality standards would be less than significant and no mitigation measures would be required.

b) Expose sensitive receptors to substantial pollutant concentrations? (Sources: 8) ☐ ☐ ☒ ☐

Construction Impacts Discussion: Construction activities would include operation of diesel-fueled non-road equipment resulting in emissions of diesel particulate matter (DPM), a recognized toxic air contaminant (TAC). However, since carcinogenic DPM health risk is estimated using the annual average concentration over long exposure periods (40 to 70 years), the Office of Environmental Health Hazard Assessment (OEHHA) does not suggest estimating carcinogenic health risk for exposure periods less than nine years. The construction phase for the proposed project, approximately 12 months, is substantially less than the nine year exposure period indicated by OEHHA.

Operational Impacts Discussion: The proposed project would not result in a new source of significant toxic emissions because, as described above, the new emergency generator will be natural gas-fired, which is a clean-burning fuel that meets SCAQMD best available control technology (BACT) requirements for internal combustion engines.

Therefore, construction and operation impacts related to the exposure of sensitive receptors to substantial pollutant concentrations would be less than significant and no mitigation measures would be required.

c) Create objectionable odors affecting a substantial number of people? (Sources: 8) ☐ ☐ ☒ ☐

Construction Impacts: Construction activities, such as dewatering and excavation of VOC-impacted soils, could result in nuisance odor impacts. However, these activities would be short-term in duration and based on the location of the activity would not have the potential to affect a substantial number of people. In addition, any temporary nuisance odors would be reduced and controlled through application of vapor-suppressant foam or water spray utilized to maintain compliance with SCAQMD Rule 1166 for VOC-impacted soils. Therefore, construction impacts related to odors would be less than significant and no mitigation measures would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Operation Impacts: The proposed project is designed to control potential odors resulting from sewage within the facilities through proper sizing of the lift station and sewer mains. Therefore, operation impacts would be less than significant and no mitigation measures would be required.

d) Conflict with or obstruct implementation of the applicable air quality plan? (Sources: 8 and 19) ☐ ☐ ☒ ☐

Discussion: The project is located within the SCAB, under the jurisdiction of the SCAQMD. The applicable air quality plan is the *Final 2007 Air Quality Management Plan (AQMP)* and is designed to achieve state and Federal Clean Air Act requirements for current nonattainment pollutants including 8-hr ozone, particulate matter less than or equal to 10 microns aerodynamic diameter (PM_{10}) and particulate matter less than or equal to 2.5 microns aerodynamic diameter ($PM_{2.5}$). The SCAB is currently designated extreme nonattainment for the 8-hr ozone National Ambient Air Quality Standard (NAAQS) and nonattainment for the PM_{10} and $PM_{2.5}$ NAAQS. The SCAQMD is currently in the process of developing the 2012 AQMP that will include current regional planning information, as well as scientific and technical information.

Consistency with the AQMP is determined through evaluation of project-related air quality impacts and demonstration that project-related emissions would not increase the frequency or severity of existing violations, or contribute to a new violation of the NAAQS. This demonstration is accomplished through comparison of project-related emissions to localized significance thresholds (LST) and daily mass emission thresholds, established by the SCAQMD. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedence of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. As presented previously in Tables 1 through 4 under V a., project-related emissions are below the LSTs and daily mass thresholds for both construction and operation; therefore, the proposed project would not conflict with or obstruct implementation of the applicable AQMP. Impacts related to the AQMP would be less than significant and no mitigation measures would be required.

e) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? (Sources: 8) ☐ ☐ ☒ ☐

Discussion: As discussed in item (a) above, the proposed project will result in the generation of criteria pollutant emissions below the SCAQMD regional and localized thresholds for construction and operational activities. These thresholds are designed to identify those projects which may result in significant levels of air pollution and to assist the region in attaining the applicable state and federal ambient air quality standards. Because the proposed project will not exceed any SCAQMD air quality significance threshold, the proposed project would not result in significant levels of emissions and these emissions are not cumulatively considerable or cumulatively significant. Therefore, cumulative air quality impacts would be less than significant and no mitigation measures would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

VI. TRANSPORTATION/TRAFFIC. Would the project:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? (Sources: 1 and 5) ☐ ☒ ☐ ☐

Discussion: Operation of the proposed project would not result in increased vehicular, pedestrian, or bicycle traffic because the proposed project consists of improvements to an existing sewer system and would not result in any permanent changes to the existing circulation system. These sewer improvements would be constructed within and immediately adjacent to the roadway rights-of-way along segments of Warner Avenue and PCH. The Orange County Transportation Authority (OCTA) maintains existing bus routes utilizing Warner Avenue and PCH, including a bus stop on Warner Avenue within the project site. OCTA Routes 1, 21, 70, and 72 utilize this bus stop. The Coastal Element (2008) of the City of Huntington Beach General Plan identifies Warner Avenue as an existing Class II (on-road striped lanes) Bikeway. Project construction would result in the generation of minor amounts of traffic from construction worker trips and the transport of materials and equipment. However, this minor increase in traffic would be temporary and would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. Project construction would, however, require temporary closures of lanes along portions of Warner Avenue and PCH. These closures may temporarily cause traffic flow impacts along these roadways as well as at nearby intersections. Additionally, while these closures would not restrict bicycle access or OCTA bus service, they may result in temporary inconveniences and/or delays. Mitigation measures requiring the development of traffic control plans would reduce construction-related traffic flow impacts to below a level of significance (see T-1, Attachment 3).

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? (Sources: 5 and 8) ☐ ☒ ☐ ☐

Discussion: As stated above, operation of the proposed project would not result in increased vehicular, pedestrian, or bicycle traffic because the proposed project consists of improvements to an existing sewer system to meet existing sewer needs and would not result in any permanent changes to the existing circulation system. No permanent operational traffic impacts would occur. However, as discussed above, project construction would result in the generation of minor amounts of traffic from construction worker trips and the transport of materials and equipment. According to the project description, approximately 10-15 construction workers would be at the project site during construction, representing a maximum of 15 peak-hour daily trips. In addition, construction-related trips (e.g., dump trucks, haul trucks, concrete trucks, etc.) would be required for the various construction activities of the proposed project. Reference #8, Criteria Pollutant and GHG Emission Calculations, lists the separate construction activities that would occur and includes the total estimated hours and the total estimated construction-related trips per each activity. Construction of the gravity sewer near Edgewater Lane has the greatest number of trips (320 trips) which would occur over approximately 27 days (assuming a 6-hour work-day). Therefore, it is expected approximately 12 daily trips would occur during this activity. As a worst-case scenario, 27 peak-hour daily trips would be the maximum expected trips per day during construction of the proposed project. Therefore,

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

although PCH and Warner Avenue are designated Congestion Management Program roadway segments, this temporary and minor traffic generated during construction of the proposed project would be less than significant. It should be noted that during construction the proposed project would require temporary closures of lanes along portions of Warner Avenue and PCH. However, implementation of mitigation measures requiring the development of traffic control plans would reduce construction-related traffic flow impacts to below a level of significance (see T-1, Attachment 3).

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? (Sources: 1 and 5) ☐ ☐ ☐ ☒

Discussion: The proposed project consists of improvements to an existing sewer system and would not have the potential to affect air traffic. No impacts would occur and no mitigation measures would be required.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses? (Sources: 5) ☐ ☐ ☐ ☒

Discussion: The proposed project does not include any hazardous design features such as sharp curves or dangerous intersections, and does not introduce incompatible uses. The proposed project consists of improvements to an existing sewer system. These improvements would be constructed within and immediately adjacent to the roadway rights-of-way along segments of Warner Avenue and PCH. Warner Avenue and PCH would not be realigned or reconfigured. Therefore, the proposed project would not result in increased hazards due to project design features. No impacts would occur and no mitigation measures would be required.

e) Result in inadequate emergency access? (Sources: 5) ☐ ☒ ☐ ☐

Discussion: As stated above, operation of the proposed project would not result in increased vehicular, pedestrian, or bicycle traffic because the proposed project consists of improvements to an existing sewer system to meet existing sewer needs and would not result in any permanent changes to the existing circulation system. Emergency access will be maintained throughout the construction period through implementation of a traffic control plan, as specified in the mitigation measures (see T-1, Attachment 3). Therefore, the proposed project will result in less than significant impacts related to emergency access.

f) Result in inadequate parking capacity? (Sources: 5) ☐ ☐ ☒ ☐

Discussion: Construction of the proposed project is expected to take approximately 220 working days. A crew of approximately 10-15 construction workers will be at the project site during construction. Construction staging will be in the City-owned yacht club parking lot located on the north side of Warner Avenue, west of the Warner Avenue Fire Station. Construction personnel parking will be in the City-owned yacht club parking lot or along Warner Avenue. There are a total of 60 parking spaces in the yacht club parking lot. Throughout the duration of construction (i.e., 220 working days), there will be a temporary loss of approximately 25 parking spaces within the City-owned parking lot. However, no long-term loss of parking spaces will occur. During operation of the proposed project, City personnel are expected to visit the new lift station on an approximate weekly basis. Therefore, impacts related to inadequate parking supply would be less than significant and no mitigation measures would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? (Sources: 5)	☐	☐	☐	☒

Discussion: As described above, implementation of the proposed project would not conflict with adopted policies, plans or programs that support alternative transportation (such as public transit, bicycle, or pedestrian facilities). The proposed project consists of improvements to an existing sewer system. No impacts would occur and no mitigation measures would be required.

VII. BIOLOGICAL RESOURCES. Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S, Fish and Wildlife Service? (Sources: 9)	☐	☒	☐	☐

Discussion: A variety of special status plants and animal species have been recorded within the general vicinity of the project site, based on a query of the California Natural Diversity Data Base (CNDDB), focusing on the Seal Beach United States Geological Survey Topographic Quadrangle. The CNDDB search included records for eight species listed as endangered or threatened by either the California Department of Fish and Game (CDFG) or the U.S. Fish and Wildlife Service (USFWS). These included Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), western snowy plover (*Charadrius alexandrinus nivosus*), coastal California gnatcatcher (*Polioptila californica californica*), light-footed clapper rail (*Rallus longirostris levipes*), California least tern (*Sternula antillarum browni*), Ventura Marsh milk-vetch (*Astragalus pycnostachyus var. lanosissimus*), salt marsh bird's-beak (*Chloropyron maritimum ssp. maritimum*), and Gambel's water cress (*Nasturtium gambelii*). Table 5 provides the summary results of the CNDDB search for the proposed project.

TABLE 5
SUMMARY OF CNDDB SEARCH RESULTS FOR THE WARNER AVENUE SEWER LIFT STATION PROJECT

Scientific Name	Common Name	Status	Potential for Occurrence (Yes/No/Moderate/Low Potential)
Reptiles/Amphibians			
Phrynosoma blainvillii	coast horned lizard	SSC, SC	Low
Birds			
Passerculus sandwichensis beldingi	Belding's savannah sparrow	SE	Yes
Athene cunicularia	burrowing owl	SSC, SC	Low
Charadrius alexandrinus nivosus	western snowy plover	FT, SSC, SC	Moderate
Pelecanus occidentalis californicus	brown pelican	FP	Yes
Polioptila californica californica	coastal California gnatcatcher	FT, SSC, SC	No
Rallus longirostris levipes	light-footed clapper rail	FE, SE, FP	Moderate
Rynchops niger	black skimmer	SSC, SC	Yes
Sternula antillarum browni	California least tern	FE, SE, FP	Yes

Mammals			
Microtus californicus stephensi	south coast marsh vole	SSC, SC	Low
Sorex ornatus salicornicus	southern California saltmarsh shrew	SSC, SC	Low
Eumops perotis californicus	western mastiff bat	SSC, SC	No
Plants/Habitat			
Astragalus pycnostachyus var. lanosissimus	Ventura Marsh milk-vetch	FE, SE, 1B.1	Low
Atriplex coulteri	Coulter's saltbush	1B.2	Moderate
Atriplex serenana var. davidsonii	Davidson's saltscale	1B.2	Moderate
Centromadia parryi ssp. australis	southern tarplant	1B.1	Yes
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	FE, SE, 1B.2	Moderate
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	1B.1	Moderate
Juncus acutus ssp. leopoldii	Leopold's rush	4.2	Yes
Nama stenocarpum	mud nama	2.2	No
Nasturtium gambelii	Gambel's water cress	FE, ST, 1B.1	No
Nemacaulis denudate var. denudata	coast woolly-heads	1B.2	No
Sagittaria sanfordii	Sanford's arrowhead	1B.2	No
Suaeda esteroa	estuary seablite	1B.2	Yes
Symphyotrichum defoliatum	San Bernardino aster	1B.2	No
Suaeda taxifolia	woolly seablite	4.2	Yes
Southern foredunes	Southern foredunes	--	No
Southern dune scrub	Southern dune scrub	--	No
Southern coastal salt marsh	Southern coastal salt marsh	--	Yes

Source: California Department of Fish and Game, Natural Diversity Database (2012) — Seal Beach Quad (search conducted 4/16/2012); and AECOM (2012).

STATUS CODES

Federal Status Designations:
FE – Federally Endangered
FT – Federally Threatened
FC – Federal Candidate Species for Listing
BCC – Birds of Conservation Concern

State Status Designations:
SC – State Candidate Species for Listing
SSC – California Department of Fish and Game Species of Special Concern
SE – State Endangered
ST – State Threatened
FP – Fully Protected
CDFG-SPC – California Department of Fish and Game recognized sensitive plant community

CNPS (California Native Plant Society) Codes:
1A. – Presumed extinct in California
1B. – Rare or Endangered in California and elsewhere
2. – Rare or Endangered in California, more common elsewhere
3. – Plants about which we need more information
4. – Plants of limited distribution
.1 – Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 – Fairly endangered in California (20-80% occurrences threatened)
.3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

POTENTIAL FOR OCCURRENCE

Yes – Recorded from the project site, or with high potential to occur based on presence of suitable habitat and range of species; may require mitigation measures for avoidance and minimization.
No – No records from the project site, and not expected due to lack of suitable habitat, local status, and/or degree of disturbance
Moderate – Moderate potential for occurrence based on presence of habitat and range of species; however, species are not expected to be encountered within or near the project site.
Low- Low potential for occurrence, based on presence of marginal habitat, degree of disturbance, and isolation due to roads/residences

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Impacts to Plants

As shown in Table 5, eight plant species have at least a moderate potential to occur in the vicinity of the project site. These species include: Coulter's saltbush (*Atriplex coulteri*); Davidson's saltscale (*Atriplex serenana var. davidsonii*); southern tarplant (*Centromadia parryi ssp. australis*); salt marsh bird's-beak; Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*); Leopold's rush (*Juncus acutus ssp. leopoldii*); estuary seablite (*Suaeda esteroa*); and woolly seablite (*Suaeda taxifolia*).

Additionally, a plant assessment at existing Lift Station #C, former Lift Station #D, Warner Avenue Bridge, and six existing manholes, was conducted by an AECOM biologist on February 23, 2012. A 10-foot sample area was utilized to define the study area around each assessed lift station and manhole for the plant assessment. This approximated a 10-foot by 20-foot plot for assessing vegetation at each lift station/manhole site. During the plant assessment, individual woolly seablite, estuary seablite, and Leopold's rush plants were located within the approximately 10-foot-wide areas of potential disturbance. Although not identified during the February 2012 plant assessment, it should be noted that southern tarplant is known to occur in the vicinity of the project site and has been located in previous biological surveys.

Construction of the proposed project would involve the abandonment of existing manholes and lift stations located along the unpaved south side of Warner Avenue. This abandonment would require excavation and backfilling that could result in the damage or loss of nearby sensitive plants. Therefore, construction of the proposed project has the potential to result in significant impacts to the eight plant species identified above. However, with implementation of mitigation measures requiring pre-construction surveys and implementation of a plant transplantation and salvage plan, these potential impacts would be reduced to below a level of significance (see B-1 and B-2, Attachment 3).

Impacts to Wildlife

As shown in Table 5, six wildlife species have at least a moderate potential to occur in the vicinity of the project site. These species include: Belding's savannah sparrow; western snowy plover; brown pelican (*Pelecanus occidentalis californicus*); light-footed clapper rail; black skimmer (*Rynchops niger*); and California least tern. However, with the exception of Belding's savannah sparrow, all of these bird species would only be expected to use the project site and vicinity for foraging, as no suitable nesting habitat for these species occurs at or near the project site. However, the project site is located immediately adjacent to southern coastal salt marsh habitat, which is considered suitable breeding habitat for the Belding's savannah sparrow. As stated above, construction of the proposed project would involve the abandonment of existing manholes and lift stations located along the unpaved south side of Warner Avenue. This abandonment would require excavation and backfilling which would occur immediately adjacent to southern coastal salt marsh habitat. Therefore, construction of the proposed project has the potential to result in significant impacts to Belding's savannah sparrow. Additionally, construction of Lift Station #C and its associated facilities, which would be located within the planter area on the north side of Warner Avenue, would require the removal of five existing palm trees. If removal of these trees is required during the bird breeding season, a potentially significant impact to nesting birds could occur. However, with implementation of mitigation measures requiring avoidance and minimization, these potential impacts would be reduced to below a level of significance (see B-3, Attachment 3).

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service? (Sources: 1, 5, and 9)	☐	☒	☐	☐

Discussion: The project site is adjacent to southern coastal salt marsh habitat, which is considered a sensitive natural community by the CDFG. Construction of the proposed project would involve the abandonment of existing manholes and lift stations located along the unpaved south side of Warner Avenue. This abandonment would require excavation and backfilling which would occur immediately adjacent to southern coastal salt marsh habitat. However, mitigation measures requiring pre-construction surveys and a transplantation and salvage plan are provided to reduce impacts to below a level of significance (see B-1 and B-2, Attachment 3). In addition, the incorporation of BMPs as required in the General NPDES Permit for Construction Activities, discussed under the response to item IV a., would further reduce potential impacts related to excavation and backfilling adjacent to southern coastal salt marsh habitat.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? (Sources: 1, 5, and 9)	☐	☐	☒	☐

Discussion: As discussed above, construction of the proposed project would require some excavation immediately adjacent to southern coastal salt marsh habitat, which could have the potential to result in impacts such as sedimentation, freshwater runoff, noise, dust, etc. However, as discussed under the response to item IV a., the incorporation of BMPs as required in the General NPDES Permit for Construction Activities would reduce potential impacts related to excavation and backfilling adjacent to southern coastal salt marsh habitat. In addition, mitigation measures requiring pre-construction surveys and a transplantation and salvage plan would further minimize potential impacts (see B-1 and B-2, Attachment 3). Following excavation, the areas to be abandoned along the unpaved south side of Warner Avenue would be revegetated with native plants. This would result in the revegetation of approximately 734 square feet. Therefore, impacts related to a substantial adverse effect on federally protected wetlands would be less than significant.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites? (Sources: 1, 5, and 9)	☐	☐	☐	☒

Discussion: The proposed project consists of improvements to an existing sewer system. These improvements would be constructed within and immediately adjacent to the roadway rights-of-way along segments of Warner Avenue and PCH. A section of the gravity forcemain will be attached to the south side of the Warner Avenue Bridge; however, construction equipment will not enter Huntington Harbour or Bolsa Bay. In addition, there are no established wildlife corridors or native wildlife nursery sites near the project site. Therefore, there would be no interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or nursery sites and no mitigation would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (Sources: 1 and 5)	☐	☐	☒	☐

Discussion: Construction of Lift Station #C and its associated facilities, which would be located within the planter area on the north side of Warner Avenue, would require the removal of five existing palm trees. The City of Huntington Beach Tree Ordinance (Chapter 13.50 of the Huntington Beach Municipal Code) requires a permit from the Public Works Department for any activity that may disturb trees. Construction of the proposed project would be subject to standard City requirements for the submittal of landscape plans demonstrating compliance with current code requirements and the replacement at a 1:1 ratio of all mature, healthy trees that are removed. Approval of trimming, removing, or replacing trees by the Director of Public Works in association with replacement requirements would ensure that the proposed project would not conflict with any local policies or ordinances protecting biological resources. Therefore, impacts related to tree removal would be considered less than significant.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? (Sources: 1)	☐	☐	☐	☒

Discussion: The project site is not included in any adopted conservation plan, and therefore would not conflict with any conservation plans. No impacts would occur and no mitigation measures would be required.

VIII. MINERAL RESOURCES. Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? (Sources: 1)	☐	☐	☐	☒

Discussion: The City of Huntington Beach General Plan does not indicate that there are any mineral resources in or near the project site. In addition, the proposed project consists of improvements to an existing sewer system and would result in an overall net decrease in impervious surfaces. Therefore, implementation of the proposed project would not result in loss of availability of any mineral resource that would be of future value to the region. No impacts would occur and no mitigation measures would be required.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? (Sources: 1)	☐	☐	☐	☒

Discussion: Please refer to the response in item VIII a., above.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

IX. HAZARDS AND HAZARDOUS MATERIALS.

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? (Sources: 5) ☐ ☐ ☒ ☐

Discussion: The proposed project consists of improvements to an existing sewer system. The proposed project would not use a substantial amount of hazardous materials during construction. Hazardous materials that are used during construction (e.g., petroleum-based products, paints, solvents, sealers, etc.) would be transported, used, stored, and disposed of according to City, County, state, and federal regulations. Operation of the proposed project would occasionally require the delivery of natural gas and LPG for the 125-gallon storage tank. These materials will be delivered by licensed delivery and disposal contractors or City personnel in accordance with established procedures for handling of such items. Therefore, impacts would be less than significant and no mitigation measures would be required.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? (Sources: 5) ☐ ☐ ☒ ☐

Discussion: Please refer to the response in item IX a., above.

c) Emit hazardous emissions or handle hazardous or acutely hazardous material, substances, or waste within one-quarter mile of an existing or proposed school? (Sources: 5) ☐ ☐ ☐ ☒

Discussion: There are no public schools located within a one-quarter mile radius of the project site. As indicated above, operation of the proposed project would occasionally require the delivery of natural gas and LPG for the 125-gallon storage tank. These materials will be delivered by licensed delivery and disposal contractors or City personnel in accordance with established procedures for handling of such items. As there are no public schools within one-quarter mile of the project site, no impacts would occur and no mitigation measures would be required.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? (Sources: 10) ☐ ☒ ☐ ☐

Discussion: A search of regulatory databases as specified in the American Society for Testing and Materials (ASTM) Standard Practice E1527-05 was performed by Environmental Data Resources (EDR), in conformance with Government Code Section 65962.5. Although the project site as a whole is not included on a list of hazardous materials sites, a small portion of the construction limits overlies a driveway at the Warner Avenue Fire Station, which is a listed site. The Warner Avenue Fire Station, 3831 Warner Avenue, appears on the Leaking Underground Storage Tank (LUST) database, as well as on the UST, Sweeps UST, Historical UST, Historical Cortese and HAZNET databases. The LUST listing shows a release of gasoline discovered during a tank removal in 1998. The site achieved regulatory closure in 2004; no immediate environmental concerns are indicated. A second listed site, which is immediately adjacent to the construction limits, is a leaking underground storage tank associated with the former Exxon (now Mobil) gas station at 17222 Pacific Coast Highway (the northeast corner of Pacific Coast

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Highway and Warner Avenue). The LUST case associated with this site was closed by the Orange County Health Care Agency in 1998; however, four groundwater monitoring wells remained in the area of the underground storage tanks, and multiple rounds of groundwater sampling conducted in 2002 indicated the presence of the gasoline additive methyl tert-butyl ether (MTBE) in all four wells, as well as the occasional presence of gasoline-range organics (GRO). The UST area at the gas station is approximately 60 feet from the proposed sewer easement. Further, groundwater sampling from monitoring wells installed for the January 2012 geotechnical investigation indicated low levels of MTBE in the groundwater in some wells. The presence of MTBE-impacted groundwater in the project area indicates a potential concern in that impacted groundwater could enter trenches or excavations for the sewer line, especially during dewatering conditions. Hydrocarbon-impacted soil, dusts arising from impacted soil, or vapors from volatilization of contaminants from soil or groundwater could also be encountered, indicating a potentially significant risk of human exposure during construction activities. However, implementation of mitigation measures HM-1, HM-2, and HM-3, requiring a site-specific Health and Safety Plan and handling procedures for potentially impacted soils and groundwater, would reduce potential impacts related to hazards to the public or environment to below a level of significance (see HM-1, HM-2, and HM-3, Attachment 3).

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or pubic use airport, would the project result in a safety hazard for people residing or working in the project area? (Sources: 11)	☐	☐	☐	☒

Discussion: The City of Huntington Beach is included in the Planning Area for the Joint Forces Training Center in Los Alamitos. However, the proposed project consists of improvements to an existing sewer system and would not result in a safety hazard for people residing or working in the project area. No impacts would occur and no mitigation measures would be required.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? (Sources: 1)	☐	☐	☐	☒

Discussion: The project site is not located near a private airstrip. No impacts would occur and no mitigation measures would be required.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (Sources: 1)	☐	☒	☐	☐

Discussion: Emergency access will be maintained throughout the construction period through implementation of a traffic control plan, as specified in the mitigation measures (see T-1, Attachment 3). These mitigation measures would reduce potential impacts related to emergency access to below a level of significance.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? (Sources: 1)	☐	☐	☐	☒

Discussion: The proposed project consists of improvements to an existing sewer system. The proposed project would not expose people or structures to greater fire-related hazards than currently exist at the project site. No impacts would occur and no mitigation measures would be required.

X. NOISE. Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (Sources: 12, 20, 21, 22 and 23)	☐	☐	☒	☐

Noise sensitive receptors are generally considered humans engaged in activities, or utilizing land uses, that may be subject to the stress from significant interference of noise. Activities usually associated with sensitive receptors include, but are not limited to, talking, eating, and sleeping. Land uses often associated with sensitive receptors include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, education facilities, and libraries.

Sensitive noise receptors for the proposed project would be residences and beachgoers within approximately 500 feet of the project site. These receptors would include homes south of 4th Street on PCH, homes closer than the tennis courts on Bluewater Lane in the Huntington Harbour Yacht Club, the Weatherly Lane housing complex, residents at the Huntington Harbour Bay Club, and residents within 500 feet of the Edgewater Lane/Warner Avenue intersection. The noise assessment has been conducted based on minimum distances to sensitive receptors. It is assumed for this analysis that any impacts or mitigation that is found to be less than significant for these minimum distances would also be less than significant for greater distances.

The existing noise environment within the project vicinity is primarily influenced by surface-transportation noise emanating from vehicular traffic on nearby roadways and from boating activities in the harbor. Intermittent noise from outdoor activities at the surrounding residences and beaches (e.g., people talking, operation of landscaping equipment, car doors slamming, and dogs barking) though minor, also influences the existing noise environment.

As stated above, the dominant noise source in the vicinity of the project site is vehicular traffic on nearby roadways. Noise contour maps from the City of Huntington Beach Noise Element show that traffic noise along Warner Avenue and the PCH would be between 60 and 65 A-weighted decibels (dBA) day-night noise level (L_{dn}) (City of Huntington Beach 1996: Figure N3). The dBA scale is a special frequency-dependent rating scale that is used to discriminate against certain frequencies to approximate the sensitivity of the human ear. The L_{dn} scale is a time-weighted 24-hour average noise level that penalizes noise levels occurring at night (10 P.M. to 7 A.M.) To account for increased human sensitivity during this period. For this analysis, it is therefore assumed that the background noise level at the nearest sensitive receptors to the proposed project would be 62 dBA L_{dn}.

The City of Huntington Beach has established non-transportation related noise standards of 55 dBA hourly equivalent noise level ($Leq_{[h]}$) (i.e., the average noise level during a 1-hour sample) and 75 dBA maximum noise level (L_{max}) for daytime hours (7 a.m. to 10 p.m.), and 50 dBA Leq $_{(h)}$ and 70 dBA L_{max} for nighttime hours (10 p.m.

to 7 a.m.), and land use compatibility noise standards of up to 60 dBA L_{dn} for outdoor activity areas and 45 dBA L_{dn} for interior spaces for residential land uses. The City of Huntington Beach exempts construction noise between the hours of 7:00 a.m.to 8:00 p.m. weekdays and Saturdays. Construction noise is held to regular noise standards outside the hours listed above and Federal Holidays. Emergency work and machinery is also exempt from noise regulations under Section 8.40.090(e) of the City of Huntington Beach Code of Ordinances.

Short-Term Construction Source Noise Discussion: With respect to the proposed project, the construction activities associated with removal of existing lift stations, asphalt removal and replacement, installing a new gravity fed sewer main, and construction of replacement Lift Station C would all be considered noise generating activities. Construction of the proposed project is expected to take approximately 220 working days. A crew of approximately 10-15 construction workers would be at the project site during construction. Construction equipment would include the following: asphalt concrete cutting equipment, drill rig 8" auger, backhoe, dump trucks, flat bed pipe trailer, excavators, backhoe, drill rig 16" auger, hydraulic press, crane, concrete delivery truck, bridge inspection truck, loader, asphalt truck, roller, and jackhammer.

The simultaneous operation of on-site construction equipment could result in combined intermittent maximum noise levels up to 85 dBA L_{max} at 50 feet from the project site, as shown in Table 6. Hourly average noise levels would be approximately 77 dBA $L_{eq(h)}$ at 50 feet. Based on these noise levels, exterior noise levels at noise-sensitive receptors located within 377 feet from the project site (e.g., residences) could exceed 75 dBA L_{max} and 55 dBA $L_{eq(h)}$ (City of Huntington Beach hourly daytime standard) without feasible noise controls. Intervening buildings, topographic features, and other noise sources such as roadways would reduce the distance that noise from construction activities would be noticeable. However, 377 feet is the maximum distance that noise would exceed applicable standards. More specifically, construction-generated noise levels could reach 72 dBA $L_{eq(h)}$ at the closest residence within approximately 75 feet of proposed construction locations. See Attachment 5 for noise calculations. It should be noted that sheet piles will be installed using a hydraulic press rather than the typical impact or vibratory pile driver.

TABLE 6
TYPICAL CONSTRUCTION-EQUIPMENT NOISE LEVELS

Type of Equipment	Noise Level in dBA at 50 feet
Backhoe	80
Drill Rig	85
Crane	85
Concrete Mixer	85
Excavator	85
Generator	82
Haul Truck	80
Jack Hammer	88
Loader	85
Hydraulic Press	70
Source: FTA 2006	

As discussed above, exterior noise levels at noise-sensitive receptors located within 377 feet from the project site could exceed 75 dBA L_{max} and 55 dBA $L_{eq(h)}$ without feasible noise controls. However, the City of Huntington

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Beach exempts construction noise between the hours of 7:00 a.m.to 8:00 p.m. weekdays and Saturdays. Therefore, impacts related to construction noise would be less than significant and no mitigation measures would be required.

It should be noted that construction of the proposed project would also result in a short-term increase in traffic on the local area roadway network. Noticeable increases of 3 dBA (CNEL) do not typically occur without a substantial (i.e., doubling) increase in roadway traffic volumes. (Caltrans 2009: N-96). Due to the heavy traffic volumes on roadways surrounding the project sites, it is unlikely that construction traffic would double existing traffic volumes; therefore, the overall traffic noise levels would not change a substantial amount.

Long-Term Operational Source Noise Discussion: The proposed project contains no new permanent noise sources except for a new 60 kW emergency generator located at the new Lift C Station in the planter area in front of the Yacht Club parking lot. The proposed natural gas generator would be enclosed in a noise attenuating enclosure and would generate approximately 68 dBA at 69 feet (Cummins 2008). This would attenuate to 52 dBA L_{eq}, which would be less than the City daytime standard of 55 dBA L_{eq}, but greater than the nighttime standard of 50 dBA L_{eq}. However, emergency machinery is exempt from applicable standards, and the generator would only be operated during the day for testing and at night during emergency events. Additionally, the proposed project includes the installation of one new lift station; however the new lift station replaces an existing one and three other existing lift stations would also be removed. The emergency generator would not exceed noise levels during daytime hours, would only operate at night under emergency conditions, and additional operations would be the same as under existing conditions. Therefore, impacts related to operational noise would be less than significant and no mitigation measures would be required.

b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? (Sources: 12 and 23)	☐	☐	☒	☐

Short-term Construction Source Vibration Discussion: Construction activities have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Table 7 displays vibration levels for typical construction equipment.

TABLE 7
TYPICAL CONSTRUCTION-EQUIPMENT VIBRATION LEVELS

Equipment	PPV at 25 feet (in/sec)[1]	Approximate L_v at 25 feet[2]
Large Bulldozer	0.089	87
Trucks	0.076	86
Impact Pile Driver	0.644	104
Sonic Pile Driver	0.170	93

[1] Where PPV is the peak particle velocity
[2] Where L_v is the velocity level in decibels (VdB) referenced to 1 microinch/second and based on the root mean square (RMS) velocity amplitude.
Source: FTA 2006: Chapters 10 and 12

As discussed above, on-site construction equipment would include loaders, drill rigs, excavators, cranes, and haul trucks. According to the Federal Transit Administration (FTA), vibration levels associated with the use of heavy

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

equipment range from approximately 0.003 to 0.089 inches per second (in/sec) peak particle velocity (PPV) and 58 to 87 in velocity level (Lv) in decibels (VdB referenced to 1 microinch per second [µin/sec] and based on the root mean square [RMS] velocity amplitude) at 25 feet, as shown in Table 7. Using FTA's recommended procedure for applying a propagation adjustment to these reference levels, predicted worst-case vibration levels of approximately 0.017 in/sec PPV and 72.6 VdB at the nearest sensitive residence (75 feet) could occur from use of heavy equipment. These vibration levels would not exceed the FTA recommended standard of 0.2 in/sec PPV with respect to the prevention of structural damage for normal buildings nor the human annoyance vibration standard of 80 VdB (FTA 2006: Chapters 8, 10, and 12).

As described in the response to item X a., above, sheet piles will be installed using a hydraulic press rather than the typical impact or vibratory pile driver. However, limited vibration velocity data is available for the hydraulic press. Therefore, Table 7 lists the typical vibration levels of both the impact and sonic pile driver to provide conservative, worst-case-scenario estimate of potential vibration levels resulting from the hydraulic press. Vibration levels associated with the use of pile driving range from approximately 0.170 to 0.644 in/sec PPV and 93 to 104 VdB at 25 feet, as shown in Table 7. Using FTA's recommended procedure for applying a propagation adjustment to these reference levels, predicted worst-case vibration levels of approximately 0.022 in/sec PPV and 74.7 VdB at the nearest sensitive residence (240 feet) could occur from use of pile driving equipment. These vibration levels would not exceed the FTA recommended standard of 0.2 in/sec PPV with respect to the prevention of structural damage for normal buildings and the FTA's maximum-acceptable vibration standard of 80 VdB (FTA 2006: Chapters 8, 10, and 12) with respect to human annoyance for residential uses.

As stated above, project-related vibration and groundborne noise from both heavy equipment operations and pile placement would not expose persons to levels exceeding the recommendations of the FTA. Therefore, impacts related to groundborne vibration and groundborne noise would be less than significant and no mitigation measures would be required.

The proposed project contains no permanent vibration sources. Project actions that generate vibration would consist of construction activities only and would not result in a violation of applicable vibration standards. No operational impacts related to vibration would occur and no mitigation measures would be required.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? (Sources: 12, 21 and 22)	☐	☐	☒	☐

Discussion: The proposed project contains no new permanent noise sources except for the new emergency generator. The proposed project includes the installation of one new lift station; however the new lift station replaces an existing one and three other existing lift stations would also be removed. The emergency generator would not exceed the City's daytime standard and would be exempt from noise standards during emergency events. Therefore, impacts related to permanent increases in operational noise would be less than significant and no mitigation measures would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? (Sources: 12, 21 and 22)	☐	☐	☒	☐

Discussion: As discussed under the response for X a., above, construction noise levels are likely to be 77 dBA L_{eq} or more at 50 feet, which would be considered a substantial increase (+3 dBA [FTA 2006]) over existing noise levels of 62 dBA L_{dn} (approximately 55 dBA L_{eq}). However, the City of Huntington Beach exempts construction noise between the hours of 7:00 a.m.to 8:00 p.m. weekdays and Saturdays. Therefore, impacts related to temporary or periodic noise would be less than significant and no mitigation measures would be required.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? (Sources: 1 and 11)	☐	☐	☐	☒

Discussion: The proposed project is not located within two miles of a public airport. The nearest airport is Los Alamitos Air Force Base, located approximately five miles to the north. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels. No impacts would occur and no mitigation measures would be required.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? (Sources: 1 and 11)	☐	☐	☐	☒

Discussion: The proposed project is not located within two miles of a private airport. The nearest airport is Los Alamitos Air Force Base, located approximately five miles to the north. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels. No impacts would occur and no mitigation measures would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire protection? (Sources: 5)	☐	☐	☐	☒

Discussion: The proposed project consists of improvements to an existing sewer system. The proposed improvements would comply with all of the City of Huntington Beach Fire Department standard requirements for development. Therefore, implementation of the proposed project would not create a potential fire hazard or result in an increase in the occurrence of fires. There would be no increase in the demand for fire protection that would result in the need for new or expanded fire protection facilities. No impacts would occur and no mitigation measures would be required.

b) Police Protection? (Sources: 5)	☐	☐	☐	☒

Discussion: The proposed project consists of improvements to an existing sewer system. Therefore, implementation of the proposed project would not result in an increase in the occurrence of crime, an increase in the demand for police protection, or the need for new or expanded police protection facilities. No impacts would occur and no mitigation measures would be required.

c) Schools? (Sources: 5)	☐	☐	☐	☒

Discussion: The proposed project consists of improvements to an existing sewer system and does not include new residential development and would not result in an increased demand for school services. Therefore, the proposed project would not result in the need to alter existing schools or construct new schools, the construction of which could result in significant impacts on the physical environment. No impacts would occur and no mitigation measures would be required.

d) Parks? (Sources: 5)	☐	☐	☐	☒

Discussion: The proposed project consists of improvements to an existing sewer system and does not include any residential units. Therefore, the proposed project would not result in an increased demand for additional park facilities. No impacts would occur and no mitigation measures would be required.

e) Other public facilities or governmental services? (Sources: 5)	☐	☐	☐	☒

Discussion: The proposed project would not result in adverse impacts to any other government or public facilities in the area. No impacts would occur and no mitigation measures would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

XII. UTILITIES AND SERVICE SYSTEMS. Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? (Sources: 5) ☐ ☐ ☐ ☒

Discussion: The proposed project consists of improvements to an existing sewer system and would not result in the generation of raw sewage. Therefore, the proposed project would not result in exceedance of wastewater treatment requirements of the Regional Water Quality Control Board. No impacts would occur and no mitigation measures would be required.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? (Sources: 5) ☐ ☐ ☐ ☒

Discussion: As indicated above, the proposed project consists of improvements to an existing sewer system. Thus, the proposed project would not result in the generation of raw sewage, nor create a demand for additional sewer collection and/or treatment facilities. Likewise, the proposed project would not result in an increased demand for wastewater or water treatment facilities nor would it result in increased capacity of the sewer system that could require new or expanded treatment facilities. Therefore, no new or expanded wastewater or water treatment facilities would be required to accommodate the proposed project. No impacts would occur and no mitigation measures would be required.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? (Sources: 5) ☐ ☐ ☐ ☒

Discussion: Construction and operation of the proposed project would not alter existing storm water drainage facilities, and would result in a minor net decrease in impervious surfaces. The proposed project will construct approximately 447 square feet of new impervious surfaces and demolish approximately 655 square feet of existing impervious surfaces; a net decrease of 208 square feet. No impacts would occur and no mitigation measures would be required.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? (Sources: 5) ☐ ☐ ☐ ☒

Discussion: Construction and operation of the proposed project would not affect water supplies, as the proposed project consists of improvements to an existing sewer system. Construction activity would require minimal amounts of water that would be accommodated from existing water supplies and entitlements. Implementation of the proposed project would not result in the need to expand existing water facilities or construct new water facilities. No impacts would occur and no mitigation measures would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? (Sources: 5)	☐	☐	☐	☒

Discussion: No development is proposed that would result in the generation of raw sewage. No impacts would occur and no mitigation measures would be required.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? (Sources: 5)	☐	☐	☒	☐

Discussion: Construction of the proposed project would generate approximately 80.5 cubic yards (CY) of solid waste related to the demolition of lift stations and sanitary manholes. This waste, and any other waste generated during construction, would be minimal and could be accommodated in local landfills. No long-term, ongoing generation of solid waste would occur as a result of project implementation. Therefore, impacts related to solid waste disposal facilities would be less than significant and no mitigation measures would be required.

g) Comply with federal, state, and local statutes and regulations related to solid waste? (Sources: 5)	☐	☐	☒	☐

Discussion: As indicated above, the quantity of solid waste would be minimal and would be accommodated by local landfills. In addition, it should be noted that the City would be required to comply with all federal, state and local statutes and regulations related to the disposal of solid waste. Therefore, impacts related to compliance with statues and regulations related to solid waste would be less than significant and no mitigation measures would be required.

h) Include a new or retrofitted storm water treatment control Best Management Practice (BMP), (e.g. water quality treatment basin, constructed treatment wetlands?) (Sources: 5)	☐	☐	☐	☒

Discussion: The proposed project does not include new or retrofitted storm water treatment control Best Management Practices. No impact would occur and no mitigation measures would be required.

XIII. AESTHETICS. Would the project:

a) Have a substantial adverse effect on a scenic vista? (Sources: 1)	☐	☐	☒	☐

Discussion: The Pacific Ocean, the Bolsa Chica Ecological Reserve, and Huntington Harbour are listed as visual assets in the Urban Design Element (1996) of the City of Huntington Beach General Plan. In addition to the Pacific Ocean, the Bolsa Chica Ecological Reserve, and Huntington Harbour, the Bolsa Chica Mesa is identified as a visual asset in the Coastal Element (2008) of the City of Huntington Beach General Plan. Views from the project site include the Pacific Ocean, the Bolsa Chica Ecological Reserve, Huntington Harbour, and the Bolsa Chica Mesa. During construction, views of these scenic vistas from the project site may be somewhat blocked by construction

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

equipment. However, these visual impacts would be temporary and, therefore, less than significant. Following construction, the visual character of the project site would not change substantially and views of scenic vistas would not be blocked or obscured. Therefore, impacts to scenic vistas would be less than significant and no mitigation measures would be required.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? (Sources: 1 and 14) ☐ ☐ ☒ ☐

Discussion: PCH is designated as an Eligible State Scenic Highway on Caltrans' California Scenic Highway Mapping System. Additionally, the City has identified PCH as a scenic corridor, Warner Avenue as a Landscape Corridor, and the intersection of PCH and Warner Avenue as a Primary Entry Node to the City in the Coastal Element (2008) of the City of Huntington Beach General Plan. These roads are considered scenic because of the views they offer of the Pacific Ocean, the Bolsa Chica Ecological Reserve, and Huntington Harbour, and the Bolsa Chica Mesa. During construction, views of these scenic resources from PCH and Warner Avenue may be somewhat blocked by construction equipment; however, these resources would not be impacted by the proposed project. In addition, the project site does not contain any scenic resources that could be damaged. Therefore, impacts to scenic resources within a state scenic highway would be less than significant and no mitigation measures would be required.

c) Substantially degrade the existing visual character or quality of the site and its surroundings? (Sources: 5) ☐ ☐ ☒ ☐

Discussion: Following construction, the appearance of Warner Avenue and PCH would be similar to existing conditions. Nearly all of the sewer system improvements would be installed underground and thus, would not alter the existing visual character or quality of the project site and its surroundings. Implementation of the proposed project would result in the demolition of four lift stations located adjacent to either Warner Avenue or PCH. This demolition would result in the removal of existing above ground visual elements associated with the lift stations (e.g., electrical service and motor control center equipment). New above-ground visual elements would be located in the planter area in front of the yacht club parking lot, on the north side of Warner Avenue, west of the Warner Avenue Fire Station. These above-ground elements would consist of a 60 kW natural gas outdoor emergency generator, a 125 gallon natural gas and LPG emergency backup tank, and outdoor electrical service and motor control center. These new visual elements would be similar to existing elements that are to be demolished and would not represent a substantial change in the existing visual character and quality of the site. During the construction phase, the visual character of the project site would be adversely affected by construction activities and the presence of construction equipment and materials. However, the construction phase is temporary and, therefore, would not result in permanent adverse impacts to the visual character of the project site. It should be noted that following excavation, the areas to be abandoned along the unpaved south side of Warner Avenue would be revegetated with native plants. This would result in the revegetation of approximately 734 square feet.

Additionally, construction of the proposed project would require the removal of five existing palm trees within the planter area on the north side of Warner Avenue. However, the City of Huntington Beach Tree Ordinance (Chapter 13.50 of the Huntington Beach Municipal Code) requires a permit from the Public Works Department for any activity that may disturb trees. Construction of the proposed project would be subject to standard City requirements for the submittal of landscape plans demonstrating compliance with current code requirements and the replacement at a 1:1 ratio of all mature, healthy trees that are removed. Therefore, impacts to the existing visual character or quality of the project site and its surroundings would be less than significant and no mitigation measures would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (Sources: 5)	☐	☒	☐	☐

Discussion: No nighttime lighting would be used during construction. However, the proposed project includes two18-foot-high, 100-watt pole-mounted yard lights near the emergency generator and electrical equipment areas. There is existing parking lot and street lighting in the area and these two new yard lights would be compatible with the existing environment. However, the City of Huntington Beach requires this type of lighting to be shielded or focused downward to prevent light from spilling over to adjacent properties or creating a new source of light or glare. A mitigation measure ensuring the project specifications will require this lighting to be shielded or focused downward would reduce impacts to below a level of significance (see A-1, Attachment 3).

XIV. CULTURAL RESOURCES. Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? (Sources: 15)	☐	☐	☐	☒

Discussion: A Phase I cultural resources assessment, including a record search and survey of the project site, was conducted by AECOM (see Phase I Cultural Resources Letter Report, Attachment 6). No previously recorded built historic resources are present within the project site. Based on information provided by the City of Huntington Beach, all of the Lift Stations within the project site (Lift Stations #B, #C, #D and the Sunset Beach Sanitary District Lift Station), were constructed in 1962 and as such are 50 years in age. The proposed project would include demolition of these Lift Stations. Although these stations are historic in age, they are not a unique resource or the work of a master, and do not appear to be eligible for the California Register of Historic Places (CRHR) or contributor to a historic district. Therefore, they do not qualify as a historical resource as defined by CEQA. Though these structures are historic in age, it was determined unnecessary to record them as historic resources because they are well documented, very common structures with no historic information potential and are not eligible for the CRHR. Therefore, no impacts would occur and no mitigation measures would be required.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? (Sources: 15)	☐	☒	☐	☐

Discussion: A Phase I cultural resources assessment, including a record search and survey of the project site, was conducted by AECOM (Wallace and Dietler 2012). Previously conducted cultural resource investigations, as well as the characteristics of known archaeological sites, were reviewed as part of this investigation in an attempt to create a model of historic and archaeological site sensitivity for the project site. A 0.5-mile radius around the project site was reviewed and is referenced as the study area. Information on both the previously conducted investigations, as well as the known recorded cultural resource sites, was obtained from the South Central Coastal Information Center (SCCIC) at California State University, Fullerton in March 2012. In addition, the National Register of Historic Places (NRHP) database, listings for the California State Historic Resources Inventory (HRI), and the California Historical Landmarks (CHL) Register were examined to determine whether any sites in this radius were listed or had been determined eligible for these registers.

Based on the results of the archival research and the results of the Sacred Lands File search conducted by the Native American Heritage Commission, it is possible that prehistoric archaeological resources may be present within the project site. A total of seven previously recorded cultural resources were identified within the study area, of 0.5-mile around the project site, during the archival record search. Six of these resources (CA-ORA-

84/289, CA-ORA-85, CA-ORA-288, CA-ORA-1698, CA-ORA-1699 and CA-ORA-1700) are prehistoric shellfish scatters or shell middens, CA-ORA-84/289 and CA-ORA-85 also evidenced habitation.

Sites CA-ORA-1698 through 1700 were documented in 2010 by Martz during the Trust Habitat Restoration Project within the Bolsa Chica Ecological Reserve (Martz 2010). These scatters may represent or be associated with prehistoric sites such as CA-ORA-84 and 85, and CA-ORA-289, located on the upper and lower benches of Bolsa Chica Mesa and are mapped within the study area as shown in Cooley 1973.

The prehistoric site CA-ORA-85, as described by Cooley (1973) and Mabry (1979), is located south of Warner Avenue east of Warner pond and west of Los Patos Avenue. This location is similarly described by Martz (2010) as CA-ORA-1699. The shell scatter CA-ORA-1699 may be associated with, or may be the remaining constituents of CA-ORA-85. The identified location is within 300 feet of the project site. CA-ORA-85 was first identified within this vicinity in the 1920's.

The remaining resource, P-30-162259 is identified as World War II gun emplacements that were used as part of the World War II coastal defense fortification at Bolsa Chica. These types of installations along the southern California coast were constructed as part of the 1940 Harbor Defense Board Program that was enacted to protect the exposed shorelines of California during the war. These gun emplacements are NRHP eligible under criteria A and C.

The site CA-ORA-78 was mentioned by Cooley (1973), Martz (2010), and Ross and Desautels (1970), though the site primary record is not available at the SCCIC. This resource is the structural remnants of the Bolsa Chica Gun Club. Originally located at the southeastern portion of the lower bench of Bolsa Chica Mesa, the gun club was formed in 1899 by wealthy business men from Los Angeles and Pasadena, as a popular recreation organization for local wealthy residents. The club was disbanded in 1964 because a fire damaged the club beyond repair. In addition, remnants of a shell scatter adjacent to the remains of the gun club were documented by Martz (2010). Thus, CA-ORA-78 is a multi-component site where the prehistoric and historic components may be eligible for the NRHP under Criteria D. The location of CA-ORA-78 is south of the project site within the ecological reserve.

One additional primary record that was not available was for CA-ORA-83, also known as the "Cogged Stone Site." This large prehistoric midden has been known for the cogged stones that have been recovered from this site. CA-ORA-83 has been described as one of the most important and interesting prehistoric sites in the Bolsa Chica wetland. The site is located southeast of the project site on the southern extent of Bolsa Chica Mesa within the ecological reserve. CA-ORA-83 is NRHP eligible under Criteria D.

No additional sites or historic structures other than those discussed above were listed within the study area on the NRHP database, HRI, or CHL.

The survey of the project site did not result in the discovery of any unknown cultural resources. However, seven previously recorded resources, including six prehistoric sites, are located within the study area (outside of the project site), clustered southeast of the eastern terminus of the project site. Two of these, CA-ORA-1699 and CA-ORA-85 (which may represent the same site), are located directly south of Warner Avenue within 100 feet of the eastern terminus of the project site. These archaeological sites may extend beyond their mapped locations under Warner Avenue. In general, the area of the project is known to have a high level of archaeological sensitivity and many interested parties consulted, including local Native American groups, maintain a high level of interest and concern with regards to the proposed project. As described, there is the potential to encounter archaeological resources during construction of the proposed project. If archaeological resources are encountered during construction, a significant impact could occur. However, mitigation measures related to construction monitoring,

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

curation of resources encountered, and a final archaeological monitoring report would reduce construction impacts to archaeological resources to below a level of significance (see C-1 through C-4, Attachment 3).

c) Directly or indirectly destroy a unique paleontological resource or site unique geologic feature? (Sources: 15) ☐ ☒ ☐ ☐

Discussion: A Phase I cultural resources assessment, including a record search and survey of the project site, was conducted by AECOM (Wallace and Dietler 2012). A paleontological records search was conducted by Dr. Samuel McLeod, Vertebrate Paleontology Division of the Natural History Museum of Los Angeles County on April 5, 2012. The records check indicated that there are no known vertebrate fossil localities directly within the project site boundaries. However, vertebrate fossil localities have been recorded from nearby the project site in the same sedimentary rock units that are found within the project site. The uppermost layers of soil and younger quaternary alluvium in the project site are unlikely to contain significant fossil vertebrate remains. However, deeper excavations that extend down into older Quaternary deposits, or any excavation into the Quaternary Terrace deposits, if present in the project site, may encounter significant vertebrate fossils of Late Pleistocene age.

Fossil remains were not encountered on the surface of the project site during the course of the Phase I background research and field survey. However, the potential to encounter significant fossil remains is high as a result of the sensitive nature of the formations within the project site and the depth of proposed excavation. Mitigation measures related to monitoring, curation of resources encountered, and a final paleontological resources monitoring report, would reduce construction impacts to paleontological resources to below a level of significance (see C-5 through C-8, Attachment 3).

d) Disturb any human remains, including those interred outside of formal cemeteries? (Sources: 15) ☐ ☒ ☐ ☐

Discussion: A Phase I cultural resources assessment, including a record search and survey of the project site, was conducted by AECOM in 2012. The record search did not find evidence that Native American burials are known to exist within the study area. However, the results of the Native American Heritage Commission Sacred Land Files Search and subsequent Native American contact program indicated that Native American burials have been found within a 0.5-mile radius of the project site and may be associated with CA-ORA-85, which likely extends beneath Warner Avenue (Wallace and Dietler 2012). If human remains are encountered during construction, a significant impact could occur. However, a mitigation measure related to the proper protocol in the event of the discovery of human remains would reduce construction impacts to human remains to below a level of significance (see C-9, Attachment 3).

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

XV. RECREATION. Would the project:

a) Would the project increase the use of existing neighborhood, community and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (Sources: 5) ☐ ☐ ☐ ☒

Discussion: Demand for recreational facilities is primarily generated by permanent residents. The proposed project consists of improvements to an existing sewer system and does not include residential or other development that would result in either direct or indirect impacts to existing regional parks or other recreational facilities. Therefore, the proposed project would not result in an increase in the use of local or regional parks or recreational facilities. No impacts would occur and no mitigation measures would be required.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? (Sources: 5) ☐ ☐ ☐ ☒

Discussion: The proposed project consists of improvements to an existing sewer system. The proposed project does not include the development of new recreational facilities or require the construction or expansion of other recreational facilities which might have an adverse impact on the environment. No impacts would occur and no mitigation measures would be required.

c) Affect existing recreational opportunities? (Sources: 5) ☐ ☐ ☒ ☐

Discussion: Construction of the proposed project would result in temporary closure of bike lanes and temporary reductions in the widths of publically accessible sidewalks that occur within or immediately adjacent to the project site. Bike lanes along Warner Avenue and PCH would be closed during construction; however, bicycle traffic would not be prohibited. Bicycles would be required to share the travel way with existing vehicular traffic through the construction area. While this would be an inconvenience for bicyclists, it is a temporary condition that would only occur during construction. Additionally, it should be noted that mitigation measure T-1 would also provide for safe detours around construction activity and provide temporary traffic control (i.e., flag person). Therefore, impacts related to existing recreational activities would be less than significant and no mitigation measures would be required.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. AGRICULTURE RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? (Sources: 1 and 16)	☐	☐	☐	☒

Discussion: The project site does not contain lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance and there are no agricultural resources or operations located on or adjacent to the project site. Thus, the proposed project would not result in the conversion of designated farmlands, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program. No impacts would occur and no mitigation measures would be required.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? (Sources: 1 and 17)	☐	☐	☐	☒

Discussion: There are no agricultural resources, operations, or Williamson Act contracts located on or adjacent to the project site and the project site is not zoned for agriculture. The proposed project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. No impacts would occur and no mitigation measures would be required.

c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use? (Sources: 1 and 5)	☐	☐	☐	☒

Discussion: There are no agricultural resources or operations located on the project site. The proposed project consists of improvements to an existing sewer system and would not introduce any changes that would result in conversion of farmland to non-agricultural use. No impacts would occur and no mitigation measures would be required.

XVII. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? (Sources: 8 and 25)	☐	☐	☒	☐

Gases that trap heat in the atmosphere are called greenhouse gases (GHG). Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities while other greenhouse gases are created and emitted solely through human activities. The principal greenhouse gases

that enter the atmosphere because of human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. Within the past decade, increasing awareness of the potential effects GHG emissions may have on public health and welfare through a process known as global warming has led to more policy and increasing regulation of these pollutants.

The California Global Warming Solutions Act (Act) of 2006 established under Assembly Bill 32 (Chapter 488, Statutes of 2006) (AB 32), caps California's GHG emissions at 1990 levels by 2020. This legislation represents the first enforceable state-wide program in the United States to cap all GHG emissions from major industries and include penalties for non-compliance. The AB 32 Scoping Plan contains the main strategies California will use to reduce GHG emissions. These reduction actions include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. These measures have been introduced through various workshops and continue to be developed.

Title 24, Part 6, of the California Code of Regulations, establishes California Building Energy Efficiency Standards for residential and nonresidential buildings, which include, but are not limited to, roofing, lighting and insulation standards designed to improve energy efficiency and reduce overall GHG's. Operational components associated with proposed buildings and structures will be required to comply with the efficiency standards.

The SCAQMD has prepared a Draft Guidance Document entitled *Interim CEQA Greenhouse Gas Significance Thresholds* (October 2008) for evaluating operational and construction impacts of proposed industrial projects, and has adopted an interim threshold of 10,000 metric tons of CO_2-equivalent[1] ($MTCO_2e$) per year, which includes emissions from stationary and transportation-related sources. Per SCAQMD guidance, construction emissions should be amortized over the economic life of the project, which is proposed at 30 years. In 2009, the SCAQMD recommended options for evaluating non-industrial projects including thresholds for residential, commercial, and mixed use projects of 3,500, 1,400, and 3,000 $MTCO_2e/yr$, respectively; however, these thresholds were never adopted. An additional option has been recommended for establishing a single numerical threshold of 3,000 $MTCO_2e/yr$ for all non-industrial projects. These options do not account for construction emissions and have not yet been adopted.

Local city/county agencies, including the City of Huntington Beach and the County of Orange, currently have not adopted a Climate Action Plan. However, in 2011 the City of Huntington Beach adopted the Energy Action Plan which established measures and goals designed to reduce localized GHG emissions through improved energy efficiency, incentives for use of renewable energy sources, and enhanced outreach and education programs.

Discussion: The proposed project will generate direct and indirect GHG emissions during construction and operation. "Direct" sources of GHG emissions are generally located on-site and can be controlled by the facility; "indirect" sources are located off-site and are typically owned or controlled by another entity, such as off-site electricity generation. Direct sources during construction include on- and off-road mobile sources. The use of electric-driven construction equipment is not anticipated for this project. Therefore, there are no indirect sources of GHG emissions associated with construction. Direct sources during operation include emergency generator maintenance and testing operations as well as worker trips associated with routine maintenance. The proposed new Lift Station C will utilize electric-driven pumps. However, because the proposed project includes demolition of three existing Lift Stations, the electrical demand of the new facility will be offset by the decommissioning of the three existing facilities. Therefore, emissions from indirect sources would result in a net benefit compared to existing conditions, and have not been estimated for this analysis.

[1] A metric ton is 1,000 kilograms, which is equivalent to 2,205 pounds. CO_2-equivalent is the sum of all GHG emissions, with emissions of each GHG multiplied by its global warming potential, which it's warming potential relative to CO_2.

GHG emissions generated by the project would predominantly be in the form of CO_2 and would occur primarily due to combustion sources including construction equipment, on- and off-road vehicle trips, and emergency generator maintenance and testing operations. GHG emissions from construction equipment were quantified using spreadsheets populated with horsepower-based composite emission factors, with built-in load factors. The emission factors were obtained from the SCAQMD's website (SCAQMD 2011) and represent the fleet-wide average emission factors during 2012 within the SCAB. The equipment-specific load factors have been updated by multiplying the emission factor by 0.67, consistent with the CARB's recently released off-road mobile source emission inventory model (OFFROAD 2011). GHG emissions from on-road motor vehicles were estimated using CARB's On-Road EMFAC2011 mobile source emission factors, obtained from the EMFAC2011 model output. GHG emissions from the emergency generator were quantified using spreadsheets populated with horsepower-based mass emission factors obtained from the United States Environmental Protection Agency's Compilation of Air Pollutant Emission Factors (AP-42) for natural gas combustion. Annual emissions from the emergency generator were based on an assumed 50 hours per year for maintenance and testing, consistent with SCAQMD permit limits for operation of emergency equipment.

Table 8 summarizes the annual GHG emissions and compares them to the SCAQMD interim significance threshold for industrial projects of 10,000 $MTCO_2e/yr$.

TABLE 8: GHG EMISSIONS IMPACT ANALYSIS

Source	CO_2e Emissions
Total Project CO_{2e} Emissions During Construction, $MTCO_2e$/Project	183
Amortized Construction GHG (over a 30-year period), $MTCO_2e$/30-yr	6
Total Project CO_{2e} Emissions During Operation, MTCO2e/Yr	3
Total Amortized Construction and Annual Operational GHG Emissions, $MTCO_2e/Yr$ =	9
SCAQMD Interim GHG Threshold for Industrial Projects ($MTCO_2e$)	10,000
Would the project exceed the SCAQMD interim threshold?	NO
Source: Modeled by AECOM, 2012	

As shown in Table 8, the project-related construction and operational GHG emissions are below the SCAQMD interim threshold. Emissions are also below the proposed thresholds that have not been adopted yet. Therefore, impacts related to GHG emissions would be less than significant and no mitigation measures would be required.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? (Sources: 8 and 24) ☐ ☐ ☒ ☐

Discussion: Currently, GHGs are not required under law to be included in Air Quality Management Plans and are not currently regulated by local Air Quality Management Districts. Statewide GHG emissions are regulated through AB 32, which codifies the State's GHG emissions target by requiring the State's GHG emissions be reduced to 1990 levels by 2020 and directs CARB to enforce the statewide cap that would begin phasing by 2012. As shown in Table 8 above, the project is below the SCAQMD interim threshold and therefore would not conflict with any local or state targets for GHG emission reductions. Moreover, the project is not covered by the City of

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Huntington Beach and County of Orange plans identified above. Therefore, impacts related to conflicts with GHG plans, policies, or regulations would be less than significant and no mitigation measures would be required.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? (Sources: 1, 5, 9 and 15)	☐	☒	☐	☐

Discussion: As described in this Environmental Assessment, implementation of the proposed project would not degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal, or eliminate important examples of major periods of California history or prehistory with the incorporation of the identified mitigation measures (see Attachment 3).

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.) (Sources: 1, 5, 6, 8, 9, 12, and 15)	☐	☐	☒	☐

Discussion: As described in this Environmental Assessment, the proposed project would not result in any operational environmental impacts. Therefore, there would be no cumulative operational impacts associated with the proposed project. The proposed project would result in some minor short-term impacts related to construction, all of which would be below a level of significance or reduced to below a level of significance with mitigation measures (see Attachment 3). These minor construction impacts would not be cumulatively considerable, even for the typically furthest reaching environmental factor, air quality, because the proposed project is very small in scale and scope and impacts would be localized. As described above, the proposed project would not exceed any South Coast Air Quality Management District air quality thresholds and would result in less-than-significant impacts to existing attainment or non-attainment designations. Therefore, the proposed project would result in less-than-significant levels of emissions related to air quality and these emissions would not be cumulatively considerable or cumulatively significant. The proposed project would result in cumulative impacts that would be less than significant.

ISSUES (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? (Sources: 1, 5, 6, 8, 9, 12, and 15)	☐	☒	☐	☐

Discussion: As described in this Environmental Assessment, construction and operation of the proposed project would not cause substantial adverse effects on human beings, either directly or indirectly. The impacts that the proposed project could have on human beings would be reduced to below a level of significance by mitigation measures included in the project (see Attachment 3).

XIX. EARLIER ANALYSIS/SOURCE LIST.

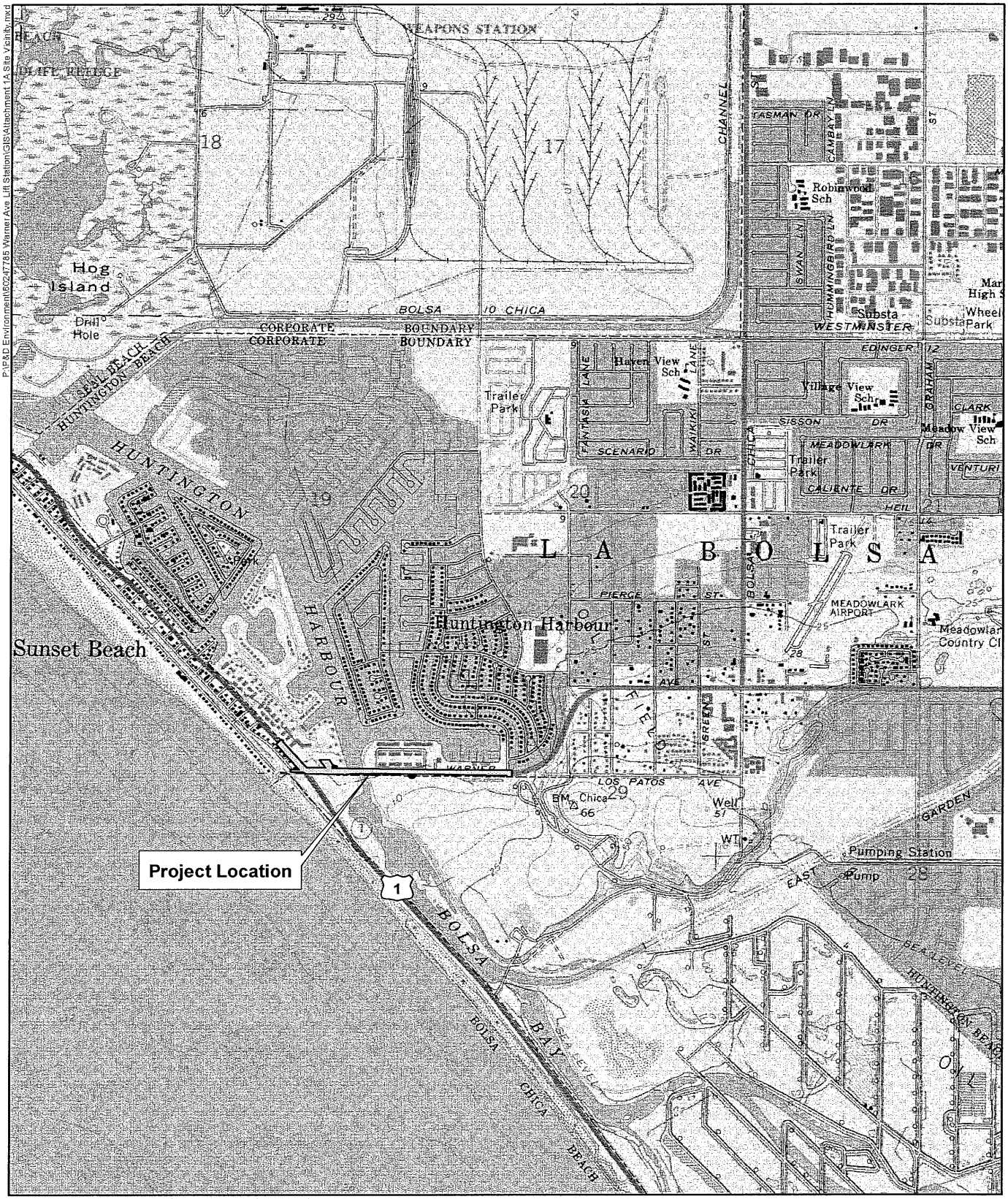
Earlier analyses may be used where, pursuant to tiering, program EIR, or other CEQA process, one or more effects have been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c)(3)(D). Earlier documents prepared and utilized in this analysis, as well as sources of information are as follows:

Earlier Documents Prepared and Utilized in this Analysis:

Reference #	Document Title	Available for Review at:
1	City of Huntington Beach General Plan	City of Huntington Beach Planning and Building Dept., 2000 Main St. Huntington Beach and at http://www.huntingtonbeachca.gov/Government/Departments/Planning/gp/index.cfm
2	City of Huntington Beach Zoning and Subdivision Ordinance	City of Huntington Beach City Clerk's Office, 2000 Main St., Huntington Beach and at http://www.huntingtonbeachca.gov/government/elected_officials/city_clerk/zoning_code/index.cfm
3	Project Vicinity Map & Site Aerial	See Attachments 1A and 1B
4	Proposed Project	See Attachment 2
5	Project Narrative	See Attachment 4
6	Geotechnical Report, Sewer Lift Station Replacement Project, Warner Avenue Gravity Sewer Lift Station C (AESCO, January 2012)	City of Huntington Beach Planning and Building Dept., 2000 Main St. Huntington Beach and at http://www.huntingtonbeachca.gov/Government/Departments/Planning/gp/index.cfm
7	FEMA Flood Panel Map #06059C0233H and #06059C0229H	Federal Emergency Management Agency https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1
8	Criteria Pollutant and GHG Emissions Calculations	City of Huntington Beach Planning and Building Dept., 2000 Main St. Huntington Beach
9	California Natural Diversity Database, Warner Avenue Sewer Lift Station Project (AECOM, April 10, 2012)	City of Huntington Beach Planning and Building Dept., 2000 Main St. Huntington Beach
10	The EDR Radius Map Report, Warner Avenue Lift Station C, (EDR, March 8, 2012)	City of Huntington Beach Planning and Building Dept., 2000 Main St. Huntington Beach and at http://www.huntingtonbeachca.gov/Government/Departments/Planning/gp/index.cfm

Reference #	Document Title	Available for Review at:
11	Airport Environs Land Use Plan for Joint Forces Training Base Los Alamitos (Oct. 17, 2002)	City of Huntington Beach Planning and Building Dept., 2000 Main St. Huntington Beach
12	Project-Generated Construction Source Noise/Vibration Prediction Model	See Attachment 5 City of Huntington Beach Planning and Building Dept., 2000 Main St. Huntington Beach
13	City of Huntington Beach Municipal Code	City of Huntington Beach City Clerk's Office, 2000 Main St., Huntington Beach and at http://www.huntingtonbeachca.gov/government/charter_codes/municipal_code.cfm
14	California Department of Transportation, California Scenic Highway Mapping System	California Department of Transportation http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm
15	Phase I Cultural Resources Assessment Letter Report for the Warner Avenue Sewer Lift Station Project (AECOM, May 14, 2012)	See Attachment 6 City of Huntington Beach Planning and Building Dept., 2000 Main St. Huntington Beach
16	California Department of Conservation, Farmland Monitoring and Mapping Program	California Department of Conservation http://www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx
17	California Department of Conservation, Williamson Act Program	California Department of Conservation http://www.conservation.ca.gov/dlrp/lca/Pages/Index.aspx
18	Localized Significance Thresholds (2003)	South Coast Air Quality Management District http://www.aqmd.gov/ceqa/handbook/LST/appC.pdf
19	Air Quality Significance Thresholds (2009)	South Coast Air Quality Management District http://www.aqmd.gov/ceqa/handbook/signthres.pdf
20	Technical Noise Supplement (2009)	California Department of Transportation Sacramento, CA
21	Noise Element of the City of Huntington Beach General Plan (1996)	City of Huntington Beach Huntington Beach, CA
22	Chapter 8.40 "Noise Control" of the City of Huntington Beach Code of Ordinances (2001)	City of Huntington Beach Huntington Beach, CA
23	Transit Noise and Vibration Impact Assessment (May 2006)	Federal Transit Administration Washington, D.C.

Reference #	Document Title	Available for Review at:
24	AB 32 Climate Change Scoping Plan (2008)	California Air Resources Board http://www.arb.ca.gov/cc/ab32/ab32.htm
25	CEQA GHG Thresholds (2009)	South Coast Air Quality Management District http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html
26	Final 2007 Air Quality Management Plan	South Coast Air Quality Management District



Source: Seal Beach, CA USGS 7.5' Topographic Quadrangle (1977) and AECOM (2012).

Scale 1 : 24000
1" = 2000 feet

0 1,000 2,000 4,000 Feet

Attachment 1A
Site Vicinity

Warner Avenue Sewer Lift Station Project

Source: Digital Globe, Inc. (March 2008), OC Public Works (2010), and AECOM (2010).

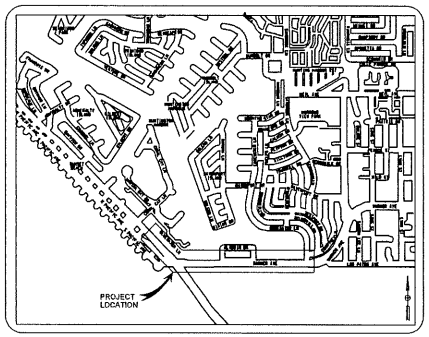
Scale 1 : 4,800
1" = 400 feet

0 200 400 800 1,200 Feet

Attachment 1B
Site Aerial

Warner Avenue Sewer Lift Station Project

Attachment No. 2
Proposed Project



VICINITY MAP
NOT TO SCALE

CONSTRUCTION PLANS FOR THE CITY OF HUNTINGTON BEACH WARNER AVENUE GRAVITY SEWER IMPROVEMENTS REPLACEMENT PROJECT APRIL 2012

LIST OF DRAWINGS

UTILITIES:

AGENCY	CONTACT PERSON	PHONE NO.
SOUTHERN CALIFORNIA EDISON	ERICK OEN	(562) 981-0236
ARCO PIPLINE COMPANY	ROB STREED	(714) 228-6526
DCOR, LLC	MIKE CERINO	(805) 535-2051 (805) 535-2000
SOUTHERN CALIFORNIA GAS COMPANY	STUART HAFER	(714) 634-3039
TIME WARNER CABLE	DAVE DOLNEY	(714) 378-8254 (714) 903-8446
VERIZON	LEO ASTOYA	(714) 375-6748

BENCHMARK

ELEVATIONS DERIVED FROM ORANGE COUNTY BENCHMARK 11-60-83
ELEVATION = 7.031'

BASIS OF BEARINGS

THE BEARING OF N06°53'20"E WAS FOUND BETWEEN ORANGE COUNTY SURVEY HORIZONTAL CONTROL POINTS NUMBERS 5099 AND 5100 AS RECORDED 7/1/95.

CONSTRUCTION NOTES		QTY.	UNIT
1	CONSTRUCT 15-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.	3054	LF
2	CONSTRUCT 10-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.	227	LF
3	CONSTRUCT 4-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504 AND 505.	15	EA
4	CONSTRUCT 5-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504, AND 505.	3	EA
5	REMOVE AND DISPOSE OF EXISTING SEWER MANHOLE AND BASE.	12	EA
6	ABANDON EXISTING SEWER LINE IN PLACE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY.	-	LS
7	CONSTRUCT 12-INCH CERAMIC EPOXY LINED CLASS 350 DUCTILE IRON SEWER.	523	LF
8	CONSTRUCT 12-INCH STAINLESS STEEL SCHEDULE 40 SEWER FORCEMAIN.	109	LF
9	CONSTRUCT 12-INCH 45-DEGREE D.I. BEND WITH 12-INCH MEGA-LUG MECHANICAL JOINT RESTRAINT AND THRUST BLOCK PER DETAIL XX.	-	EA
10	INSTALL 12-INCH FLEXIBLE DOUBLE BALL JOINT COUPLING.	2	EA
11	CONSTRUCT PIPE SUPPORT BRACKET PER DETAIL XX.	4	EA
12	CONSTRUCT CLEANOUT PER DETAIL 1 ON SHEET 28.	1	EA
13	CONSTRUCT 12-INCH 45-DEGREE D.I. BEND.	2	EA
14	CONSTRUCT 8-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.	150	LF
15	CONSTRUCT 6-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.	212	LF
16	RECONNECT SEWER LATERAL TO PROPOSED SEWER LINE PER CITY STD. PLAN 507.	1	EA
17	CONNECT EXISTING SEWER LINE TO PROPOSED SEWER MANHOLE. MAINTAIN EXISTING SEWER FLOWS, DURING CONSTRUCTION. RESHAPE MANHOLE BASE AND CHANNEL FOR FINAL FLOW.	6	EA
18	CONNECT PROPOSED SEWER TO EXISTING SEWER MANHOLE. MAINTAIN EXISTING SEWER FLOWS DURING CONSTRUCTION. RESHAPE MANHOLE BASE AND CHANNEL FOR FINAL FLOW.	4	EA
19	CONNECT PROPOSED SEWER TO EXISTING SEWER MANHOLE.	1	EA
20	REMOVE AND REPLACE EXISTING SIDEWALK, CURB, GUTTER, AND CROSS GUTTER TO NEAREST JOINT AS REQUIRED FOR OR DAMAGED BY CONSTRUCTION.	-	LS
21	FILL ADJACENT PIPES WITH SLURRY. REMOVE TOP OF MANHOLE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY, AND ABANDON.	5	EA
22	CONSTRUCT 2-INCH SEWER AIR/VAC PER DETAIL 3 ON SHEET 28 WITH 2-INCH STAINLESS STEEL DISCHARGE PIPE TO PROPOSED MANHOLE.	1	EA

PREPARED IN THE OFFICE OF
AKM Consulting Engineers
553 Wald
Irvine, California 92618

REGISTERED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

Underground Service Alert
Call: TOLL FREE 811
TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'V'D	REV.	DATE	BY	DESCRIPTION	APP'V'D

	REVIEWED BY:	DATE
UTIL. DIV.		
TRAFFIC		
ENG. SERVICES		
STREET DESIGN		
MAINTENANCE		
RIGHT-OF-WAY		
P.T. & T.		
CONSTRUCTION		
DRAWN BY:	BG	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOAGUE	MAR 2012

PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

TITLE SHEET

SHEET NO. 1 OF 37

N:\0960 Huntington Beach\1095 WACS & Lift Station C\01_title_sht.dgn 3/23/2012

GENERAL NOTES

1. ALL WORK DONE SHALL CONFORM TO THE FOLLOWING STANDARDS AND SPECIFICATIONS, LATEST REVISIONS, IN CASE OF CONFLICT, THE DOCUMENT OF HIGHEST PRECEDENCE SHALL CONTROL. THE STANDARDS AND SPECIFICATIONS IN ORDER OF PRECEDENCE ARE:

   A. CITY OF HUNTINGTON BEACH STANDARD PLANS.

   B. STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (SPPWC), PROMULGATED BY THE "GREENBOOK" COMMITTEE OF PUBLIC WORKS STANDARDS, INC.. C. COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY STANDARD SPECIFICATIONS AND STANDARD DRAWINGS.

   C. THE FOLLOWING PORTIONS OF THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS) STANDARD SPECIFICATIONS: SECTION 12, CONSTRUCTION AREA TRAFFIC CONTROL DEVICES; SECTION 84, TRAFFIC STRIPES AND PAVEMENT MARKINGS; SECTION 85, PAVEMENT MARKERS; AND SECTION 86, SIGNALS, LIGHTING, AND ELECTRICAL SYSTEMS. TRAFFIC SIGNAL AND TRAFFIC STRIPING/PAVEMENT MARKER PORTIONS OF THE CALTRANS STANDARD PLANS.

   D. STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK), PREPARED BY THE PUBLIC WORKS STANDARDS, INC., 2009 EDITION.

2. CITY OF HUNTINGTON BEACH STANDARD PLANS AND SPPWC STANDARD PLANS SHALL BE ON THE JOB SITE AT TIME OF CONSTRUCTION.

3. ALL CONSTRUCTION IN DEDICATED RIGHT OF WAY SHALL BE COVERED BY A CITY OF HUNTINGTON BEACH PUBLIC WORKS PERMIT. ALL CONSTRUCTION WITHIN OR AFFECTING TRAFFIC WITHIN THE CALTRANS RIGHT OF WAY SHALL BE COVERED BY A CALTRANS ENCROACHMENT PERMIT. PUBLIC WORKS INSPECTOR SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS IN ADVANCE OF SUCH WORK. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND NOTIFY THE CITY AND ALL OTHER UTILITY COMPANIES A MINIMUM OF TWO WORKING DAYS PRIOR TO THE STARTING OF CONSTRUCTION. IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL PHASES OF CONSTRUCTION WITH THE VARIOUS UTILITY COMPANIES INVOLVED.

4. THE METHODS AND PROCEDURES FOR BARRICADING AND CHANNELIZING DURING CONSTRUCTION SHALL CONFORM TO THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (CALIFORNIA MUTCD); LATEST EDITION. ARROW BOARDS ARE REQUIRED FOR ALL LANE CLOSURES ON ARTERIAL STREETS. WORK HOURS ON ARTERIAL STREETS SHALL BE BETWEEN 8:30 AM AND 4:00 PM.

5. LOCATE ALL SUBSTRUCTURES PRIOR TO CONSTRUCTION. HAND DIG FOUNDATIONS UNTIL CLEAR OF OBSTRUCTIONS. PHONE UNDERGROUND SERVICE ALERT AT 811 A MINIMUM OF TWO WORKING DAYS PRIOR TO CONSTRUCTION. THE USA TICKET NUMBER SHALL BE AVAILABLE AT THE CONSTRUCTION SITE.

6. ALL MONUMENTS SHALL BE SET AND CENTERLINE TIES SUBMITTED TO THE CITY ENGINEER PRIOR TO ACCEPTANCE OF IMPROVEMENTS. DISTURBED MONUMENTS SHALL BE RESET PER CALTRANS STD. PLAN NO. A74.

7. NINETY-FIVE PERCENT (95%) RELATIVE COMPACTION AT OPTIMUM MOISTURE IS REQUIRED IN ALL SUBGRADE AND BASE MATERIAL.

8. BACKFILL IN ROADWAY SHALL BE ¾" MAX. (CRUSHED AGGREGATE BASE (CAB), CRUSHED MISCELLANEOUS BASE (CMB) CONFIRMING TO CALTRANS CLASS II SPECIFICATIONS FOR AGGREGATE), OR ONE SACK CEMENT/SAND SLURRY. NATIVE GRANULAR MATERIAL WITH A SAND EQUIVALENT NOT LESS THAN 35 MAY BE USED, IF CERTIFIED BY A SOILS ENGINEER AND APPROVED BY THE CITY ENGINEER IN ADVANCE.

9. ALL EDGES OF REMOVALS OF PORTLAND CEMENT CONCRETE AND ASPHALT CONCRETE AT JOINS SHALL BE MADE BY SAW CUTTING AND SHALL CONFORM TO THE PROVISIONS OF SECTION 300-1.3 OF THE "GREENBOOK" STANDARD SPECIFICATIONS. SAW CUTTING SHALL BE MADE IN NEAT STRAIGHT LINES AND AT RIGHT ANGLES. IF A SAWCUT EDGE BECOMES DAMAGED PRIOR TO PAVING, IT SHALL BE RE-SAWCUT TO A NEAT STRAIGHT LINE IN ACCORDANCE WITH THE ABOVE.

10. THE CONTRACTOR SHALL MAINTAIN A SET OF AS-BUILTS DRAWINGS FOR THE PROJECT WHICH SHALL BE REVIEWED MONTHLY BY THE PROJECT INSPECTOR FOR ACCURACY AS A CONDITION OF PROGRESS PAYMENTS. FINAL AS-BUILT RECORD DRAWINGS SHALL BE SUBMITTED TO THE CITY ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE WORK BY THE CITY.

11. ALL REQUIREMENTS OF THE LATEST FEDERAL AMERICANS WITH DISABILITIES ACT (ADA) AND STATE OF CALIFORNIA TITLE 24 ACCESSIBILITY REGULATIONS SHALL BE SATISFIED.

12. CONTRACTOR SHALL IMPLEMENT ALL NECESSARY BEST MANAGEMENT PRACTICES (BMP'S), AS REQUIRED BY THE CITY OF HUNTINGTON BEACH NPDES LOCAL IMPLEMENTATION PLAN (LIP), INCLUDING THOSE SHOWN IN STANDARD NOTES AND THOSE INCLUDED IN SPECIFICATIONS.

13. TRAFFIC CONTROL DURING CONSTRUCTION SHALL CONFORM TO THE SPECIAL PROVISION & W.A.T.C.H. HANDBOOK AND THE REQUIREMENTS OF THE CITY TRAFFIC ENGINEER AND CAL-TRANS. TRAFFIC CONTROL PLANS SHALL BE DESIGNED BY A REGISTERED TRAFFIC ENGINEER AND SUBMITTED TO THE CITY AND CALTRANS FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION.

14. DAMAGED TRAFFIC DETECTOR LOOPS, SIGNING, STRIPING, AND PAVEMENT MARKERS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE PER CITY'S AND CALTRANS REQUIREMENTS.

15. SETTLEMENT AND HEAVING OF THE EXISTING GROUND SHALL BE MONITORED PRIOR, DURING AND AFTER 30 DAYS OF COMPLETION OF CONSTRUCTION. SURVEY CONTROL POINTS SHALL BE ESTABLISHED ALONG THE PIPELINE AND LATERALLY BEYOND THE PIPELINE. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM SURFACE SETTLEMENT OR HEAVING.

16. CONCRETE CLASS "560-C-3250" (4" MAX. SLUMP) SHALL HAVE 6.5 SACKS OF TYPE V CEMENT PER CUBIC YARD OF CONCRETE AND 5 GALLONS (MAX.) OF WATER PER SACK OF CEMENT WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,250 P.S.I..

17. DAMAGE TO ALL EXISTING PAVEMENT OF STREET, CURB, GUTTER, CROSSGUTTER, AND SIDEWALK, BY THE CONSTRUCTION ACTIVITY SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CITY.

18. ALL SOIL EXCAVATED DURING CONSTRUCTION MUST UNDERGO TESTING PRIOR TO DISPOSAL INTO ANY LOCAL LANDFILL OPERATED BY THE COUNTY OF LOS ANGELES INTEGRATED WASTE MANAGEMENT. SOIL WILL BE TESTED EITHER AT THE LANDFILL LOCATION OR AT THE CONSTRUCTION SITE BASED ON THE QUANTITY DESIGNATED FOR DISPOSAL.

GENERAL NOTES CONT.

19. THE OVER-EXCAVATED SOFT, SPONGY, UNCOMPACTABLE, UNSTABLE OR WET MATERIAL SHALL BE HAULED AWAY FROM THE PROJECT SITE, AND CAN NOT BE REUSED FOR ANY CONSTRUCTION BACKFILL PURPOSES.

20. NO FACILITY SHALL BE BACKFILLED UNTIL INSPECTED BY THE CITY.

21. ESTIMATED QUANTITIES ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING QUANTITIES AND CONDITIONS AT THE SITE.

22. SUPERVISION FOR INSTALLATION, START-UP, OPERATION AND MAINTENANCE TRAINING SHALL BE PROVIDED BY MANUFACTURERS REPRESENTATIVES AS PART OF THE EQUIPMENT PURCHASE CONTRACTS.

23. SEWER, WATER, ELECTRIC AND GAS MAINS AND LATERALS SHALL BE INSTALLED PRIOR TO PAVING OF STREET. ELECTRIC AND GAS MAINS.

24. CONTRACTOR SHALL ASSUME THAT THERE ARE THRUST BLOCKS AT ALL WATER PIPE AND SEWER FORCEMAIN FITTINGS AND VALVES, AND SHALL PROTECT THEM IN PLACE OR REMOVE AND REPLACE WATER PIPES/FITTINGS/THRUST BLOCKS AT NO ADDITIONAL COST TO THE CITY.

25. SURPLUS MATERIAL WHICH HAS NOT BEEN IDENTIFIED FOR SALVAGE TO THE CITY OF HUNTINGTON BEACH AND IS NOT SUITABLE FOR USE ON THE PROJECT, AS DETERMINED BY THE CITY, SHALL BECOME THE PROPERTY OF THE CONTRACTOR, AND SHALL BE DISPOSED OF AWAY FROM THE JOBSITE IN A MANNER, AND AT A LOCATION ACCEPTABLE TO ALL COGNIZANT AGENCIES, AT THE CONTRACTOR'S OWN COST.

NOTICE TO CONTRACTOR

1. CONTRACTOR SHALL POTHOLE ALL CONNECTION POINTS AND UTILITY CROSSINGS PRIOR TO THE BEGINNING OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE CLEARANCE OF THE UTILITIES FROM THE PROPOSED SEWER FORCEMAIN, GRAVITY SEWERS, WATER LINES AND OTHER CONDUITS, AND PREPARE A POTHOLING REPORT WITH ALL NECESSARY INFORMATION. THE CONTRACTOR SHALL ALSO NOTIFY THE CITY OF HUNTINGTON BEACH IN WRITING IN THE EVENT OF ANY CONFLICTS. SHOULD THE CONTRACTOR FAIL TO NOTIFY THE CITY OF HUNTINGTON BEACH OF A CONFLICT, FAIL TO, OR INCORRECTLY LOCATE AN EXISTING UTILITY, OR UTILITY CROSSING OR CONNECTION POINT PRIOR TO THE BEGINNING OF CONSTRUCTION; THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS WHICH ARE INCURRED FOR IMPLEMENTING ANY REQUIRED RELOCATIONS, RESULTING DELAYS, OR PROTECTIVE MEASURES. THE POTHOLING REPORT SHALL PROVIDE A WRITTEN ACCOUNT OF THE LOCATION AND ELEVATIONS OF ALL UTILITY CROSSINGS AND CONNECTION POINTS AND CERTIFY THAT THE ELEVATIONS AND LOCATIONS MEASURED ARE CONSISTENT WITH THE ELEVATIONS AND LOCATIONS INDICATED ON THE CONTRACT DRAWINGS, AND THAT NO CONFLICT EXISTS, SHOULD CONFLICT BE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE CITY IN WRITING EXPLAINING THE CONFLICT(S) IN DETAIL PROVIDING ALL MEASUREMENTS AND ELEVATIONS.

2. ALL TRENCH EXCAVATIONS SHALL CONFORM TO STATE OF CALIFORNIA CONSTRUCTION SAFETY ORDERS.

3. EXISTING UNDERGROUND STRUCTURES: THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONS TO LOCATE AND PROTECT THE UTILITY LINES, STRUCTURES, AND SUBSTRUCTURES SHOWN ON THESE PLANS AND ANY OTHER FACILITIES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNERS OF UTILITIES OR STRUCTURES CONCERNED BEFORE STARTING WORK. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR LOCATING AND PROTECTING THE UNDERGROUND UTILITY PIPES, CONDUITS, SUBSTRUCTURES, AND SUPERSTRUCTURES SHOWN OR NOT SHOWN ON THESE PLANS.

4. NEITHER THE CITY OF HUNTINGTON BEACH NOR ITS CONSULTING ENGINEER(S) SHALL BE RESPONSIBLE IN ANY WAY FOR THE CONTRACTOR'S AND SUBCONTRACTOR'S COMPLIANCE WITH THE "OCCUPATIONAL SAFETY AND REGULATIONS" OF THE U.S. DEPARTMENT OF LABOR OR WITH THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL REGULATIONS "CONSTRUCTION SAFETY ORDERS". CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION SITE SAFETY AT ALL TIMES UNTIL ACCEPTANCE OF THE WORK BY THE CITY.

5. BEFORE STARTING ANY WORK, THE CONTRACTOR IS REQUIRED TO MAKE A DATED PHOTOGRAPH LOG AND VIDEO TO DOCUMENT THE PRE-EXISTING CONDITIONS IN AND AROUND THE PROPOSED LOCATION OF THE SEWER PUMP STATION AND ALONG THE PIPELINES. DOCUMENT SHALL INCLUDE THE IMMEDIATE WORK AREA AS WELL AS ANY AREA BEYOND WHICH THE CONTRACTOR WILL USE, ALTER, OR TRAVEL UPON DURING THE COURSE OF CONSTRUCTION, OR ANY AREA WHICH MAY BE AFFECTED BY THE PROJECT CONSTRUCTION ACTIVITIES. THE PHOTOGRAPH LOG AND VIDEO SHALL BECOME THE PROPERTY OF THE CITY OF HUNTINGTON BEACH, THIS DOCUMENT WILL BE USED TO AVOID ANY POSSIBLE DAMAGE CLAIMS WHICH ARE NOT A RESULT OF THE WORK PERFORMED ON THIS PROJECT.

6. WHEN UNFORESEEN DIFFICULTIES OR A CONFLICT IS ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE CITY OF HUNTINGTON BEACH IN WRITING IMMEDIATELY UPON DISCOVERY AND BEFORE THE EXISTING CONDITIONS ARE DISTURBED. THE CONTRACTOR SHALL ALLOW THE CITY A MINIMUM OF 3 WORKING DAYS OF STAND-BY TIME, AT NO CHARGE, TO INVESTIGATE THE CONDITIONS AND MAKE ANY NECESSARY DETERMINATIONS AND CORRECTIONS TO THE CONTRACT DOCUMENTS. THE CONTRACTOR AND HIS WORKFORCE SHALL ASSIST THE ENGINEER IN SUCH INVESTIGATIONS. IF THE ENGINEER DETERMINES THAT ADDITIONAL TIME IS NEEDED FOR EVALUATION OF THE ISSUE, THE CONTRACTOR SHALL RESCHEDULE, REASSIGN, TRANSFER, OR MOVE ANY LABOR, MATERIALS, TOOLS, OR EQUIPMENT AND ALTER THE SEQUENCE OF CONSTRUCTION ACTIVITIES AT NO COST TO THE CITY UNTIL THE ISSUE IS RESOLVED. FOR THE PURPOSE OF PREPARING A BID FOR THIS PROJECT, THE CONTRACTOR SHALL ASSUME SIX (6) SUCH OCCURRENCES. PAYMENT FOR THESE OCCURRENCES SHALL BE INCLUDED IN THE VARIOUS BID ITEMS.

SEWER NOTES

1. ALONG THE SEWER CENTERLINE, SEWER STATIONING DOES NOT NECESSARILY COINCIDE WITH STREET IMPROVEMENT STATIONING.

2. ALL GRAVITY SEWER PIPE, PIPE JOINTS AND PIPE FITTINGS SHALL BE EXTRA STRENGTH V.C.P. MEETING GREENBOOK, SECTION 207-8 REQUIREMENTS. PIPE BEDDING SHALL BE PER CITY'S STANDARD DRAWING NO. S-8. PIPE WITH CRACKS AND CHIPS SHALL NOT BE USED FOR THIS PROJECT.

3. THE USE OF PORTLAND CEMENT IN JOINTS IS PROHIBITED.

4. HOUSE LATERALS ARE SHOWN APPROXIMATE ONLY AND THE EXACT LOCATION OF WYES AND LATERALS SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD AT THE TIME OF CONSTRUCTION.

5. FINAL TESTING FOR PIPELINE LEAKAGE SHALL BE MADE IN THE PRESENCE OF THE CITY INSPECTOR AFTER BACKFILL HAS BEEN ACCEPTED BY THE ENGINEER. CONTRACTOR SHALL SUBMIT A DETAILED CCTV INSPECTION RECORDING OF EACH SEWER CONSTRUCTED AS A PART OF THIS CONTRACT AS PRESCRIBED IN THE SPECIAL PROVISIONS.

6. SEWER PIPES SHALL BE BALLED IN THE PRESENCE OF THE CITY INSPECTOR AFTER FINAL TESTING AND MANHOLE COVERS HAVE BEEN BROUGHT TO GRADE.

7. PIPE INSTALLATION, STREET RESURFACING AND TRENCH BACKFILLING SHALL BE IN ACCORDANCE WITH THE CITY STANDARD DRAWINGS OR PER CITY ENGINEER'S APPROVAL.

8. TWO TWO-FOOT LONG VCP SEGMENTS OF THE SAME INSIDE DIAMETER AS THE ADJOINING PIPE SHALL BE PLACED AT THE INLET AND OUTLET OF EACH MANHOLE, STRUCTURE, CONCRETE ENCASEMENTS, AND ENDS OF CASINGS.

9. SEWER MANHOLES, CLEANOUTS, AND VALVE CANS (WATER AND SEWER) SHALL BE ADJUSTED TO FINAL GRADE BY CONTRACTOR, AFTER FINAL PAVING IS CONSTRUCTED.

NPDES GENERAL NOTES

1. SEDIMENT FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING STRUCTURAL CONTROLS AS REQUIRED BY THE STATEWIDE GENERAL CONSTRUCTION STORMWATER PERMIT.

2. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND AS REQUIRED BY THE STATEWIDE GENERAL CONSTRUCTION STORMWATER PERMIT.

3. APPROPRIATE BMPS FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, ADJOINING PROPERTY BY WIND OR RUNOFF AS REQUIRED BY THE STATEWIDE GENERAL CONSTRUCTION STORMWATER PERMIT.

4. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITES AND MUST NOT BE DISCHARGED TO RECEIVING WATERS OR TO THE LOCAL STORM DRAIN SYSTEM.

5. ALL CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OF THE REQUIRED BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.

6. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED IN TRASH OR RECYCLE BINS.

7. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT A STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OF MATERIALS OTHER THAN STORMWATER (NON-STORMWATER DISCHARGES) ARE PROHIBITED EXCEPT AS AUTHORIZED BY AN INDIVIDUAL NPDES PERMIT OR THE STATEWIDE GENERAL CONSTRUCTION STORMWATER PERMIT.

8. POTENTIAL POLLUTANTS INCLUDE, BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS, WASTES FROM PAINTS, STAINS, SEALANTS, SOLVENTS, DETERGENTS, GLUES, LIME, PESTICIDE, HERBICIDE, FERTILIZERS, WOOD PRESERVATIVES AND ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS, AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; CONCRETE, AND RELATED CUTTING OR CURING RESIDUES; FLOATABLE WASTES; WASTES FROM ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING; WASTES FROM STREET CLEANING; AND SUPER-CHLORINATED POTABLE WASTER FROM LINE FLUSHINGS AND TESTING.

9. DURING CONSTRUCTION, DISPOSAL OF SUCH MATERIALS SHOULD OCCUR IN A SPECIFIED AND CONTROLLED, TEMPORARY (2 DAY MAXIMUM) AREA ON-SITE AND PHYSICALLY SEPARATED FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.

10. DEWATERING OF CONTAMINATED GROUNDWATER, OR DISCHARGING CONTAMINATED SOILS VIA SURFACE EROSION IS PROHIBITED. DEWATERING OF NON-CONTAMINATED GROUNDWATER REQUIRES A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FROM THE RESPECTIVE "STATE REGIONAL WATER QUALITY CONTROL BOARD".

11. QUESTIONS REGARDING THE CONSTRUCTION NOTES REQUIREMENTS SHOULD BE DIRECTED TO THE CITY OF HUNTINGTON BEACH DEPARTMENT OF PUBLIC WORKS.

REGISTERED PROFESSIONAL ENGINEER — JOHN A. LOAGUE — No. 50292 — Exp. 6/30/13 — CIVIL — STATE OF CALIFORNIA

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RIGHT-OF-WAY		
P.T. & L.		
CONSTRUCTION		
DRAWN BY:	BO	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOAGUE	MAR 2012

PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

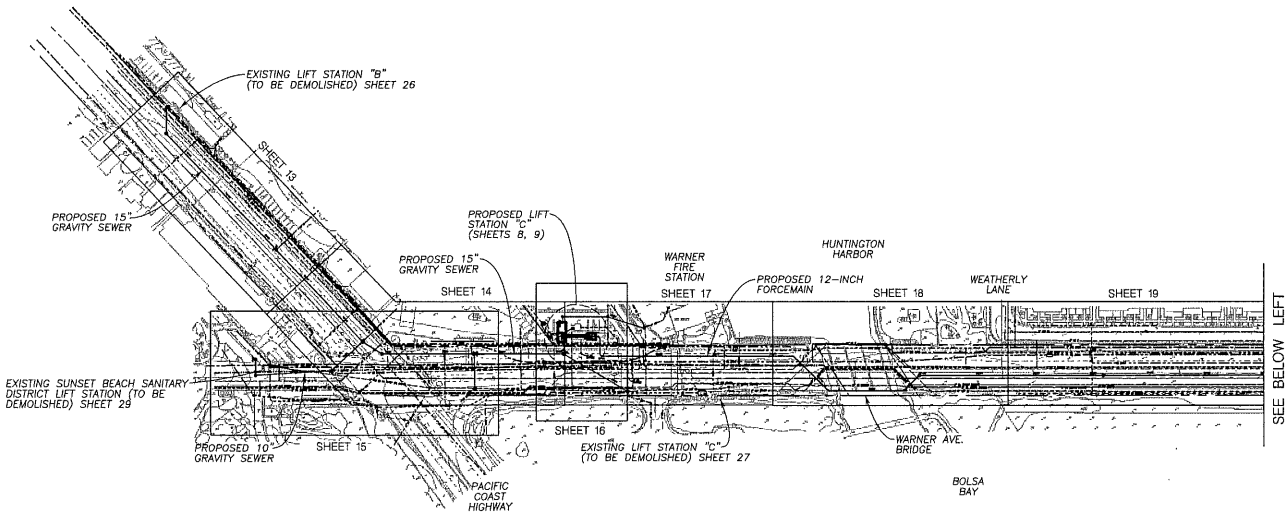
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

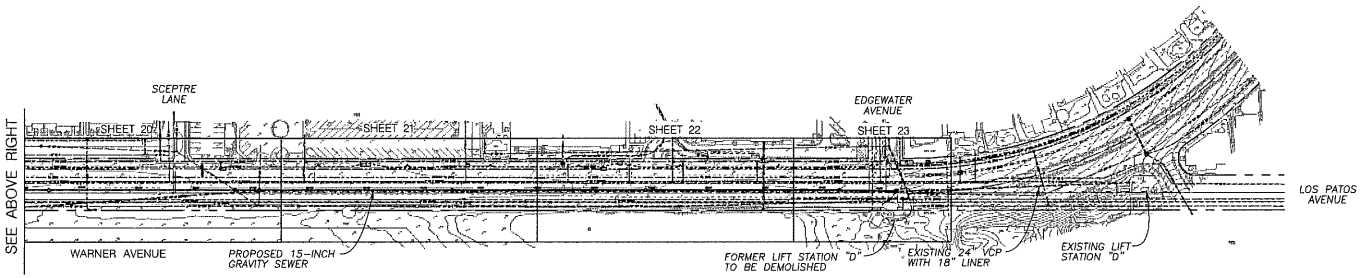
WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

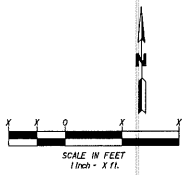
GENERAL NOTES

SHEET NO. 2 OF 37

N:\0980 Huntington Beach\1095 WAGS & Lift Station C\DE_gen_notes_sht.dgn 3/23/2012







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CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

INDEX MAP

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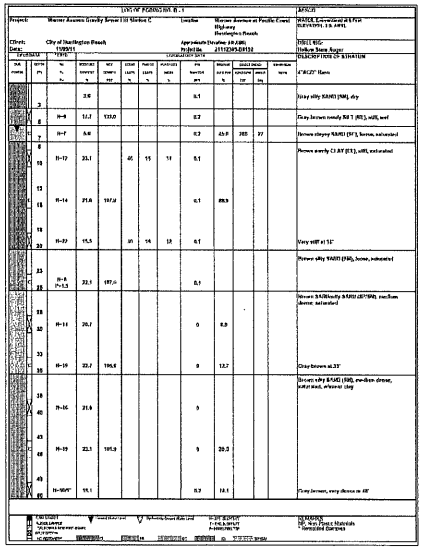

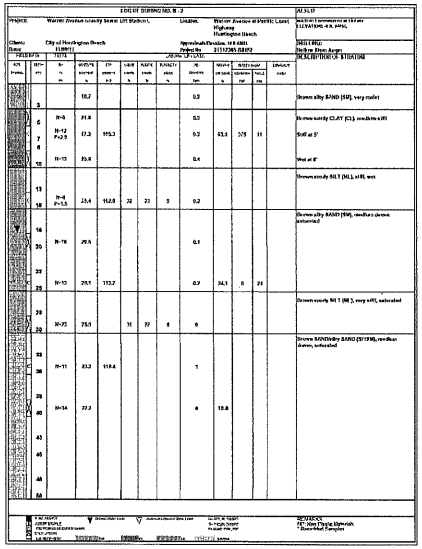

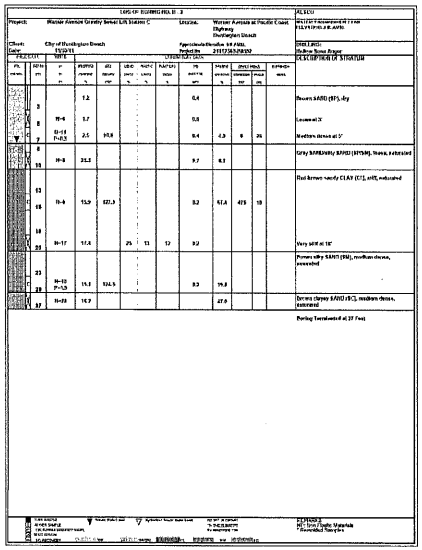

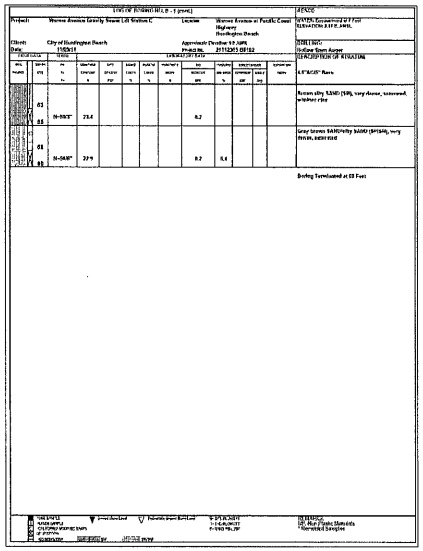

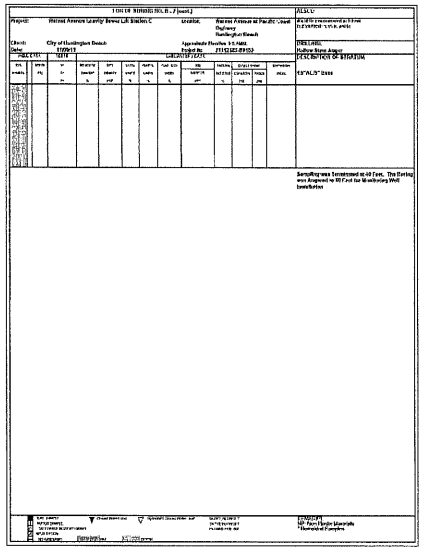

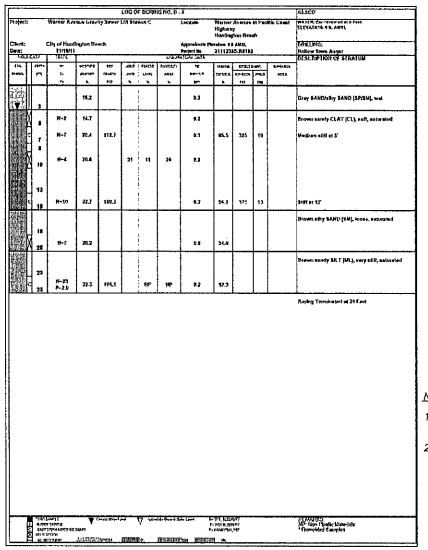

NOTES:

1. *FOR BORING LOCATION SEE SHEET X-X.*
2. *THE BORING LOGS SHOWN HEREON ARE PROVIDED FOR REFERENCE AND REPRESENT CONDITIONS AT THE TIME AND LOCATION WHICH THE DRILLING OCCURED. AESCO NOR AKM CONSULTING ENGINEERS ASSUME NO RESPONSIBILITY FOR THE SUFFICIENCY OR ACCURACY OF THE INFORMATION.*

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JOHN A. LOAGUE
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APPROVED BY:

ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

BORINGXLOGS 1

SHEET NO. 4 OF 37

N:\0980 Huntington Beach\1005 WAGS & Lift Station C\04_boring logs.dgn 3/23/2012

LOG OF BORING NO. B-5

Project: Warner Avenue Gravity Sewer Lift Station C | Location: Warner Avenue at Pacific Coast Highway, Huntington Beach
Client: City of Huntington Beach | Date: 11/08/11 | Project No. 21112385-08192
AESCO — WATER Encountered at 13 Feet; ELEVATION: [illegible] AMSL
DRILLING: Hollow Stem Auger

3		8.3					8.2					FILL-Brown clayey SAND (SC), moist, [illegible]
5	N=2	14.2					8.1					Red brown sandy CLAY (CL), soft, moist
	N=7	12.8	108.0	30	13	17	0.1					Medium stiff at 5'
10	N=4	18.4					0.3					
15	N=10 P=0.5	21.4	117.3				0.1	5.7	0	25		Brown SAND (SP), loose, saturated, coarse grained
20	N=7	17.8					0.1	11.1				Brown SAND/silty SAND (SP/SM), loose, saturated
25	N=23 P=1.0	17.2	114.9				0.1	3.1				Brown SAND (SP), medium dense, saturated

Boring Terminated at 25 Feet

REMARKS: NP Non Plastic Materials; * Remolded Samples

LOG OF BORING NO. B-6

Project: Warner Avenue Gravity Sewer Lift Station C | Location: Warner Avenue at Pacific Coast Highway, Huntington Beach
Client: City of Huntington Beach | Date: 11/02/11 | Project No. 21112385-08192
AESCO — WATER Encountered at [illegible] Feet; ELEVATION: [illegible] AMSL
DRILLING: Hollow Stem Auger

3		10.9					0.2					FILL-Light brown clayey SAND (SC), moist
5	N=4	12.2		25	13	14	0.3					Red-brown sandy CLAY (CL), stiff, moist
	N=44	14.7	117.7				2.8	62.8	880	18		Hard at 5'
10	N=4	18.1		21	12	9	7.3					Stiff at 8'
15	N=12	15.1	107.8				9.8	7.3				Brown SAND/silty SAND (SP/SM), medium dense, saturated, coarse grained
20	N=22	19.4					0.3					Interbedded silt layers at 18'
25	N=16	15.1	121.3				4.5	22.7	0	25		Brown silty SAND (SM), medium dense, saturated

Boring Terminated at 25 Feet

REMARKS: NP Non Plastic Materials; * Remolded Samples

LOG OF BORING NO. B-7

Project: Warner Avenue Gravity Sewer Lift Station C | Location: Warner Avenue at Pacific Coast Highway, Huntington Beach
Client: City of Huntington Beach | Date: 11/02/11 | Project No. 21112385-08192
AESCO — WATER Encountered at 13 Feet; ELEVATION: [illegible] AMSL
DRILLING: Hollow Stem Auger
6" AC/7" Base

3		11.5					1.3					FILL-Brown silty SAND (SM), moist
5	N=13	13.4					108.1					Dark red-brown sandy CLAY (CL), stiff, moist
	N=56/5* P=4.5	12.8	131.5				70.2	61.7	560	8		Hard at 5'
10	N=10	14.7		23	12	11	78.1					Brown, stiff at 8'
15	N=37	14.6	119.8				2.4	6.1				Brown SAND/silty SAND (SP/SM), dense, saturated below 13 feet
20	N=30	15.9					4.8					Brown sandy SILT (ML), very stiff, saturated
25	N=11 P=0.5	23.5					1.3	3.6	0	30		Brown SAND (SP), medium dense, saturated

Boring Terminated at 25 Feet

REMARKS: NP Non Plastic Materials; * Remolded Samples

LOG OF BORING NO. B-[illegible]

Project: Warner Avenue Gravity Sewer Lift Station C | Location: Warner Avenue at Pacific Coast Highway, Huntington Beach
Client: City of Huntington Beach | Date: 11/03/11 | Project No. 21112385-08192
AESCO — WATER Encountered at [illegible] Feet; ELEVATION: [illegible] AMSL
DRILLING: Hollow Stem Auger
6" AC/7" Base

3		13.1					6.5				2	FILL-Dark brown sandy CLAY (CL), moist
5	N=14	18.9					24.0					Brown CLAY (CL), stiff, moist
	N=7	22.6	101.1				4.4	43.7	318	10		Medium stiff at 5'
10	N=10	18.4		37	15	12	5.8					Stiff at 8'
15	N=3 P=1.0	29.6	100.3				0.6	14.6				Brown silty SAND (SM), loose, wet
20	N=13	34.5					1.3					Brown sandy CLAY (CH), stiff, saturated
25	N=14	33.3	90.0	62	27	35	0.5		1175	4		

Boring Terminated at 25 Feet

REMARKS: NP Non Plastic Materials; * Remolded Samples

LOG OF BORING NO. B-[illegible]

Project: Warner Avenue Gravity Sewer Lift Station C | Location: Warner Avenue at Pacific Coast Highway, Huntington Beach
Client: City of Huntington Beach | Date: 11/02/11 | Project No. 21112385-08192
AESCO — WATER Encountered at 13 Feet; ELEVATION: -4 ft AMSL
DRILLING: Hollow Stem Auger
6" AC/7" Base

3		9.8					0.2					FILL-Brown silty SAND (SM), moist
5	N=3	14.2					4.2					Dark gray silty SAND (SM), loose
7	N=3 P=0.5	33.7	70.7				8.5	59.2	75	11		Dark gray sandy CLAY (CL), soft, wet, with black [illegible]
10	N=6	33.5		27	15	18	4.2					Medium stiff
												Gray, stiff, saturated at 12'
15	N=13	24.0	101.1				1.3		550	9		Gray, stiff, saturated at 13'
20	N=18	26.8					4.2	26.9				Brown silty SAND (SM), medium dense, saturated
25	N=15	29.5	100.3				4.2					

Boring Terminated at 25 Feet

REMARKS: NP Non Plastic Materials; * Remolded Samples

NOTES:

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CONSTRUCTION		
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R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

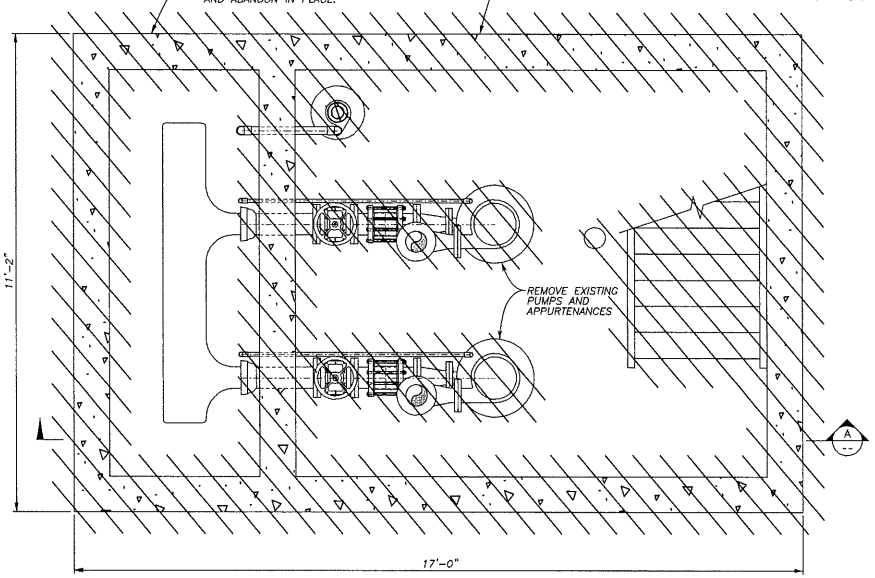
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

BORING LOGS II

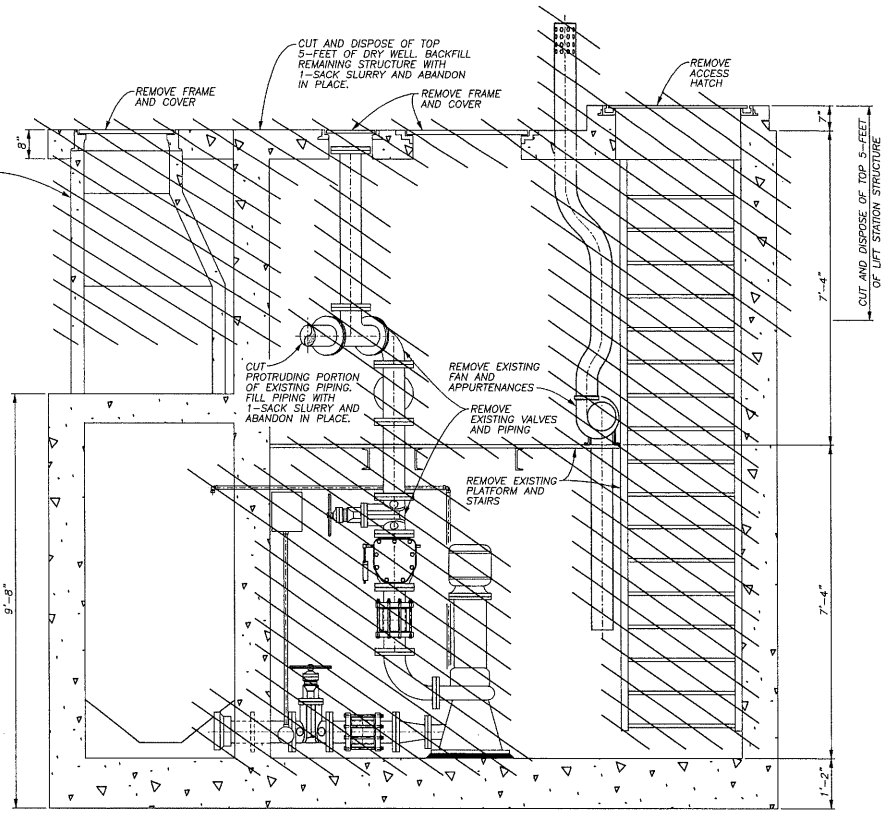
SHEET NO. 5 OF 37

N:\0980 Huntington Beach\1095 WAGS & Lift Station C\05_boring logs.dgn 3/23/2012



EXISTING LIFT STATION B DEMOLITION PLAN

SCALE: ¾" = 1'-0"



DEMOLITION SECTION (A)

SCALE: ¾" = 1'-0"

NOTES:

1. ▨ INDICATES MATERIAL OR EQUIPMENT TO BE REMOVED BY THE CONTRACTOR. ITEMS IDENTIFIED BY THE CITY INSPECTOR TO BE SALVAGED SHALL REMAIN THE PROPERTY OF THE CITY AND SHALL BE DELIVERED TO THE CITY YARD BY THE CONTRACTOR AT NO ADDITIONAL COST. REMAINING ITEMS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR.
2. DEMOLITION PLAN ONLY SHOWS THE MAJOR COMPONENTS LOCATED WITHIN THE PUMP STATION. THE CONTRACTOR SHALL REMAIN RESPONSIBLE FOR REMOVING ALL MISCELLANEOUS MATERIALS AND EQUIPMENT WITHIN THE PUMP STATION BUT NOT SHOWN.
3. EXISTING PIPES TO BE ABANDONED IN PLACE SHALL BE FILLED WITH 1-SACK SLURRY.
4. ALL EXCAVATIONS/VOIDS/HOLES IN SITE DUE TO CONTRACTOR ACTIVITY AND DEMOLITION/REMOVALS SHALL BE FILLED WITH NATIVE SOIL TO GRADE AND COMPACTED TO 90% RELATIVE DENSITY.
5. CONTRACTOR TO NOTIFY THE CITY OF HUNTINGTON BEACH SEWER SERVICE MAINTENANCE TO DETERMINE WHAT EQUIPMENT SHALL BE SALVAGED TO THE CITY OR DISPOSED OF BY THE CONTRACTOR.
6. LIFT STATION B SHALL REMAIN IN SERVICE UNTIL ALL SEWER IMPROVEMENTS HAVE BEEN COMPLETED.

REGISTERED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

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CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

LIFT STATION B DEMOLITION PLAN AND SECTION

SHEET NO. 6 OF 37

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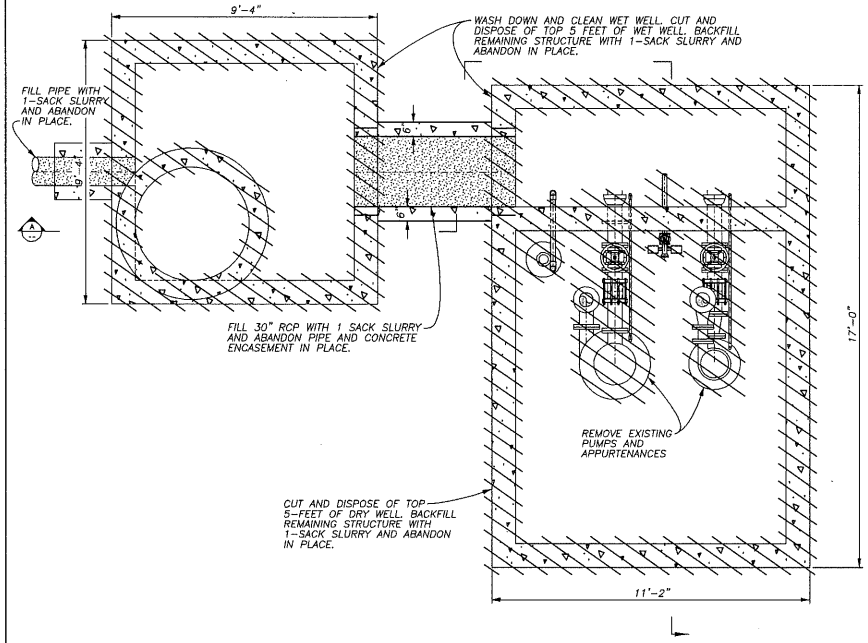
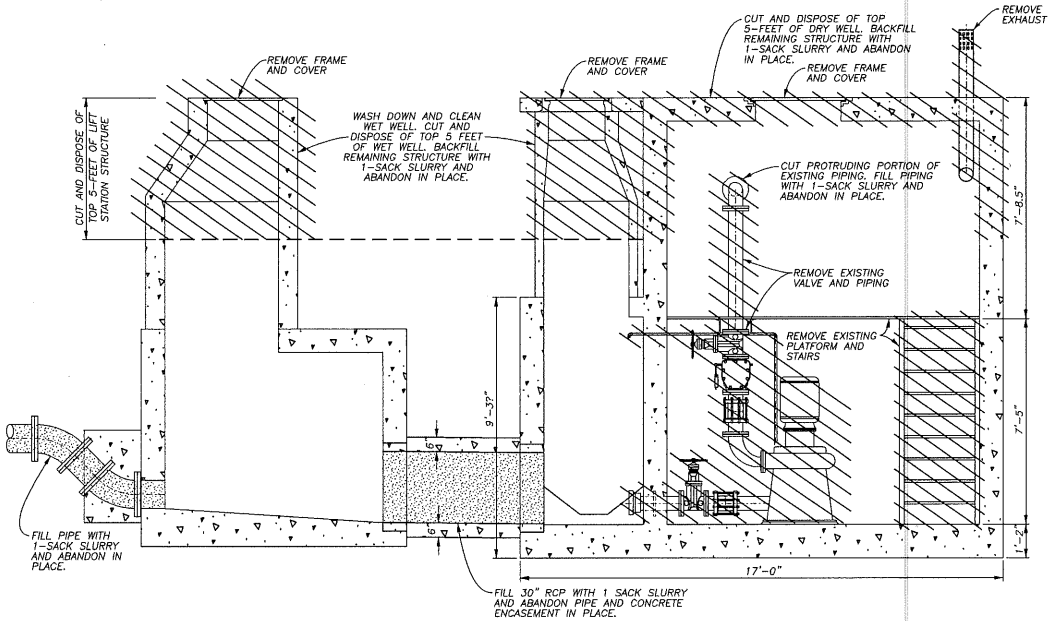


EXISTING LIFT STATION C DEMOLITION PLAN

SCALE: ½" = 1'-0"



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REGISTERED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

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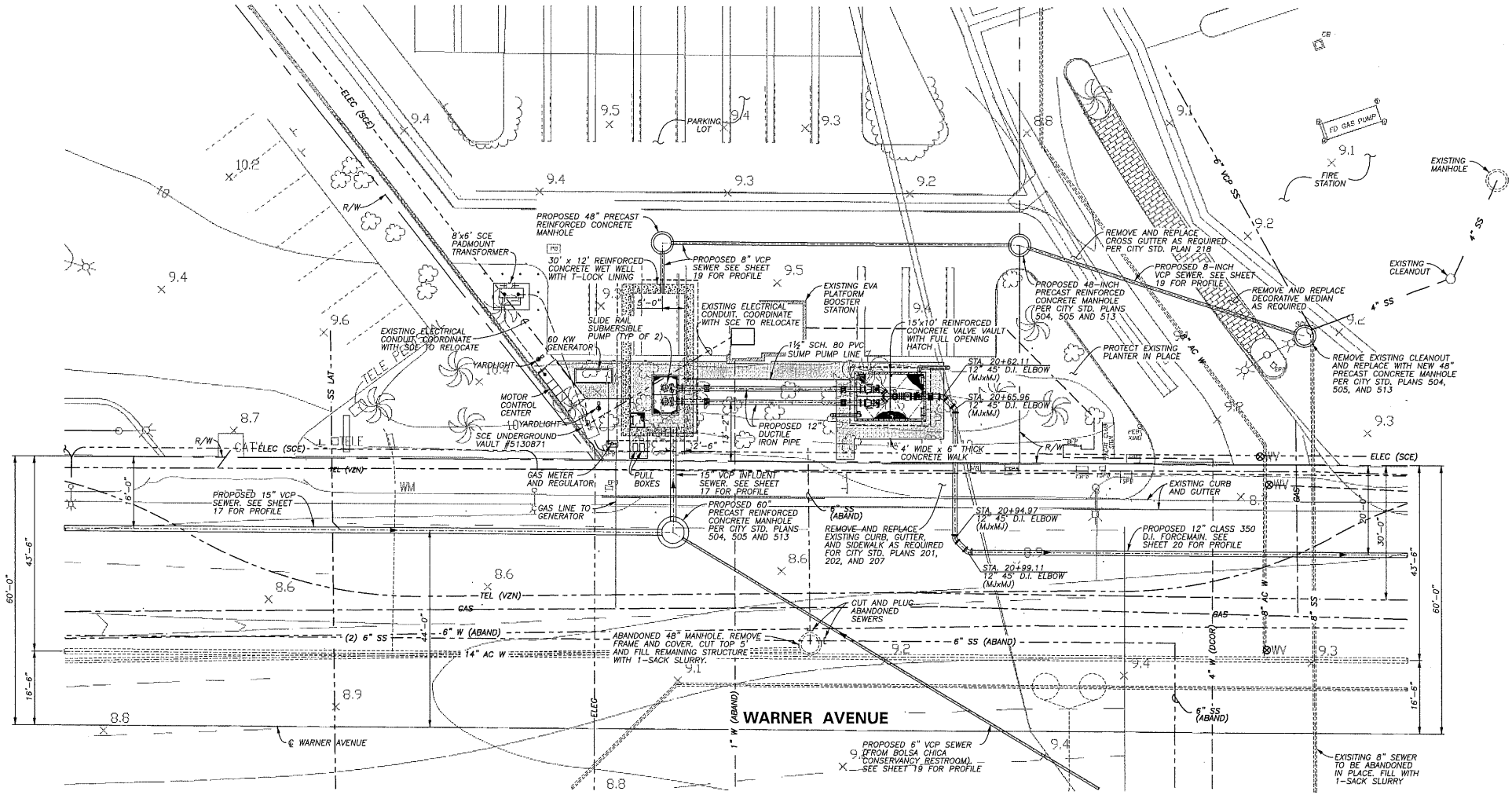
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

LIFT STATION C DEMOLITION PLAN AND SECTION

SHEET NO. 7 OF 37

N:\D980 Huntington Beach\1095 WAGB & Lift Station C\07_demo_sec.dgn 3/23/2012



NOTES:

1. PALM TREES CONFLICTING WITH CONSTRUCTION SHALL BE REMOVED AND REPLACED IN THE SAME PLANTER AREA.
2. PLANTER SHALL BE RE-LANDSCAPED AFTER COMPLETION OF WORK.

SITE PLAN

N

SCALE IN FEET
1 inch = 10ft.

PROFESSIONAL ENGINEER — JOHN A. LOAGUE — No. 50232 — Exp. 6/30/13 — CIVIL — STATE OF CALIFORNIA

Underground Service Alert
Call: TOLL FREE 811
TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'V'D	REV.	DATE	BY	DESCRIPTION	APP'V'D

	REVIEWED BY	DATE
UTIL. DIV.		
TRAFFIC		
ENG. SERVICES		
STREET DESIGN		
MAINTENANCE		
RIGHT-OF-WAY		
P.I. & L.		
CONSTRUCTION		
DRAWN BY:	BG	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOAGUE	MAR 2012

PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50232 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

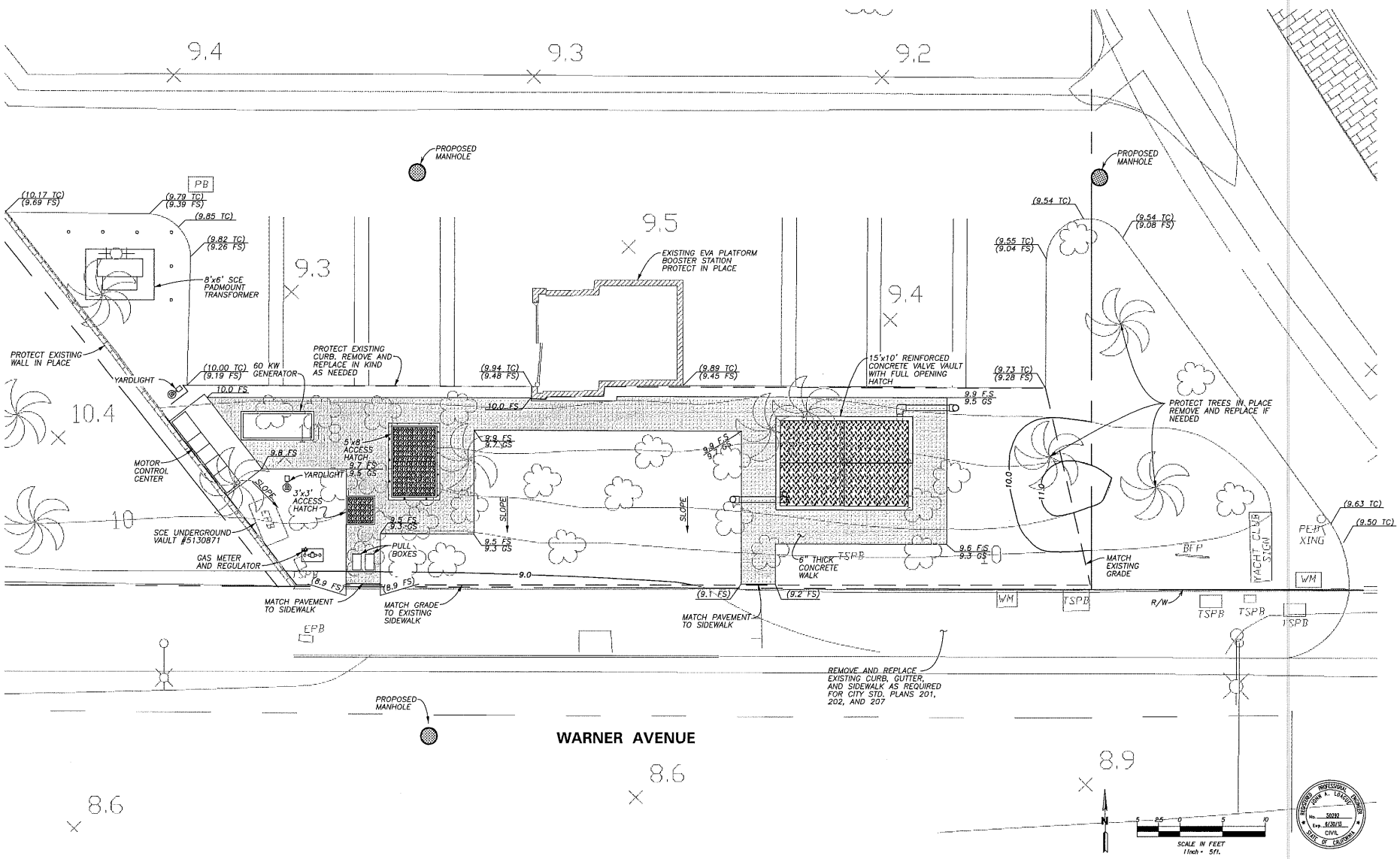
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

LIFT STATION C SITE PLAN

SHEET NO. 8 OF 37

N:\0800 Huntington Beach\1095 WAGS & Lift Station C\08_pr_site_pln.dgn 3/23/2012



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PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

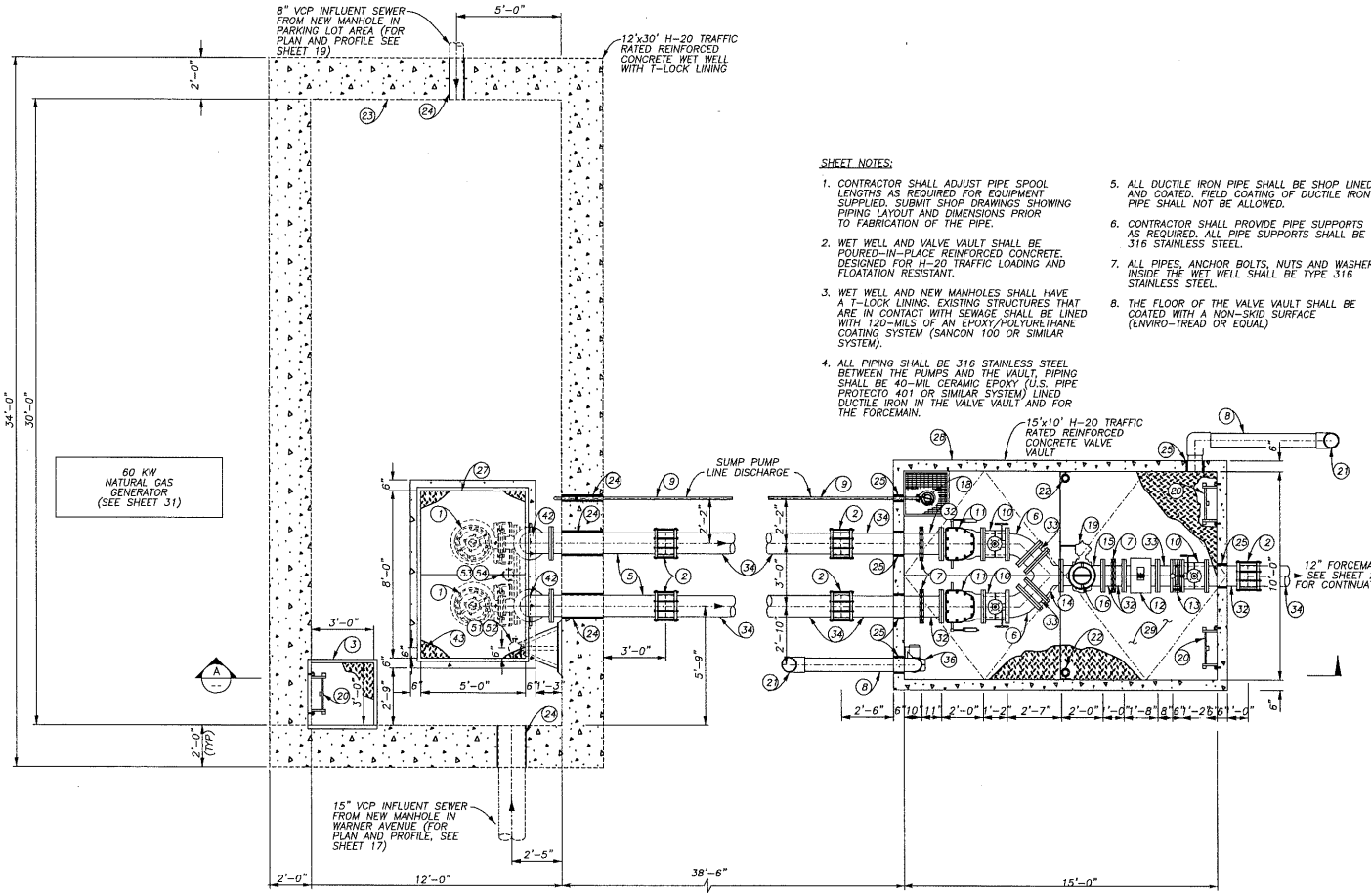
GRADING PLAN

SHEET NO. 9 OF 37

N:\0980 Huntington Beach\1095 WAGS & Lift Station C\09_pr_grading_pln.dgn 3/23/2012

LIST OF MATERIALS

ITEM	DESCRIPTION	SIZE	QTY
1	1200 GPM @ 25' TDH SCREW CENTRIFUGAL PUMP WITH IMMERSIBLE MOTOR	15 HP	2
2	COMPRESSION COUPLING, STAINLESS STEEL, WITH ANCHOR STUDS. D.I. EPOXY LINED WITH STAINLESS STEEL TRIM	12"	5
3	316 STAINLESS STEEL, ONE DOOR, SPRING ASSISTED ACCESS HATCH WITH RATED H-20 LOADING PER DETAIL 2 ON SHT. 13	3' x 3'	1
4	FLGxFLG L S. S. PIPE	12"	AS REQ'D
5	FLGxPE L S.S. PIPE	12"	PER PLAN
6	45° ELBOW, FLANGED DUCTILE IRON CLASS 53 ANSI/ AWWA C151/A21.15 CERAMIC LINED (PROTECTO 401 LINING, 40 MILS)	12"	2
7	VICTAULIC COUPLING STYLE 31 DIP	12"	3
8	AIR DUCT, SCH 40 PVC PIPE AND FITTINGS (LENGTH AS REQUIRED)	8"	AS REQ'D
9	SCH 80 PVC PIPE AND FITTINGS	1½"	AS REQ'D
10	PLUG VALVE, ECCENTRIC PLUG WITH RESILIENT SEAT AND PLUG FACING DE ZURIK SERIES 100	12"	3
11	CHECK VALVE, SWING TYPE WITH LEVER AND WEIGHT, MUELLER A-2600-6-01	12"	2
12	MAGNETIC FLOW METER, SPARLING TIGER MAG	12"	1
13	PRESSURE SENSOR, SERIES 40 RED VALVE WITH DRUCK PTX TRANSDUCER	12"	1
14	TRUE WYE, FLANGED DUCTILE IRON CLASS 53 ANSI/ AWWA C151/A21.15 CERAMIC LINED (PROTECTO 401 LINING, 40 MILS)	12"	1
15	TEE, FLANGED DUCTILE IRON CLASS 53 ANSI/AWWA C151/A21.15 CERAMIC LINED (PROTECTO 401 LINING, 40 MILS)	12"x8"	1
16	CAMLOCK FITTING, FEMALE WITH PLUG, BYPASS PUMPING CONNECTION	8"	1
17	PIPE SUPPORT, TOLCO 317/319 WITH INTEGRAL ADJUSTERS, PER DETAIL 3 ON SHEET 13	12"	6
18	SUMP PUMP, PENTAIR HYDROMATIC OSP 50, PER DETAIL 4 ON SHEET 12	½ HP	1
19	PLUG VALVE, ECCENTRIC PLUG WITH RESILIENT SEAT AND PLUG FACING DE ZURIK SERIES 100	8"	1
20	316 STAINLESS STEEL LADDER WITH LADDER UP DEVICE SEE DETAIL 6 ON SHT 14	AS REQ'D	3
21	PIPE VENT PER DETAIL 3 ON SHEET 12	8"	2
22	VAULT LIGHT	8"	2
23	REINFORCED CONCRETE WET WELL, "T" LOCK LINED	30'x12'x21.5'	1
24	WET WELL WALL PENETRATION PER DETAIL 2 ON SHEET 14	AS REQ'D	2
25	VALVE VAULT WALL PENETRATION PER DETAIL 1 ON SHEET 14	AS REQ'D	3
26	¾" CRUSHED ROCK (COMPACT TO 95%)	–	AS REQ'D
27	316 STAINLESS STEEL TWO DOOR, SPRING ASSISTED ACCESS HATCH WITH RATED H-20 LOADING PER DETAIL 2 ON SHEET XX	5' x 8'	1
28	REINFORCED CONCRETE VALVE VAULT	10'x15'x8'	1
29	ALUMINUM 4-DOOR SPRING ASSISTED ACCESS HATCH RATED FOR H-20 LOADING WITH REMOVABLE BEAM AND SAFETY GRATES. SEE DETAIL X ON SHEET XX.	15'x10'	1
30	REMOVABLE ALUMINUM BEAM	AS REQ'D	2
31	CONCRETE FILL WITH EPOXY COATING	15"	PER PLAN
32	FLGxPE CLASS 53 D.I. PIPE	12"	AS REQ'D
33	FLGxFLG CLASS 53 D.I. PIPE	12"	AS REQ'D
34	PExPE CLASS 53 D.I. PIPE	12"	AS REQ'D
35	PUMP POWER AND CONTROL CABLE RACK PER DETAIL 2 ON SHEET 15	AS REQ'D	3
36	EXHAUST FAN 700 CFM @ 1" W.G. SAINT-GOBAIN MODEL 72620-0250 PER DETAIL 1 ON SHEET 12	¾ HP	1
37	FLANGE TYPE SUPPORT BRACKET PER DETAIL 5 ON SHEET 12	AS REQ'D	2
38	RUBBER FLEXIBLE JOINT PER DETAIL 1 ON SHEET 12	8"	2
39	SLEEVE TYPE FLEX COUPLING	8"	2
40	LIFTING CABLE HOOK PER DETAIL 9 ON SHEET 12	AS REQ'D	2
41	316 S.S. GUIDE BRACKET, DESIGN PER MANUFACTURER RECOMMENDATIONS. SEE DETAIL 7 ON SHEET 12	AS REQ'D	2
42	FLG x FLG, STAINLESS STEEL, 90° ELBOW WITH 1" 316 S.S. AIR RELEASE AND VACUUM BREAKER DEVICE	12"	2
43	FLOAT SWITCH PER DETAIL 3 ON SHEET 15	–	1
44	FLANGE TYPE SUPPORT BRACKET (SUPPLIED BY PUMP MANUFACTURER). SEE DETAIL 5 ON SHEET XX	AS REQ'D	2
45	SCH 40, 316 S.S. SLIDE RAILS. LENGTH AS REQUIRED	1½" AS REQ'D PER WEMCO DWGS	–
46	TOP SLIDE RAIL GUIDE BRACKET SUPPLIED BY PUMP MANUFACTURER. SEE DETAIL 6 ON SHEET 12	AS REQ'D	2
47	316 STAINLESS STEEL, NYLON JACKETED, LIFTING CABLE PER DETAIL 2 ON SHEET 12.	AS REQ'D	2
48	LIFTING BAIL PER DETAIL 8 ON SHEET 12	AS REQ'D	2
49	316 STAINLESS STEEL STD. WT. ECCENTRIC REDUCER (FLGxFLG)	12"x8"	2
50	316 STAINLESS STEEL STD. WT. 90° ELBOW (FLGxFLG)	8"x6"	2
51	PRESSURE TRANSDUCER	15"	1
52	PVC SCH 80 PRESSURE TRANSDUCER STILLING WELL. SEE DETAIL 1 ON SHEET 15	6"	1
53	ULTRASONIC LEVEL TRANSDUCER PER DETAIL 4 ON SHEET 15	–	1
54	PVC SCH 80 LEVEL TRANSDUCER STILLING WELL. SEE DETAIL 1 ON SHEET 15	8"	1



SHEET NOTES:

1. CONTRACTOR SHALL ADJUST PIPE SPOOL LENGTHS AS REQUIRED FOR EQUIPMENT SUPPLIED. SUBMIT SHOP DRAWINGS SHOWING PIPING LAYOUT AND DIMENSIONS PRIOR TO FABRICATION OF THE PIPE.
2. WET WELL AND VALVE VAULT SHALL BE POURED-IN-PLACE REINFORCED CONCRETE. DESIGNED FOR H-20 TRAFFIC LOADING AND FLOATATION RESISTANT.
3. WET WELL AND NEW MANHOLES SHALL HAVE A T-LOCK LINING. EXISTING STRUCTURES THAT ARE IN CONTACT WITH SEWAGE SHALL BE LINED WITH 120-MILS OF AN EPOXY/POLYURETHANE COATING SYSTEM (SANCON 100 OR SIMILAR SYSTEM).
4. ALL PIPING SHALL BE 316 STAINLESS STEEL BETWEEN THE PUMPS AND THE VAULT. PIPING SHALL BE 40-MIL CERAMIC EPOXY (U.S. PIPE PROTECTO 401 OR SIMILAR SYSTEM) LINED DUCTILE IRON IN THE VALVE VAULT AND FOR THE FORCEMAIN.
5. ALL DUCTILE IRON PIPE SHALL BE SHOP LINED AND COATED. FIELD COATING OF DUCTILE IRON PIPE SHALL NOT BE ALLOWED.
6. CONTRACTOR SHALL PROVIDE PIPE SUPPORTS AS REQUIRED. ALL PIPE SUPPORTS SHALL BE 316 STAINLESS STEEL.
7. ALL PIPES, ANCHOR BOLTS, NUTS AND WASHERS INSIDE THE WET WELL SHALL BE TYPE 316 STAINLESS STEEL.
8. THE FLOOR OF THE VALVE VAULT SHALL BE COATED WITH A NON-SKID SURFACE (ENVIRO-TREAD OR EQUAL)

WET WELL AND VALVE VAULT PLAN

SCALE: ⅜" = 1'-0"

N

REGISTERED PROFESSIONAL ENGINEER — JOHN A. LOAGUE — No. 50292 — Exp. 6/30/13 — CIVIL — STATE OF CALIFORNIA

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R.C.E. NO.: 50292 DATE:
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ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

LIFT STATION "C"
WET WELL AND VALVE VAULT PLAN

SHEET NO. 10 OF 37

N:\0980 Huntington Beach\1096 WAGS & Lift Station C\10_pr_mech_plan.dgn 8/23/2012

LIST OF MATERIALS

ITEM	DESCRIPTION	SIZE	QTY
1	1200 GPM @ 25' TDH SCREW CENTRIFUGAL PUMP WITH IMMERSIBLE MOTOR	15 HP	2
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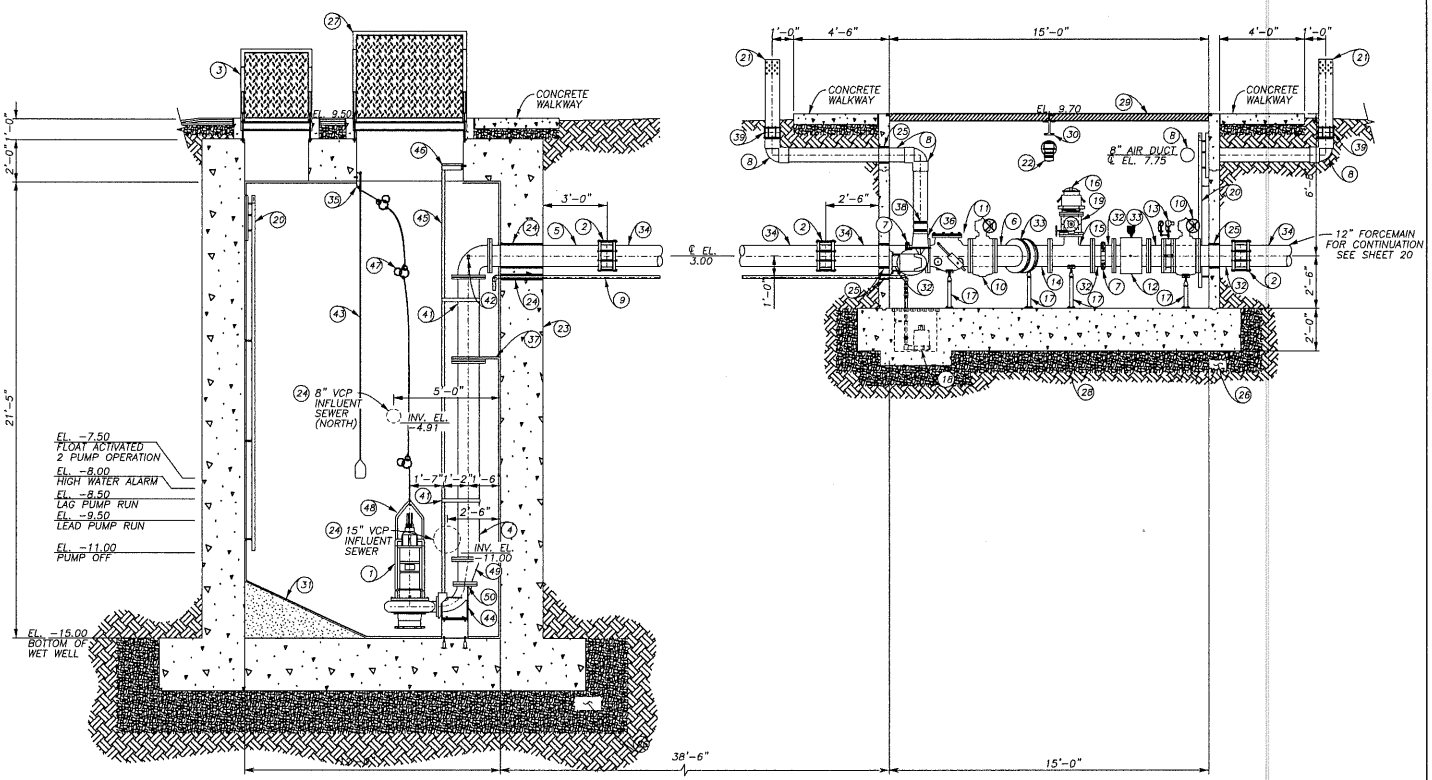

WET WELL AND VALVE VAULT SECTION

SCALE: ⅜" = 1'-0"

SHEET NOTES:

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8. THE FLOOR OF THE VALVE VAULT SHALL BE COATED WITH A NON-SKID SURFACE (ENVIRO-TREAD OR EQUAL).
9. ULTRASONIC LEVEL TRANSDUCER, PRESSURE TRANSDUCER AND THEIR APPURTENANCES ARE NOT SHOWN. SEE SHEET X FOR DETAILS.

REGISTERED PROFESSIONAL ENGINEER JOHN A. LOGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

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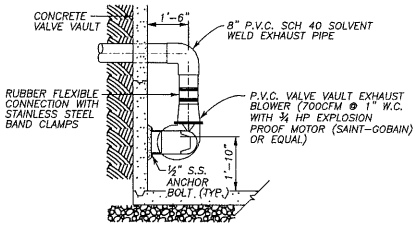
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

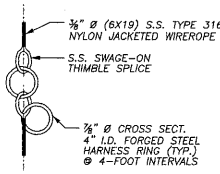
LIFT STATION "C"
WET WELL AND VALVE VAULT SECTION

SHEET NO. 11 OF 37

H:\0980 Huntington Beach\1096 WADS & Lift Station C\11_pr_mech_swv.dgn 5/23/2012



EXHAUST FAN DETAIL 1 — 10,11
NOT TO SCALE



SUBMERSIBLE PUMP WIRE ROPE LIFTING RING DETAIL 2 — 10,11
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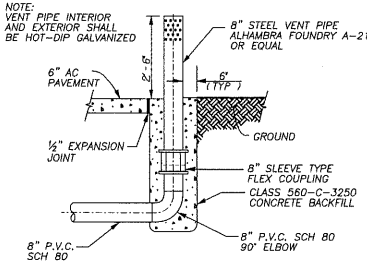

AIR VENT TERMINAL 3 — 10,11
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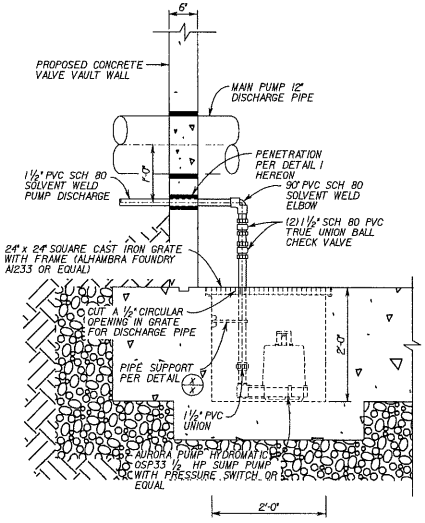

SUMP PUMP DETAIL 4 — 10,11
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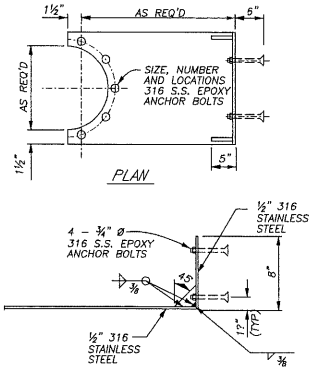
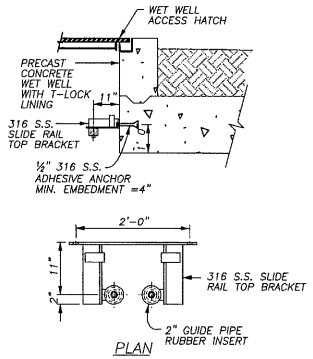
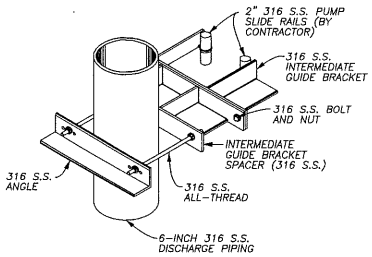


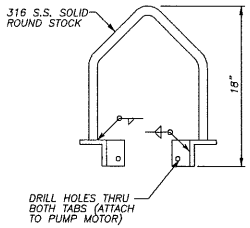
FLANGE TYPE PIPE SUPPORT DETAIL 5 — TYP
NOT TO SCALE



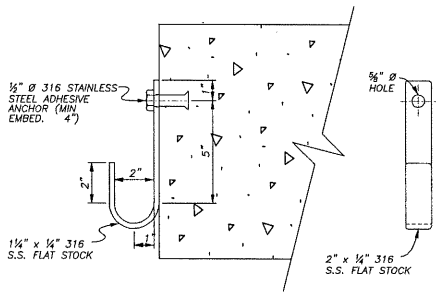
SLIDE RAIL TOP GUIDE BRACKET ASSEMBLY DETAIL 6 — 10,11
(FURNISHED BY PUMP SUPPLIER)
NOT TO SCALE



INTERMEDIATE GUIDE BRACKET 7 — 10,11
(FURNISHED BY PUMP SUPPLIER)
NOT TO SCALE



LIFTING BAIL DETAIL 8 — 10,11
NOT TO SCALE



PUMP LIFTING CABLE HOOK DETAIL 9 — —
NOT TO SCALE

Underground Service Alert
Call: TOLL FREE
811
TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'V'D	REV.	DATE	BY	DESCRIPTION	APP'V'D

	REVIEWED BY	DATE
UTIL. DIV.		
TRAFFIC		
ENG. SERVICES		
STREET DESIGN		
MAINTENANCE		
RIGHT-OF-WAY		
P.I. & L.		
CONSTRUCTION		
DRAWN BY:	BG	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOAGUE	MAR 2012

PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

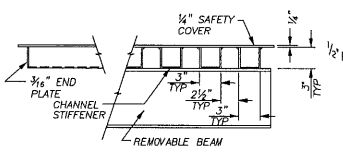
MECHANICAL DETAILS I

SHEET NO. 12 OF 37

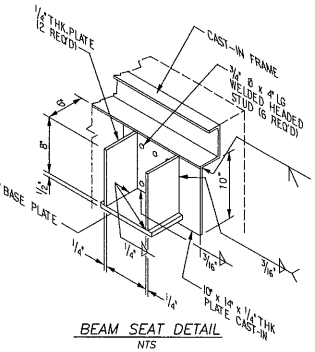
N:\0980 Huntington Beach\1098 WAGS & Lift Station C\IS_dwi_shtl.dgn 3/23/2012

NOTES:

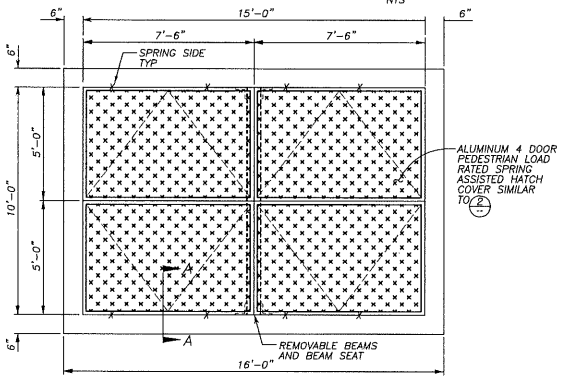
1. EACH HATCH COVER SHALL BE PROVIDED WITH SLAM LOCK, FLUSH CAST DROP HANDLE, RECESSED PADLOCKABLE STAPLE, AND THROUGH. COVERS SHALL BE SECURED TO THE FRAME WITH ½" 316 S.S. BOLTS.
2. PROVIDE 1½" PVC SCH 80 DRAIN PIPE FROM HATCH TROUGH TO SUMP.



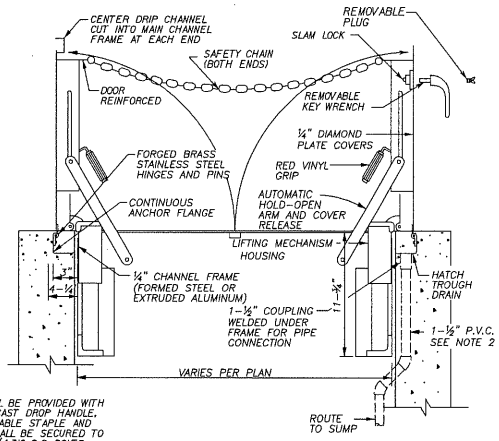
SECTION A–A



BEAM SEAT DETAIL
NTS



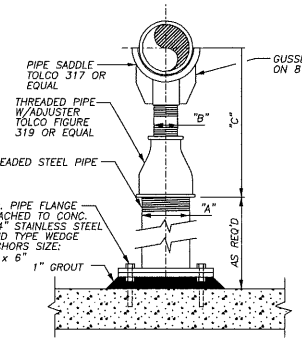
VALVE VAULT COVER DETAIL (1) 10,11
NOT TO SCALE



NOTES:

1. HATCH COVER SHALL BE PROVIDED WITH SLAM LOCK, FLUSH CAST DROP HANDLE, RECESSED PADLOCKABLE STAPLE AND TROUGH. COVERS SHALL BE SECURED TO THE FRAME WITH ½" 316 S.S. BOLTS.
2. PROVIDE 1½" PVC SCH 80 DRAIN PIPE FROM HATCH TROUGH DRAIN TO SUMP.
3. HATCH COVER SHALL BE ALUMINUM WITH NON SKID FINISH, FOR VAUVE VAULT, STAINLESS STEEL FOR WET WELL.
4. HATCH COVER SHALL BE RATED FOR H20 TRAFFIC LOADING.
5. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
6. HATCHES SHALL BE PROVIDED WITH SAFTEY GRATES.

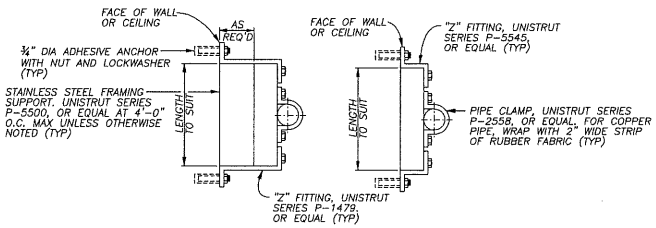
ACCESS HATCH DETAIL (2) 10,11
NOT TO SCALE



PIPE SIZE	"A"	"B"	"C" MIN.	"C" MAX.
2	2"	1–½"	7"	11–½"
3	2"	1–½"	7–3/16"	11–13/16"
4	3"	2–½"	10–¼"	14–¾"
6	3"	2–½"	11–9/16"	16–1/16"
8	3"	2–½"	13–3/16"	18–1/16"
10	3"	2–½"	14–5/8"	19–⅛"
12	3"	2–½"	15–5/8"	20–⅛"
18	6"	4"	21–½"	26"
24	6"	4"	26–½"	31"

NOTE:
PIPE SUPPORT SHALL CONFORM TO FEDERAL SPECIFICATION A-A-1 192A (TYPE 38) AND MANUFACTURERS STANDARDIZATION SOCIETY SP-69, TYPE 38.

PIPE SUPPORT DETAIL (3) TYP
NOT TO SCALE



EXTENDED MOUNT FLUSH MOUNT

NOTES:

1. USE THIS DETAIL FOR PIPES 3 INCHES AND SMALLER IN DIAMETER.
2. ALL MATERIALS SHALL BE 316 STAINLESS STEEL

PIPE SUPPORT FOR INDIVIDUAL PIPES (4) TYP
NOT TO SCALE

Underground Service Alert
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TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

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P.T. & T.		
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R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

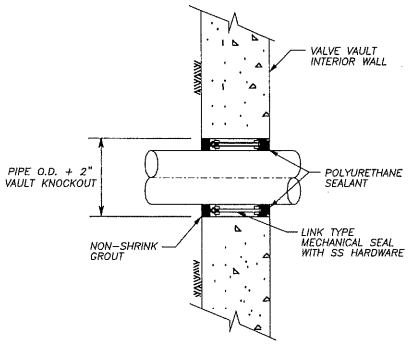
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

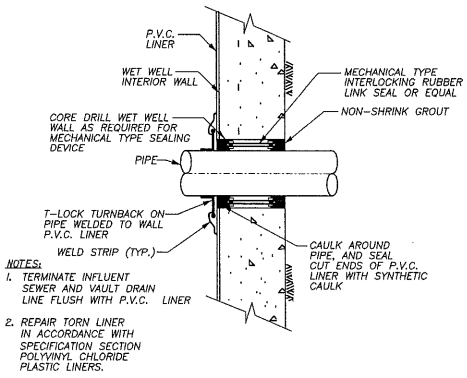
MECHANICAL DETAILS II

SHEET NO. 13 OF 37

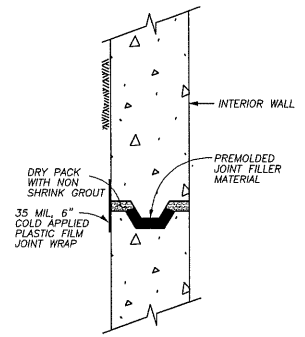
N:\0980 Huntington Beach\1095 WACS & Lift Station C\13_det_sht2.dgn 3/23/2012



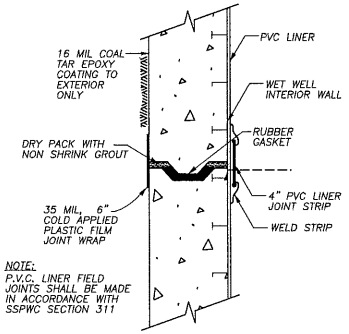
VALVE VAULT WALL PENETRATION DETAIL 1
NOT TO SCALE



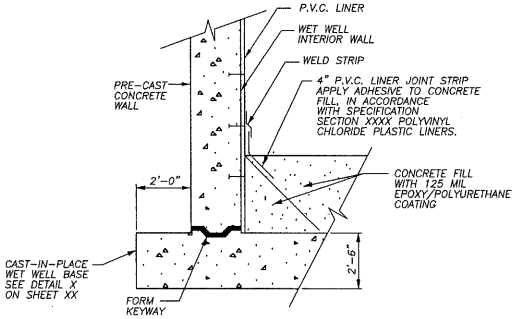
WET WELL WALL PENETRATION DETAIL 2
NOT TO SCALE



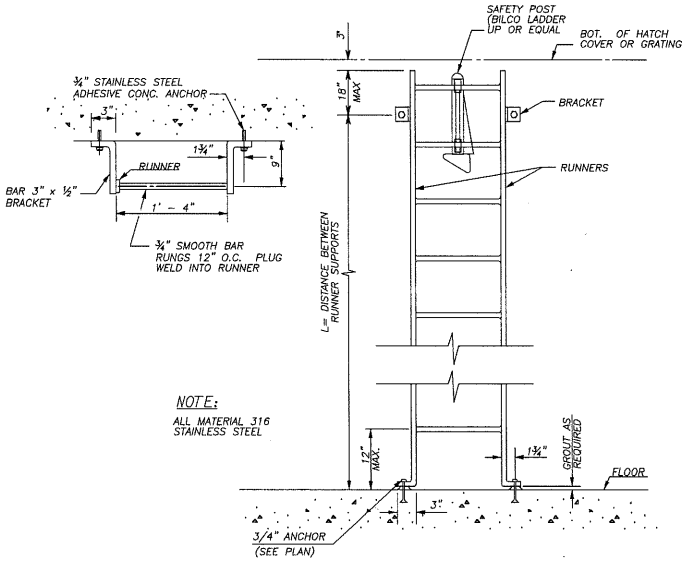
VALVE VAULT JOINT DETAIL 3
NOT TO SCALE



WET WELL JOINT DETAIL 4
NOT TO SCALE



WET WELL BASE JOINT DETAIL 5/4
NOT TO SCALE



LADDER DETAIL 6
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

Underground Service Alert
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REVISIONS

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ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

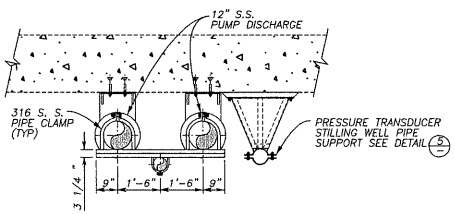
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

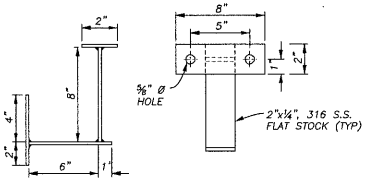
MECHANICAL DETAILS III

SHEET NO. 14 OF 37

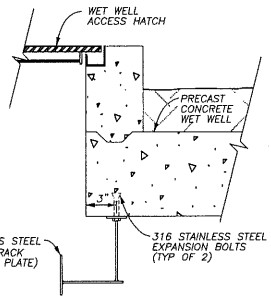
H:\0980 Huntington Beach\1098 WAGS & Lift Station C\14_det_sht13.dgn 3/23/2012



STILLING WELL SUPPORT BRACKET



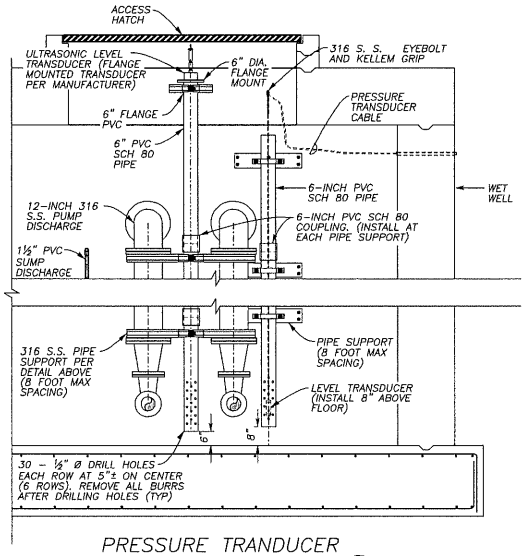
SECTION PLAN



MOUNTING DETAIL

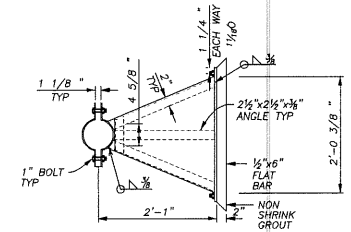
NOTES:

1. ALL MATERIAL SHALL BE 316 STAINLESS STEEL.
2. FASTEN TO WET WELL WITH ½"/Ø 316 S.S. EXPANSION BOLTS. MINIMUM EMBEDMENT–4".
3. A TOTAL OF TWO CABLE RACKS ARE REQUIRED.
4. LOCATE RACK SO AS NOT TO CONFLICT WITH PUMP INSTALLATION OR REMOVAL.



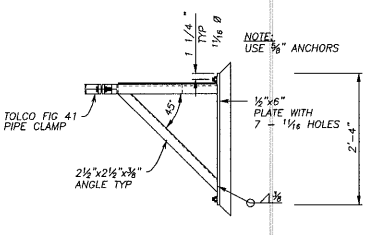
PRESSURE TRANDUCER STILLING WELL DETAIL 1
NOT TO SCALE

PUMP POWER AND CONTROL CABLE SUPPORT RACK DETAIL 2
NOT TO SCALE
10,11

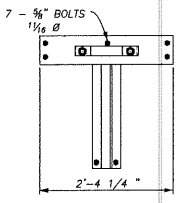


⅜" FILLET TYP ALL WELDS

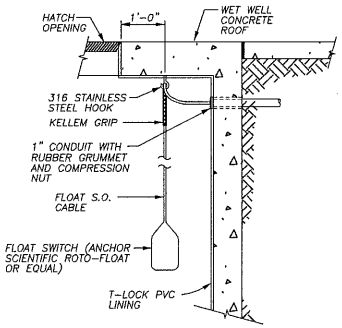
PLAN VIEW



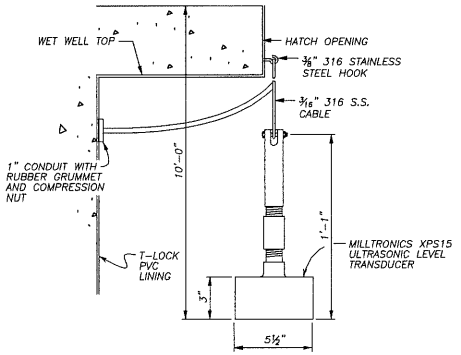
SECTION



FRONT



WET WELL FLOAT SWITCH MOUNTING DETAIL 3
NOT TO SCALE



NOTES:

1. MOUNT TRANSDUCER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

LEVEL TRANSDUCER MOUNTING DETAIL 4
NOT TO SCALE

STILLING WELL PIPE SUPPORT 5
SCALE: 1" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

Underground Service Alert
Call: TOLL FREE
811
TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

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	REVIEWED BY:	DATE
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CONSTRUCTION		
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R.C.E. NO.: 50292 DATE:
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R.C.E. NO.: 56814 EXP. DATE: 6/30/13

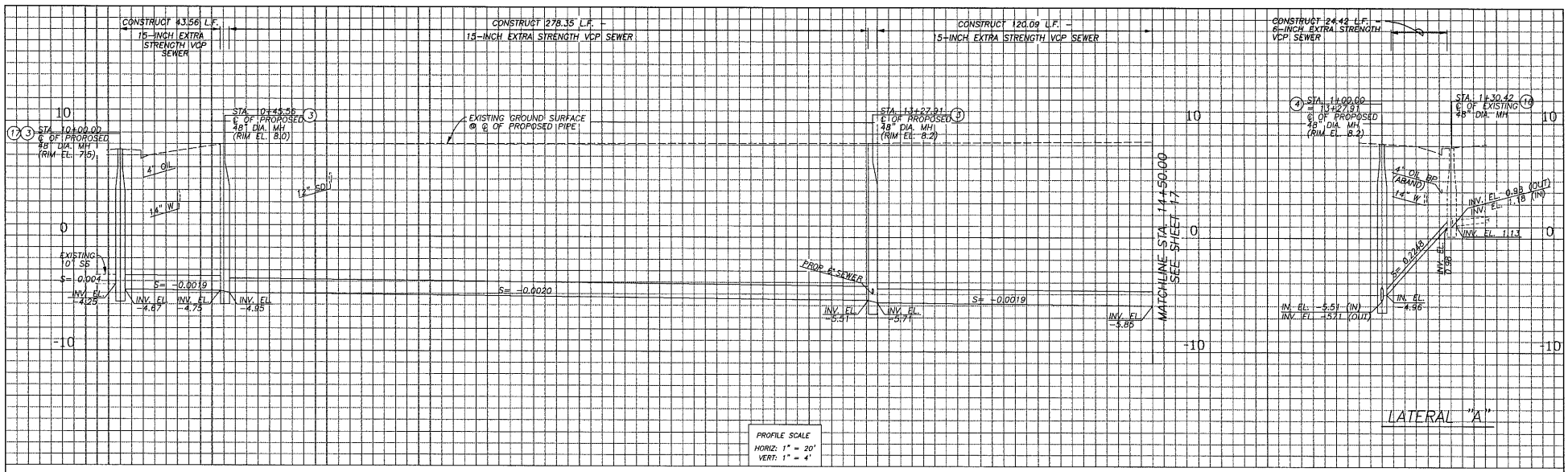
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

MECHANICAL DETAILS IV

SHEET NO. 15 OF 37

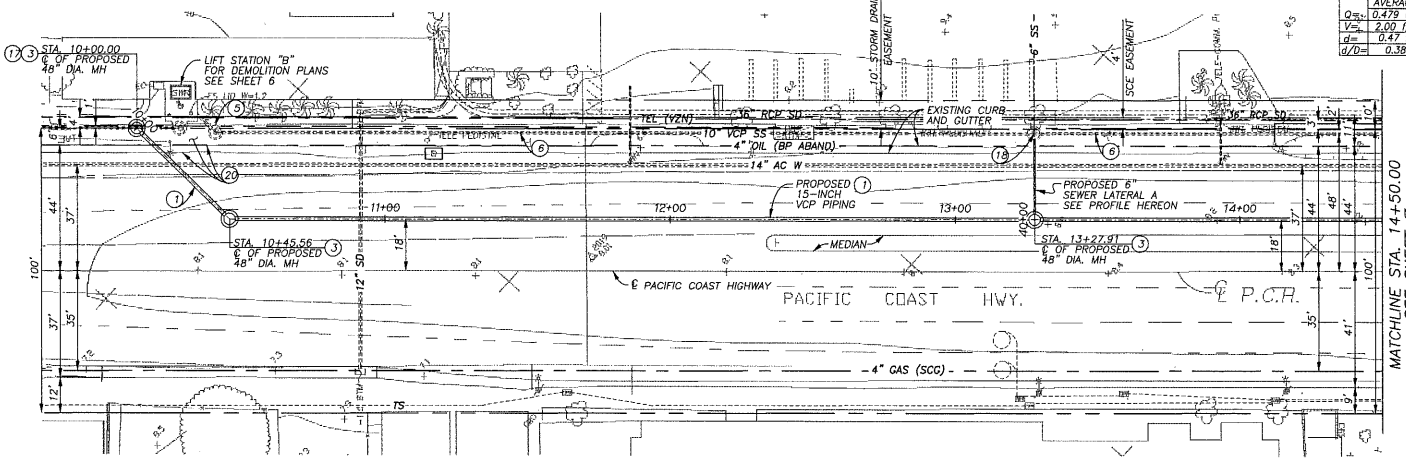
N:\0960 Huntington Beach\1095 WACS & Lift Station C\15_det_sht14.dgn 3/23/2012



HYDRAULIC TABLE

STA. 10+00.00 – STA. 13+27.91
D= 15-INCH & S= 0.0019

FLOWS	AVERAGE	PEAK DRY	PEAK WET
Q=	0.479 cfs	1.042 cfs	2.674 cfs
V=	2.00 fps	2.41 fps	2.61 fps
d=	0.47 ft	0.70 ft	0.97 ft
d/D=	0.38	0.56	0.78



SEWER CONSTRUCTION NOTES:

1. CONSTRUCT 15-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.
3. CONSTRUCT 4-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504 AND 505.
5. REMOVE AND DISPOSE OF EXISTING SEWER MANHOLE AND BASE.
6. ABANDON EXISTING SEWER LINE IN PLACE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY.
17. CONNECT EXISTING SEWER LINE TO PROPOSED SEWER MANHOLE. MAINTAIN EXISTING SEWER FLOWS, DURING CONSTRUCTION. RESHAPE MANHOLE BASE AND CHANNEL FOR FINAL FLOW.
18. CONNECT PROPOSED SEWER TO EXISTING SEWER MANHOLE. MAINTAIN EXISTING SEWER FLOWS DURING CONSTRUCTION. RESHAPE MANHOLE BASE AND CHANNEL FOR FINAL FLOW.
20. REMOVE AND REPLACE EXISTING SIDEWALK, CURB, GUTTER, AND CROSS GUTTER TO NEAREST JOINT AS REQUIRED FOR OR DAMAGED BY CONSTRUCTION.

REGISTERED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

20 10 0 20 40
SCALE IN FEET
1 Inch = 20ft.

PACIFIC COAST HIGHWAY

Underground Service Alert
Call: TOLL FREE
811
TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

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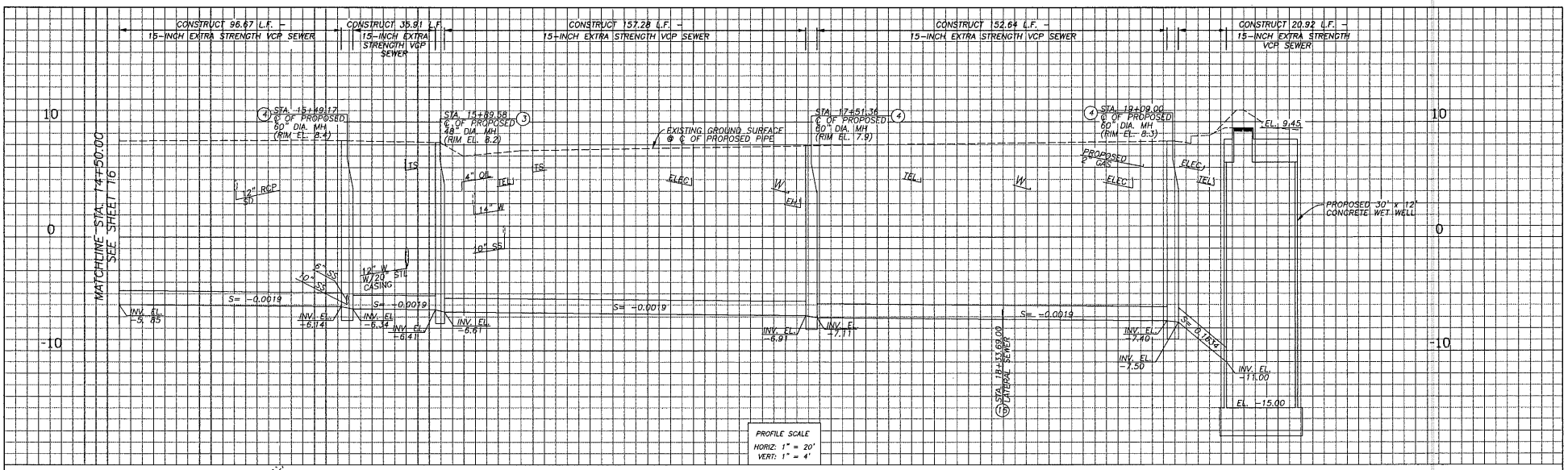
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

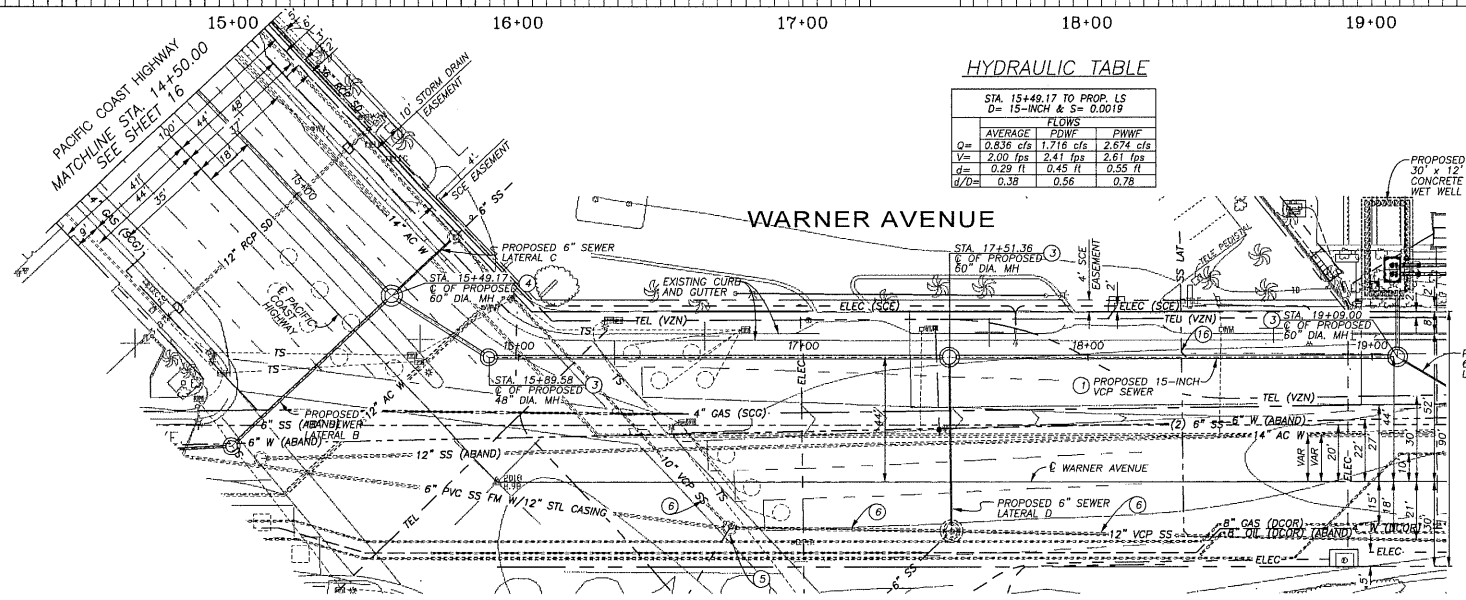
WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

PLAN AND PROFILE FROM STA. 10+00.00 TO STA. 14+50.00

SHEET NO. 16 OF 37

N:\0080 Huntington Beach\1095 WAGS & Lift Station C\18_psp-sht-01.dgn 3/23/2012





HYDRAULIC TABLE

STA. 15+49.17 TO PROP. LS
D= 15-INCH & S= 0.0019

	FLOWS		
	AVERAGE	PDWF	PWWF
Q=	0.836 cfs	1.716 cfs	2.674 cfs
V=	2.00 fps	2.41 fps	2.61 fps
d=	0.29 ft	0.45 ft	0.55 ft
d/D=	0.38	0.56	0.78

SEWER CONSTRUCTION NOTES:

1. CONSTRUCT 15-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.
3. CONSTRUCT 4-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504 AND 505.
4. CONSTRUCT 5-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504, AND 505.
5. REMOVE AND DISPOSE OF EXISTING SEWER MANHOLE AND BASE.
6. ABANDON EXISTING SEWER LINE IN PLACE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY.
16. RECONNECT SEWER LATERAL TO PROPOSED SEWER LINE PER CITY STD. PLAN 507.

REGISTERED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

N

20 10 0 20 40
SCALE IN FEET
1 Inch = 20ft.

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TWO WORKING DAYS BEFORE YOU DIG

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ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

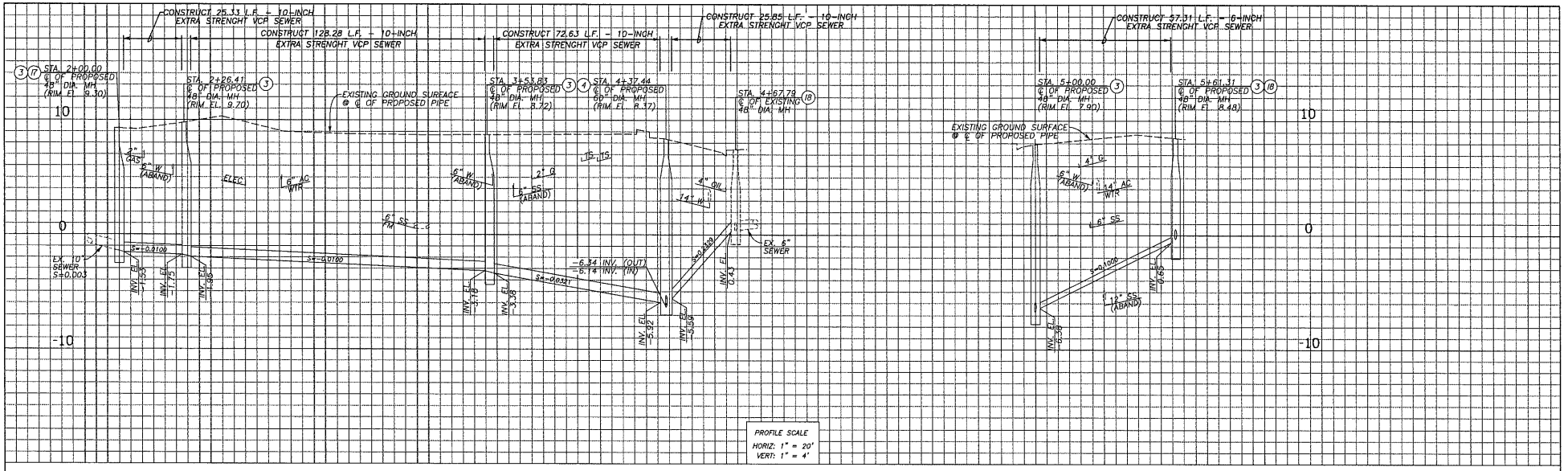
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

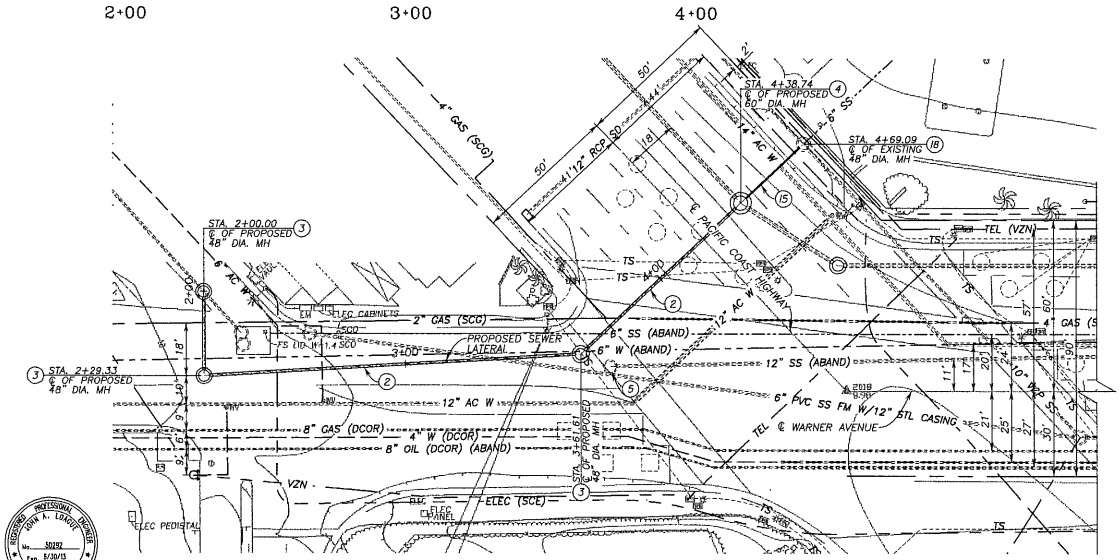
WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

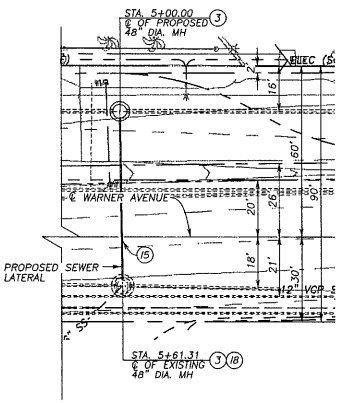
PLAN AND PROFILE FROM STA. 14+50.00 TO STA. 19+77.74

SHEET NO. 17 OF 37

N:\0960 Huntington Beach\1095 WAGS & Lift Station Civil_psp-sht-02.dgn 3/23/2012







CONSTRUCTION NOTES:

(2) CONSTRUCT 10-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.

(3) CONSTRUCT 4-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504 AND 505.

(4) CONSTRUCT 5-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504, AND 505.

(5) REMOVE AND DISPOSE OF EXISTING SEWER MANHOLE AND BASE.

(6) ABANDON EXISTING SEWER LINE IN PLACE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY.

(15) CONSTRUCT 6-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.

(17) CONNECT EXISTING SEWER LINE TO PROPOSED SEWER MANHOLE. MAINTAIN EXISTING SEWER FLOWS DURING CONSTRUCTION. RESHAPE MANHOLE BASE AND CHANNEL FOR FINAL FLOW.

(18) CONNECT PROPOSED SEWER TO EXISTING SEWER MANHOLE. MAINTAIN EXISTING SEWER FLOWS DURING CONSTRUCTION. RESHAPE MANHOLE BASE AND CHANNEL FOR FINAL FLOW.

LATERAL B & C

WARNER AVENUE

LATERAL D

SCALE IN FEET
1 inch = 20ft.

REGISTERED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/15 CIVIL STATE OF CALIFORNIA

Underground Service Alert
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TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'V'D	REV.	DATE	BY	DESCRIPTION	APP'V'D

	REVIEWED BY	DATE
UTIL. DIV.		
TRAFFIC		
ENG. SERVICES		
STREET DESIGN		
MAINTENANCE		
RIGHT-OF-WAY		
P.I. & L.		
CONSTRUCTION		
DRAWN BY:	BG	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOAGUE	MAR 2012

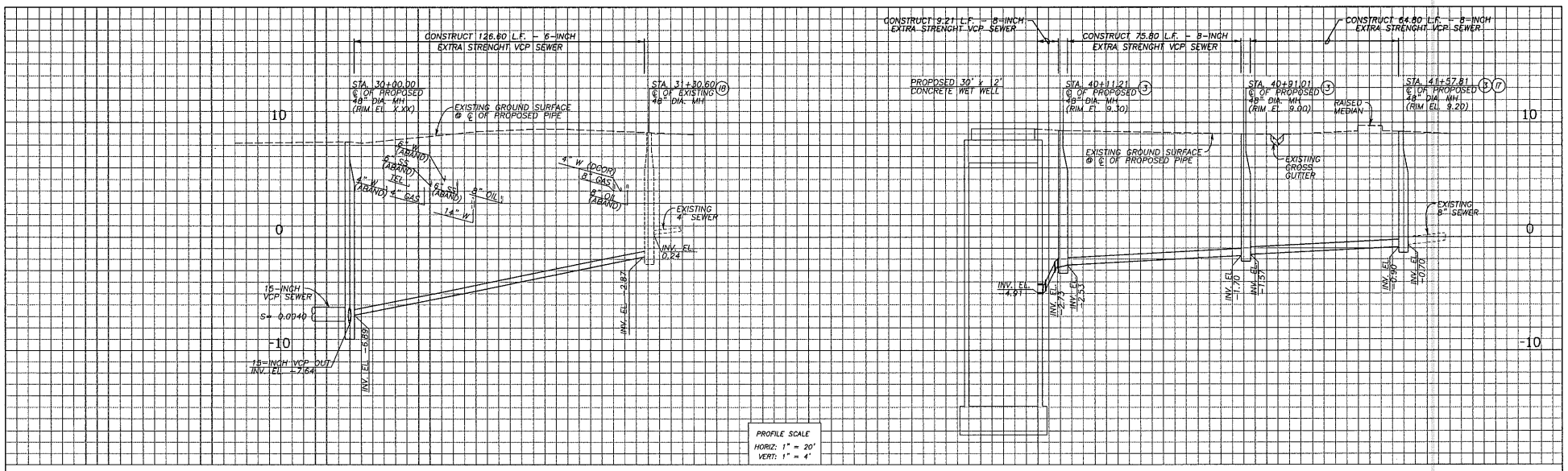
PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56614 EXP. DATE: 6/30/13

CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

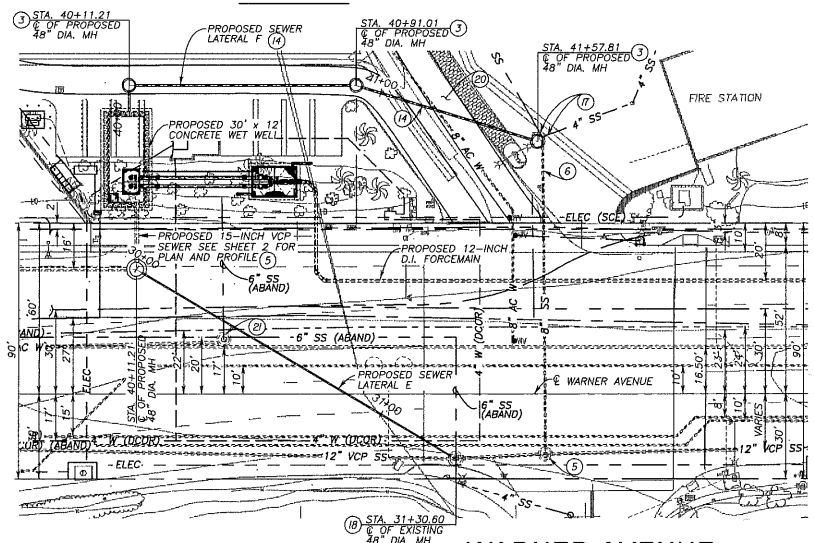
WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT
PLAN AND PROFILE
LATERAL B & C FROM STA. 2+00.00 TO STA 4+67.79 AND LATERAL D FROM STA. 5+00.00 TO STA. 5+61.31

SHEET NO. 18 OF 37

N:\0980 Huntington Beach\1095 WACS & Lift Station C\18_pnp-sht-10.dgn 3/23/2012



LATERAL E



LATERAL F

SEWER CONSTRUCTION NOTES:

(3) CONSTRUCT 4'-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504 AND 505.

(5) REMOVE AND DISPOSE OF EXISTING SEWER MANHOLE AND BASE.

(6) ABANDON EXISTING SEWER LINE IN PLACE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY.

(14) CONSTRUCT 8-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.

(15) CONSTRUCT 6-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.

(17) CONNECT EXISTING SEWER LINE TO PROPOSED SEWER MANHOLE. MAINTAIN EXISTING SEWER FLOWS, DURING CONSTRUCTION. RESHAPE MANHOLE BASE AND CHANNEL FOR FINAL FLOW.

(18) CONNECT PROPOSED SEWER TO EXISTING SEWER MANHOLE. MAINTAIN EXISTING SEWER FLOWS DURING CONSTRUCTION. RESHAPE MANHOLE BASE AND CHANNEL FOR FINAL FLOW.

(20) REMOVE AND REPLACE EXISTING SIDEWALK, CURB, GUTTER, AND CROSS GUTTER TO NEAREST JOINT AS REQUIRED FOR OR DAMAGED BY CONSTRUCTION.

(21) FILL ADJACENT PIPES WITH SLURRY. REMOVE TOP OF MANHOLE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY, AND ABANDON.

N

SCALE IN FEET
1 inch = 20ft.

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TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'VD	REV.	DATE	BY	DESCRIPTION	APP'VD

	REVIEWED BY	DATE
UTIL. DIV.		
TRAFFIC		
ENG. SERVICES		
STREET DESIGN		
MAINTENANCE		
RIGHT-OF-WAY		
P.T. & L.		
CONSTRUCTION		
DRAWN BY:	BG	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOAGUE	MAR 2012

PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

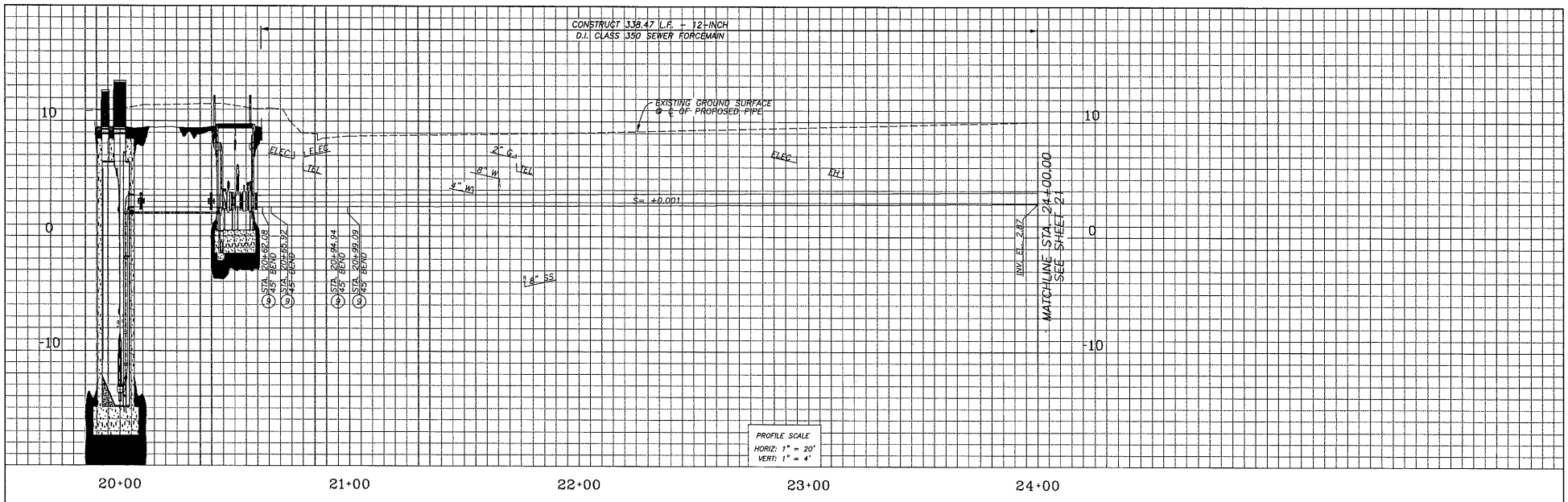
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

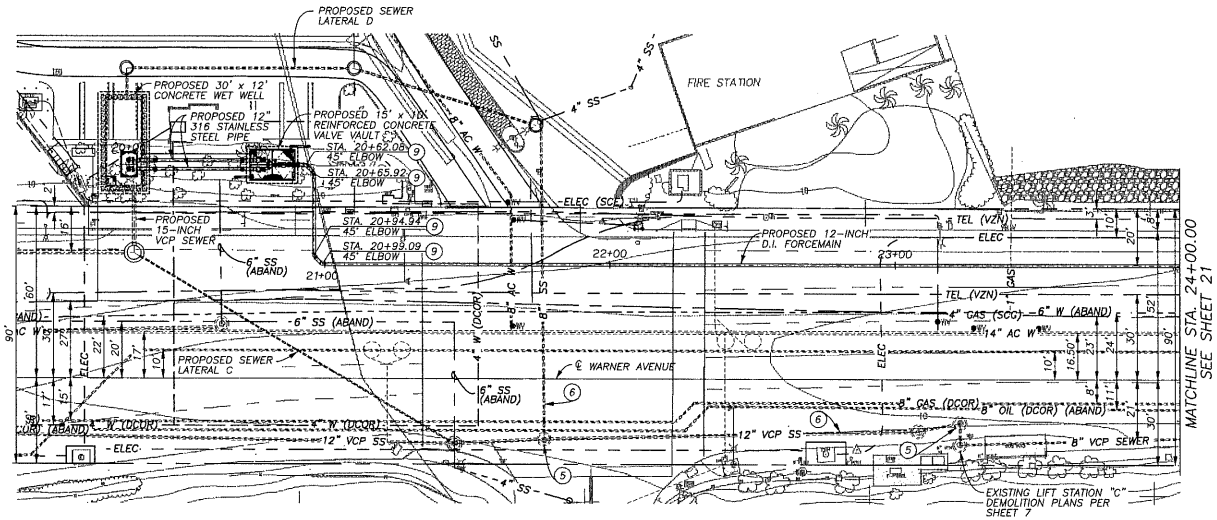
WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

PLAN AND PROFILE FROM STA. 20+00.00 TO STA. 24+00.00

SHEET NO. 19 OF 37

N:\0000 Huntington Beach\1095 WACS & Lift Station C\19_psp-shl-11.dgn 3/23/2012





WARNER AVENUE

SEWER CONSTRUCTION NOTES:

(5) REMOVE AND DISPOSE OF EXISTING SEWER MANHOLE AND BASE.

(6) ABANDON EXISTING SEWER LINE IN PLACE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY.

(9) CONSTRUCT 12-INCH 45-DEGREE D.I. BEND WITH 12-INCH MEGA-LUG MECHANICAL JOINT RESTRAINT AND THRUST BLOCK PER DETAIL XX.

REGISTERED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

N

20 10 0 20 40
SCALE IN FEET
1 inch = 20ft.

Underground Service Alert
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TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'D	REV.	DATE	BY	DESCRIPTION	APP'D

	REVIEWED BY	DATE
UTIL. DIV.		
TRAFFIC		
ENG. SERVICES		
STREET DESIGN		
MAINTENANCE		
RIGHT-OF-WAY		
P.I.L.L.		
CONSTRUCTION		
DRAWN BY:	BG	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOAGUE	MAR 2012

PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

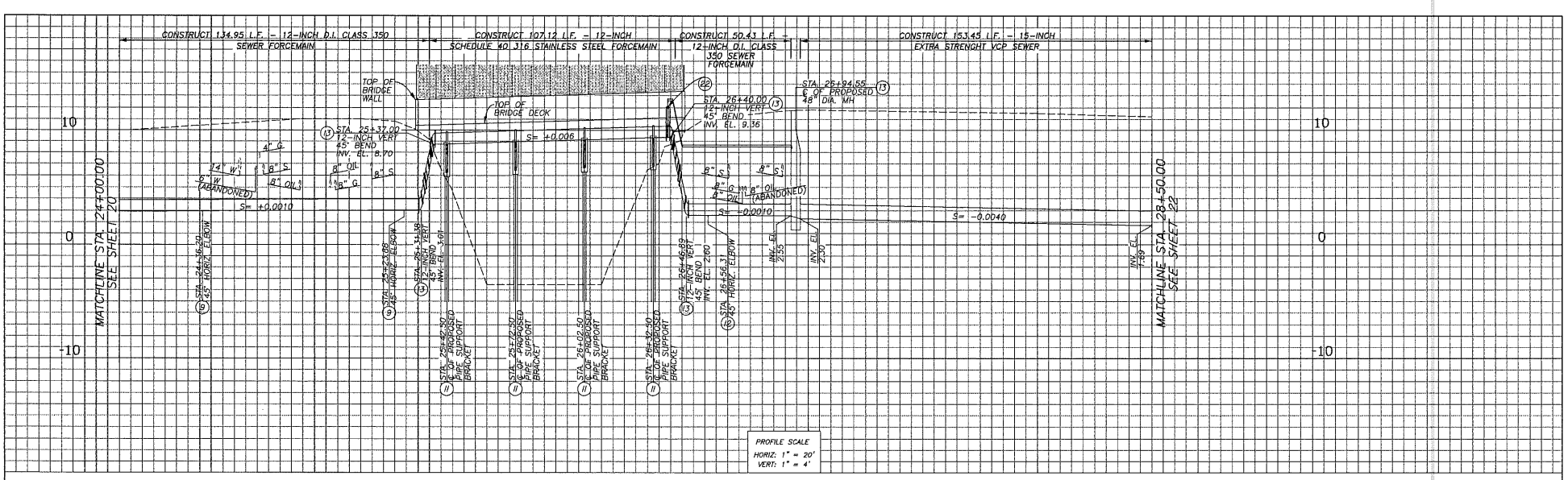
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

PLAN AND PROFILE FROM STA. 20+00.00 TO STA. 24+00.00

SHEET NO. 20 OF 37

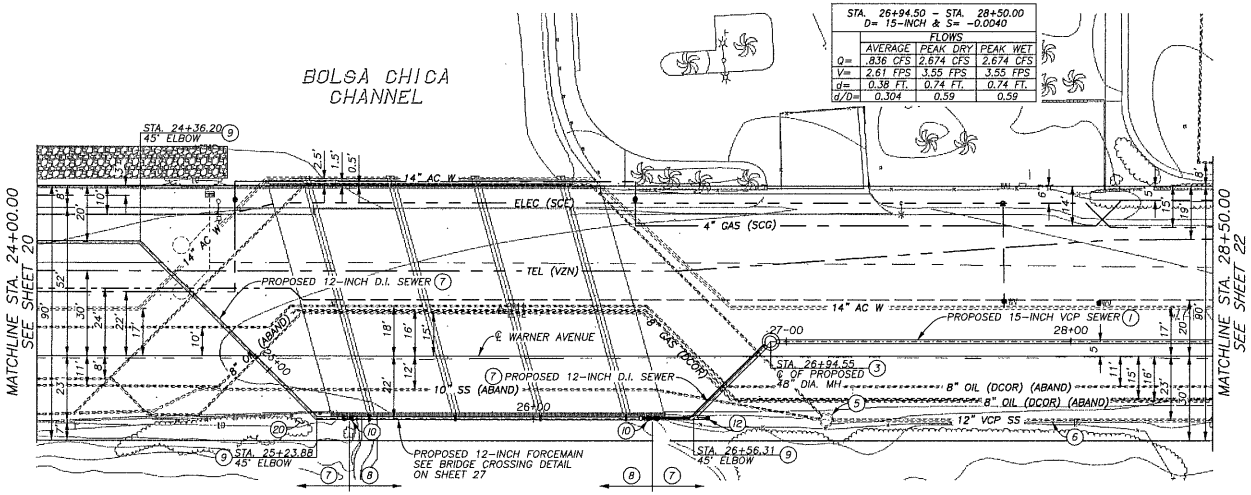
N:\0900 Huntington Beach\1095 WACS & Lift Station C\20_psp-sht-03.dgn 3/23/2012



HYDRAULIC TABLE

STA. 26+94.50 – STA. 28+50.00
D= 15-INCH & S= -0.0040

FLOWS	AVERAGE	PEAK DRY	PEAK WET
Q=	.836 CFS	2.674 CFS	2.674 CFS
V=	2.61 FPS	3.55 FPS	3.55 FPS
d=	0.38 FT.	0.74 FT.	0.74 FT.
d/D=	0.304	0.59	0.59



WARNER AVENUE

SEWER CONSTRUCTION NOTES:

1. CONSTRUCT 15-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.
3. CONSTRUCT 4-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504 AND 505.
5. REMOVE AND DISPOSE OF EXISTING SEWER MANHOLE AND BASE.
6. ABANDON EXISTING SEWER LINE IN PLACE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY.
7. CONSTRUCT 12-INCH CERAMIC EPOXY LINED CLASS 350 DUCTILE IRON SEWER.
8. CONSTRUCT 12-INCH STAINLESS STEEL SCHEDULE 40 SEWER FORCEMAIN.
9. CONSTRUCT 12-INCH 45-DEGREE D.I. BEND WITH 12-INCH MEGA-LUG MECHANICAL JOINT RESTRAINT AND THRUST BLOCK PER DETAIL XX.
10. INSTALL 12-INCH FLEXIBLE DOUBLE BALL JOINT COUPLING.
11. CONSTRUCT PIPE SUPPORT BRACKET PER DETAIL XX.
12. CONSTRUCT CLEANOUT PER DETAIL 1 ON SHEET 28.
13. CONSTRUCT 12-INCH 45-DEGREE D.I. BEND.
20. REMOVE AND REPLACE EXISTING SIDEWALK, CURB, GUTTER, AND CROSS GUTTER TO NEAREST JOINT AS REQUIRED FOR OR DAMAGED BY CONSTRUCTION.
22. CONSTRUCT 2-INCH SEWER AIR/VAC PER DETAIL 3 ON SHEET 28 WITH 2-INCH STAINLESS STEEL DISCHARGE PIPE TO PROPOSED MANHOLE.

RECORDED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

N

20 10 0 20 40
SCALE IN FEET
1 Inch = 20ft.

Underground Service Alert
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TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'V'D	REV.	DATE	BY	DESCRIPTION	APP'V'D

	REVIEWED BY	DATE
UTIL. DIV.		
TRAFFIC		
ENG. SERVICES		
STREET DESIGN		
MAINTENANCE		
RIGHT-OF-WAY		
P.T. & L.		
CONSTRUCTION		
DRAWN BY:	BG	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOAGUE	MAR 2012

PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

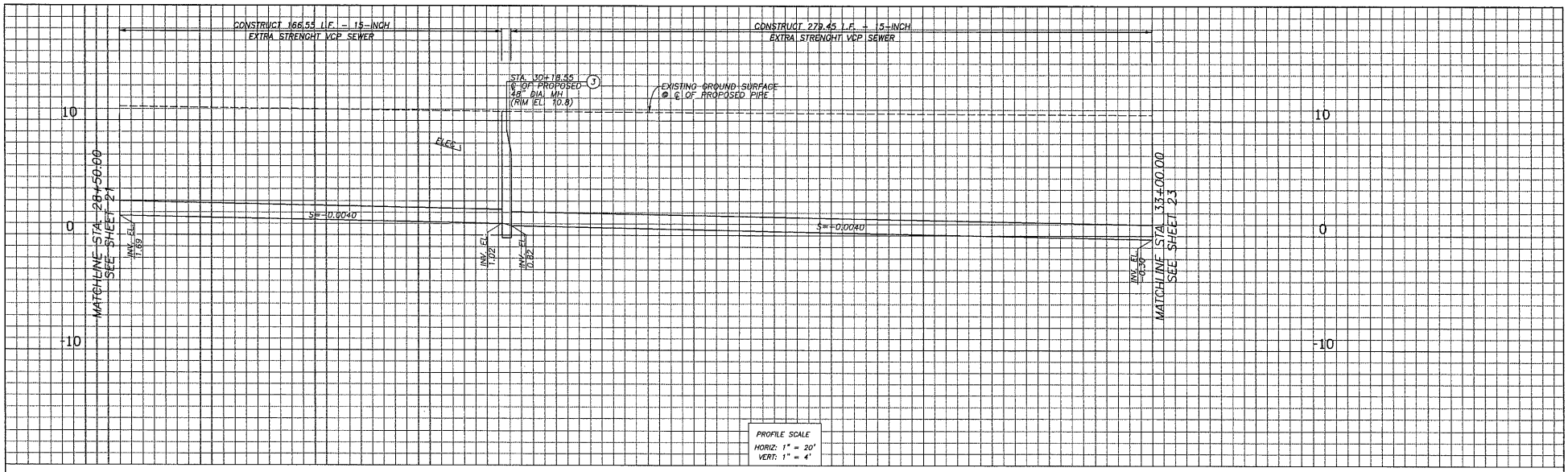
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

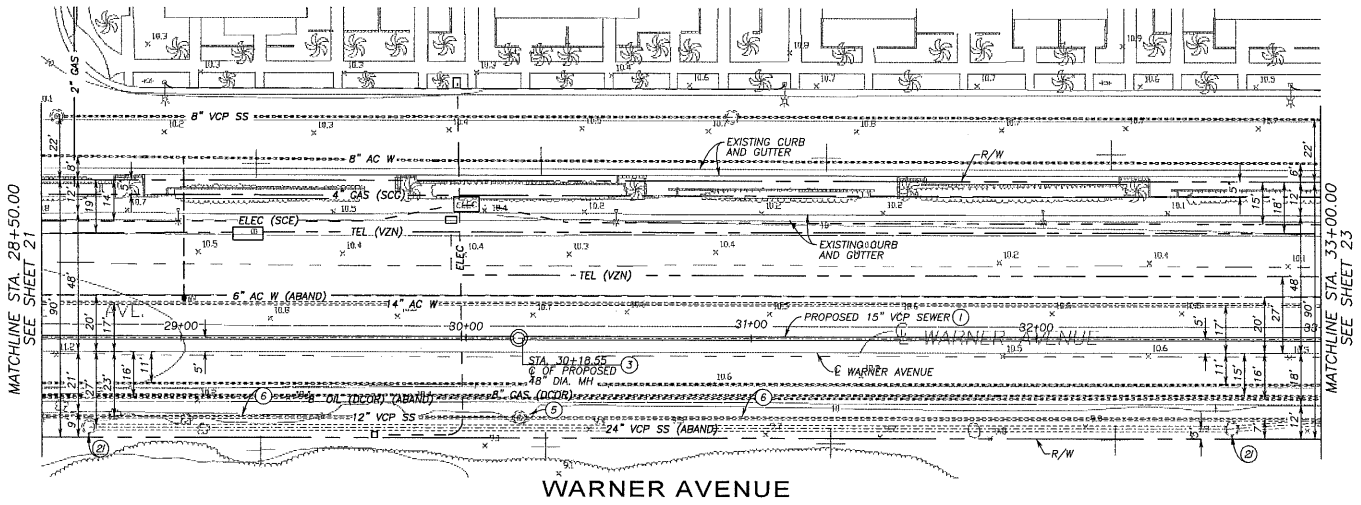
WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

PLAN AND PROFILE FROM STA. 24+00.00 TO STA. 28+50.00

SHEET NO. 21 OF 37

N:\0960 Huntington Beach\1095 WAGS & Lift Station C\21_psp-wbl-04.dgn 3/23/2012





HYDRAULIC TABLE

STA. 28+50.00 – STA. 33+00.00
D= 15-INCH & S= 0.0040

	FLOWS		
	AVERAGE	PEAK DRY	PEAK WET
Q=	0.836 cfs	2.674 cfs	2.674 cfs
V=	2.61 fps	3.55 fps	3.55 fps
d=	0.38 ft	0.74 ft	0.74 ft
d/D=	0.304	0.59	0.59

SEWER CONSTRUCTION NOTES:

(1) CONSTRUCT 15-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.

(3) CONSTRUCT 4-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504 AND 505.

(5) REMOVE AND DISPOSE OF EXISTING SEWER MANHOLE AND BASE.

(6) ABANDON EXISTING SEWER LINE IN PLACE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY.

(21) FILL ADJACENT PIPES WITH SLURRY. REMOVE TOP OF MANHOLE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY, AND ABANDON.

REGISTERED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

N

20 10 0 20 40

SCALE IN FEET
1 inch = 20ft.

Underground Service Alert
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TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'V'D	REV.	DATE	BY	DESCRIPTION	APP'V'D

	REVIEWED BY	DATE
UTIL. DIV.		
TRAFFIC		
ENG. SERVICES		
STREET DESIGN		
MAINTENANCE		
RIGHT-OF-WAY		
P.T. & L.		
CONSTRUCTION		
DRAWN BY:	BG	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOAGUE	MAR 2012

PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56614 EXP. DATE: 6/30/13

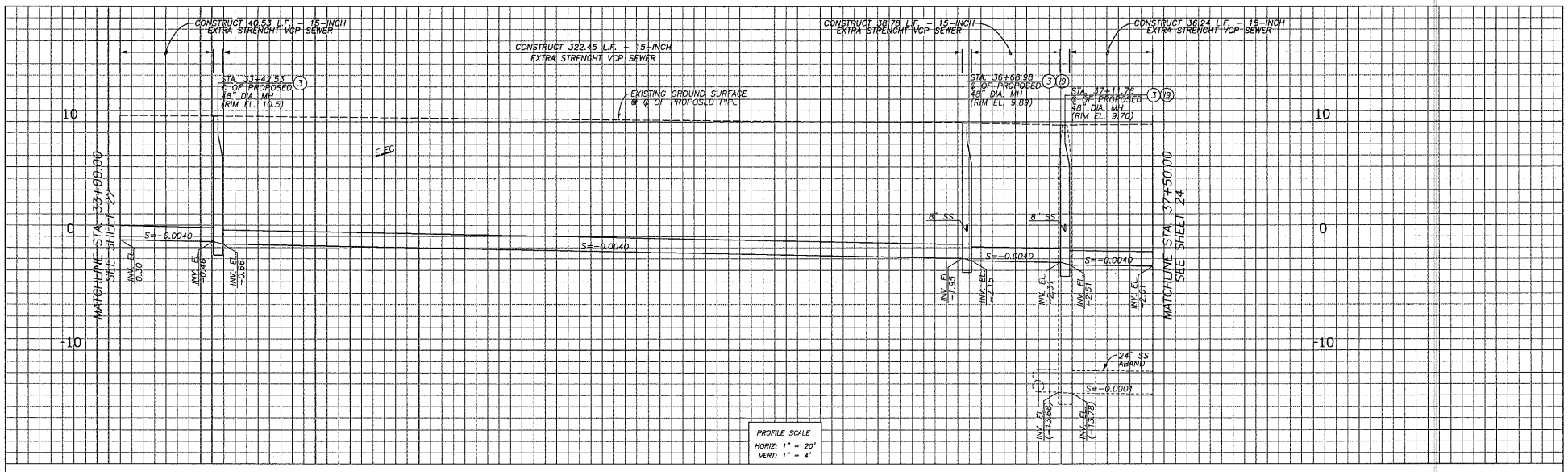
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

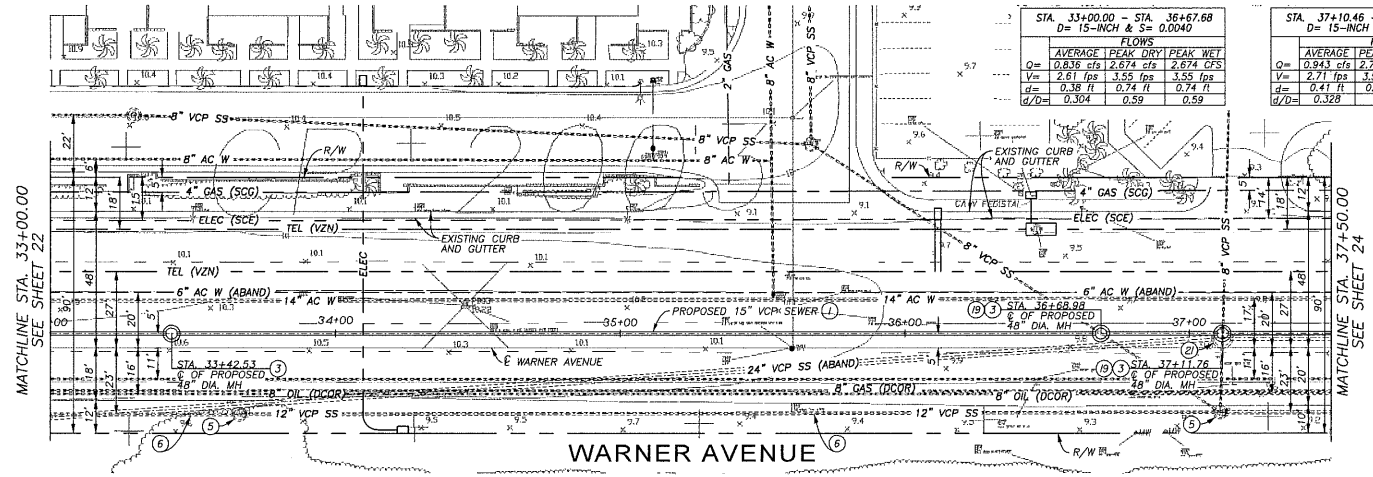
WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

PLAN AND PROFILE FROM STA. 28+50.00 TO STA. 33+00.00

SHEET NO. 22 OF 37

N:\0980 Huntington Beach\1095 WAGS & Lift Station C\22_pnp-sht-08.dgn 3/23/2012





HYDRAULIC TABLES

STA. 33+00.00 - STA. 36+67.68 D= 15-INCH & S= 0.0040	FLOWS		
	AVERAGE	PEAK DRY	PEAK WET
Q=	0.836 cfs	2.674 cfs	2.674 CFS
V=	2.61 fps	3.55 fps	3.55 fps
d=	0.38 ft	0.74 ft	0.74 ft
d/D=	0.304	0.59	0.59

STA. 37+10.46 - STA. 37+50.00 D= 15-INCH & S= 0.0040	FLOWS		
	AVERAGE	PEAK DRY	PEAK WET
Q=	0.943 cfs	2.781 cfs	2.781 cfs
V=	2.71 fps	3.58 fps	3.58 fps
d=	0.41 ft	0.76 ft	0.76 ft
d/D=	0.328	0.61	0.61

SEWER CONSTRUCTION NOTES:

1. CONSTRUCT 15-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.
3. CONSTRUCT 4-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504 AND 505.
5. REMOVE AND DISPOSE OF EXISTING SEWER MANHOLE AND BASE.
6. ABANDON EXISTING SEWER LINE IN PLACE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY.
19. CONNECT PROPOSED SEWER TO EXISTING SEWER MANHOLE.
20. REMOVE AND REPLACE EXISTING SIDEWALK, CURB, GUTTER, AND CROSS GUTTER TO NEAREST JOINT AS REQUIRED FOR OR DAMAGED BY CONSTRUCTION.
21. FILL ADJACENT PIPES WITH SLURRY. REMOVE TOP OF MANHOLE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY, AND ABANDON.

REGISTERED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

SCALE IN FEET 1 Inch = 20 ft.

N

Underground Service Alert Call: TOLL FREE 811 TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'VD	REV.	DATE	BY	DESCRIPTION	APP'VD

	REVIEWED BY	DATE
UTIL. DIV.		
TRAFFIC		
ENG. SERVICES		
STREET DESIGN		
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RIGHT-OF-WAY		
P.T. & T.		
CONSTRUCTION		
DRAWN BY:	BG	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
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JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

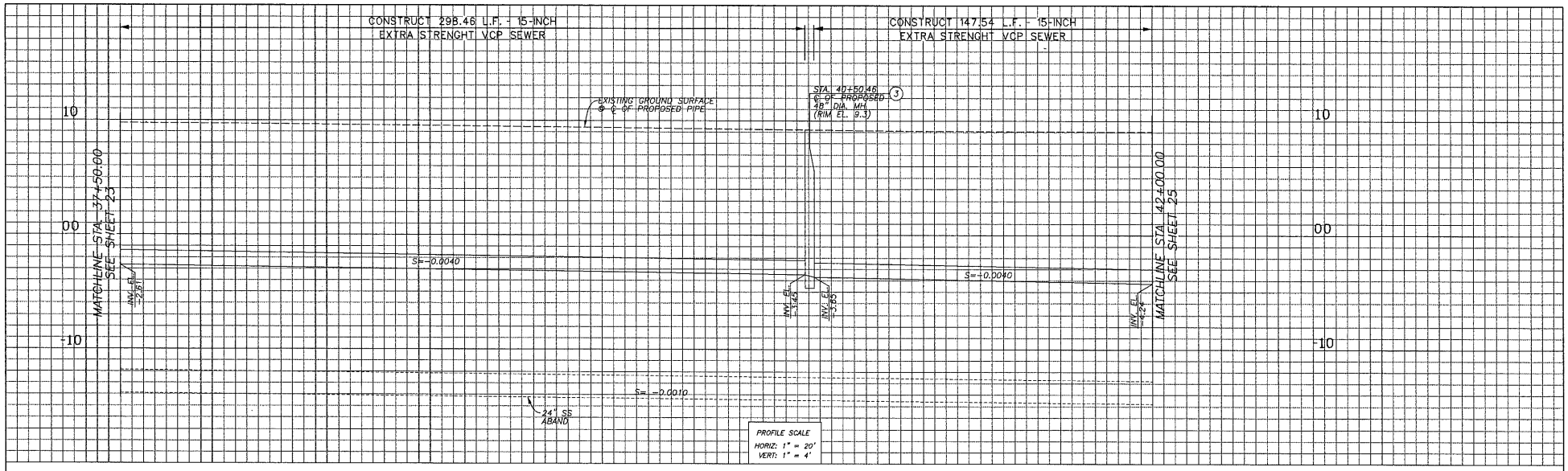
CITY OF HUNTINGTON BEACH DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

PLAN AND PROFILE FROM STA. 33+00.00 TO STA. 37+50.00

SHEET NO. 23 OF 37

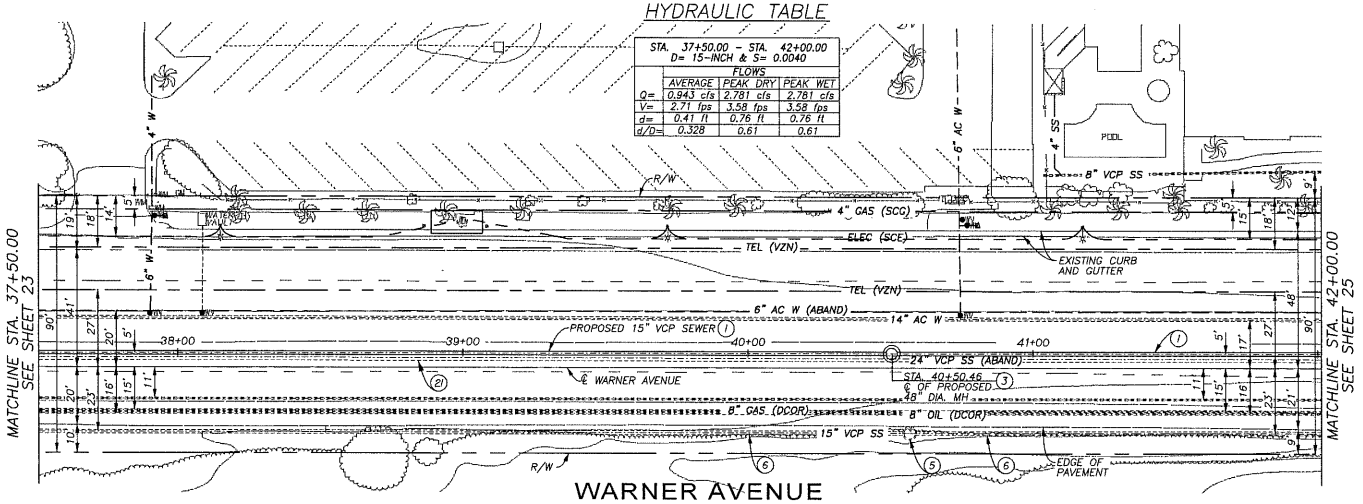
N:\0950 Huntington Beach\1095 WACB & Lift Station C\E3_psp-shl-08.dgn 3/23/2012



HYDRAULIC TABLE

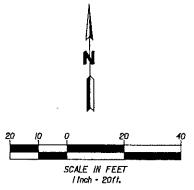
STA. 37+50.00 – STA. 42+00.00
D= 15-INCH & S= 0.0040

FLOWS	AVERAGE	PEAK DRY	PEAK WET
Q=	0.943 cfs	2.781 cfs	2.781 cfs
V=	2.71 fps	3.58 fps	3.58 fps
d=	0.41 ft	0.76 ft	0.76 ft
d/D=	0.328	0.61	0.61



SEWER CONSTRUCTION NOTES.

1. CONSTRUCT 15-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.
3. CONSTRUCT 4-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504 AND 505.
5. REMOVE AND DISPOSE OF EXISTING SEWER MANHOLE AND BASE.
6. ABANDON EXISTING SEWER LINE IN PLACE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY.
21. FILL ADJACENT PIPES WITH SLURRY. REMOVE TOP OF MANHOLE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY, AND ABANDON.



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TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'V'D	REV.	DATE	BY	DESCRIPTION	APP'V'D

	REVIEWED BY	DATE
UTL. DIV.		
TRAFFIC		
ENG. SERVICES		
STREET DESIGN		
MAINTENANCE		
RIGHT-OF-WAY		
P.T. & L.		
CONSTRUCTION		
DRAWN BY:	BG	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOAGUE	MAR 2012

PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 55814 EXP. DATE: 6/30/13

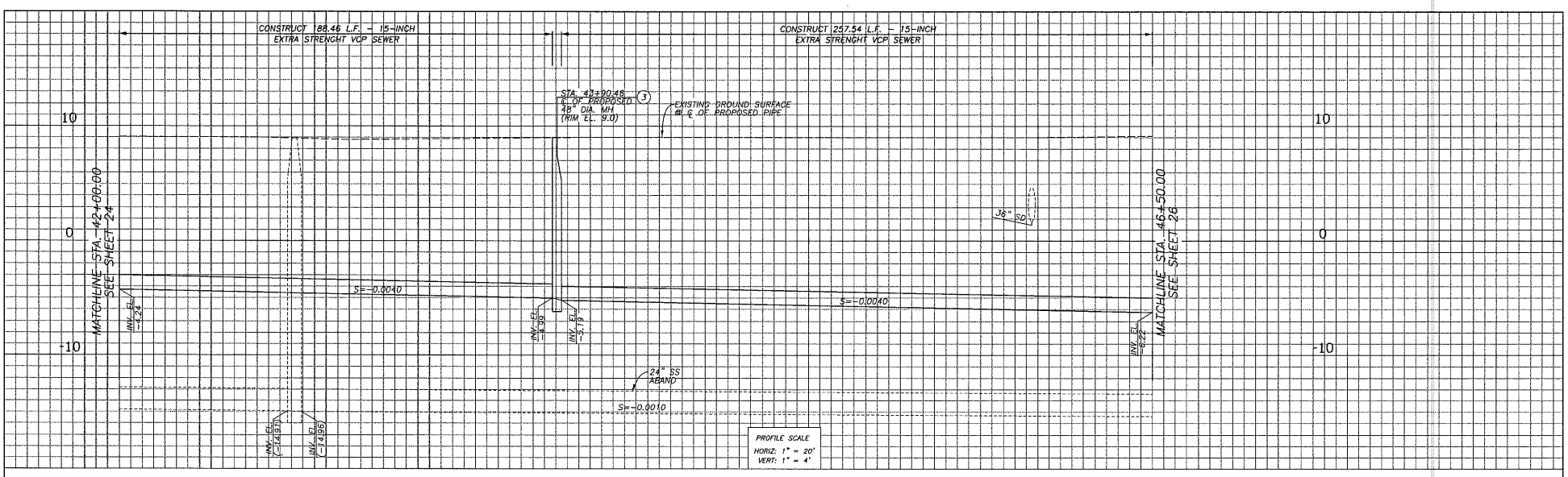
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

PLAN AND PROFILE FROM
STA. 37+50.00 TO STA. 42+00.00

SHEET NO. 24 OF 37

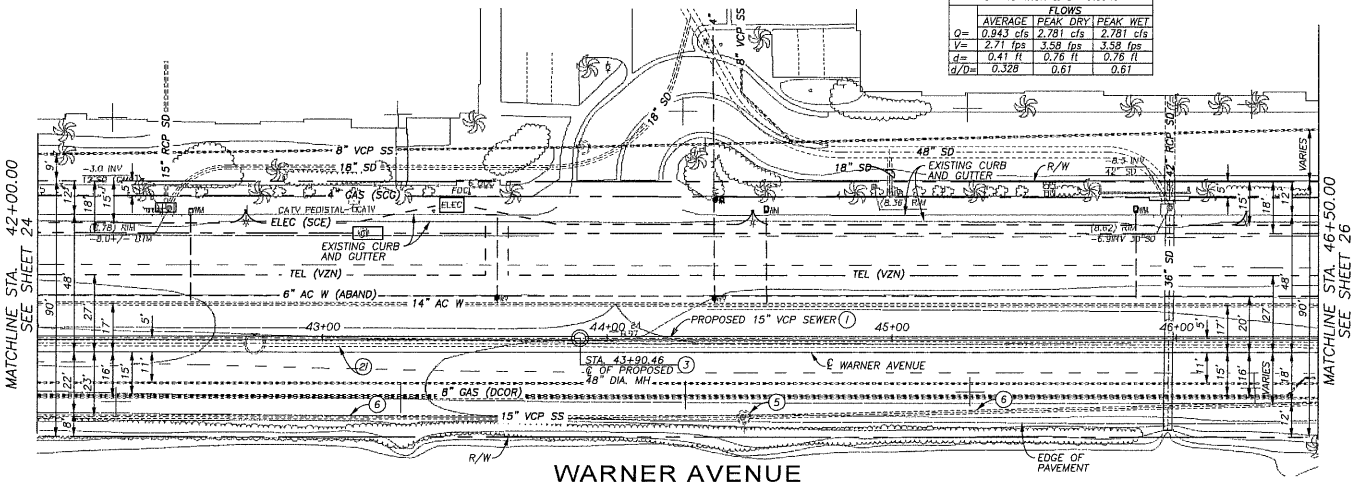
N:\0980 Huntington Beach\1095 WAGS & Lift Station C\84_psp-sht-07.dgn 3/23/2012



HYDRAULIC TABLE

STA. 42+00.00 – STA. 46+50.00
D= 15-INCH & S= 0.0040

	FLOWS		
	AVERAGE	PEAK DRY	PEAK WET
Q=	0.943 cfs	2.781 cfs	2.781 cfs
V=	2.71 fps	3.58 fps	3.58 fps
d=	0.41 ft	0.76 ft	0.76 ft
d/D=	0.328	0.61	0.61



SEWER CONSTRUCTION NOTES:

(1) CONSTRUCT 15-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.

(3) CONSTRUCT 4-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504 AND 505.

(5) REMOVE AND DISPOSE OF EXISTING SEWER MANHOLE AND BASE.

(6) ABANDON EXISTING SEWER LINE IN PLACE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY.

(21) FILL ADJACENT PIPES WITH SLURRY, REMOVE TOP OF MANHOLE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY, AND ABANDON.

REGISTERED PROFESSIONAL ENGINEER JOHN A. LOADUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

N

20 10 0 20 40
SCALE IN FEET
1 inch = 20ft.

Underground Service Alert
Call: TOLL FREE
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TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'V'D	REV.	DATE	BY	DESCRIPTION	APP'V'D

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P.L. & L.		
CONSTRUCTION		
DRAWN BY:	BG	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOADUE	MAR 2012

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R.C.E. NO.: 50292 DATE:
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R.C.E. NO.: 55814 EXP. DATE: 6/30/13

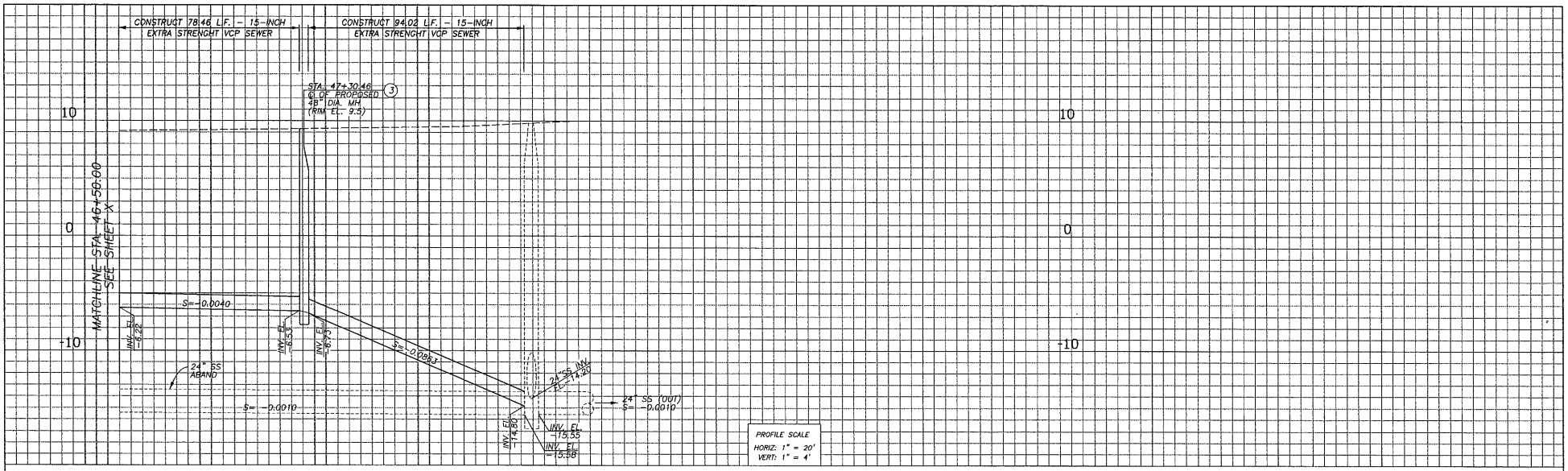
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

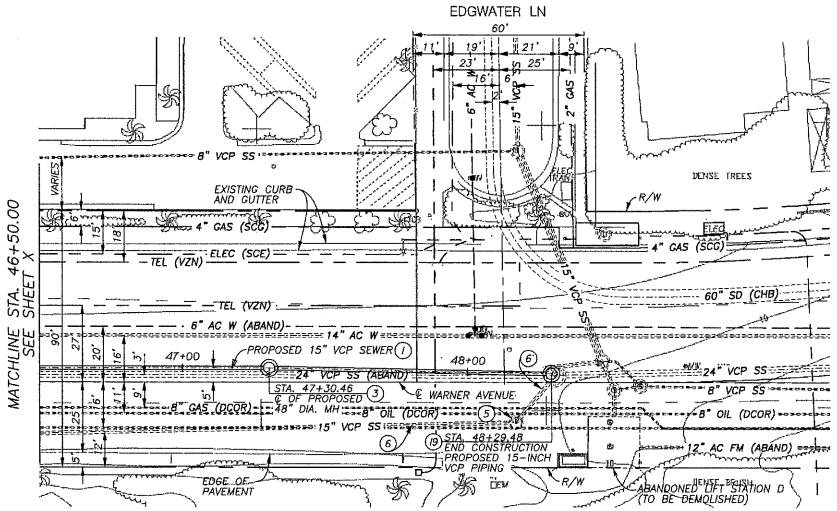
WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

PLAN AND PROFILE FROM STA. 42+00.00 TO STA. 46+50.00

SHEET NO. 25 OF 37

M:\0080 Huntington Beach\1995 WACS & Lift Station C\28_prop-sht-08.dgn 3/23/2012





WARNER AVENUE

HYDRAULIC TABLE

STA. 37+10.46 - STA. 37+50.00
D= 15-INCH & S= 0.0040

	FLOWS		
	AVERAGE	PEAK DRY	PEAK WET
Q=	0.943 cfs	2.781 cfs	2.781 cfs
V=	2.71 fps	3.58 fps	3.58 fps
d=	0.41 ft	0.76 ft	0.76 ft
d/D=	0.328	0.61	0.61

SEWER CONSTRUCTION NOTES:

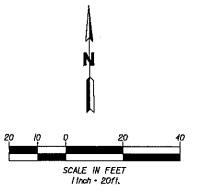
(1) CONSTRUCT 15-INCH DIAMETER EXTRA STRENGTH VCP SEWER PER CITY STD. PLAN 502.

(3) CONSTRUCT 4-FOOT DIAMETER SEWER MANHOLE WITH SANCON 100 COATING PER CITY STD. PLAN 504 AND 505.

(5) REMOVE AND DISPOSE OF EXISTING SEWER MANHOLE AND BASE.

(6) ABANDON EXISTING SEWER LINE IN PLACE AND FILL WITH ONE (1) SACK CEMENT SAND SLURRY.

(19) CONNECT PROPOSED SEWER TO EXISTING SEWER MANHOLE.



Underground Service Alert
Call: TOLL FREE
811
TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

REV.	DATE	BY	DESCRIPTION	APP'V'D	REV.	DATE	BY	DESCRIPTION	APP'V'D

	REVIEWED BY	DATE
UTIL. DIV.		
TRAFFIC		
ENG. SERVICES		
STREET DESIGN		
MAINTENANCE		
RIGHT-OF-WAY		
P.T. & L.		
CONSTRUCTION		
DRAWN BY:	BG	MAR 2012
DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOAGUE	MAR 2012

PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

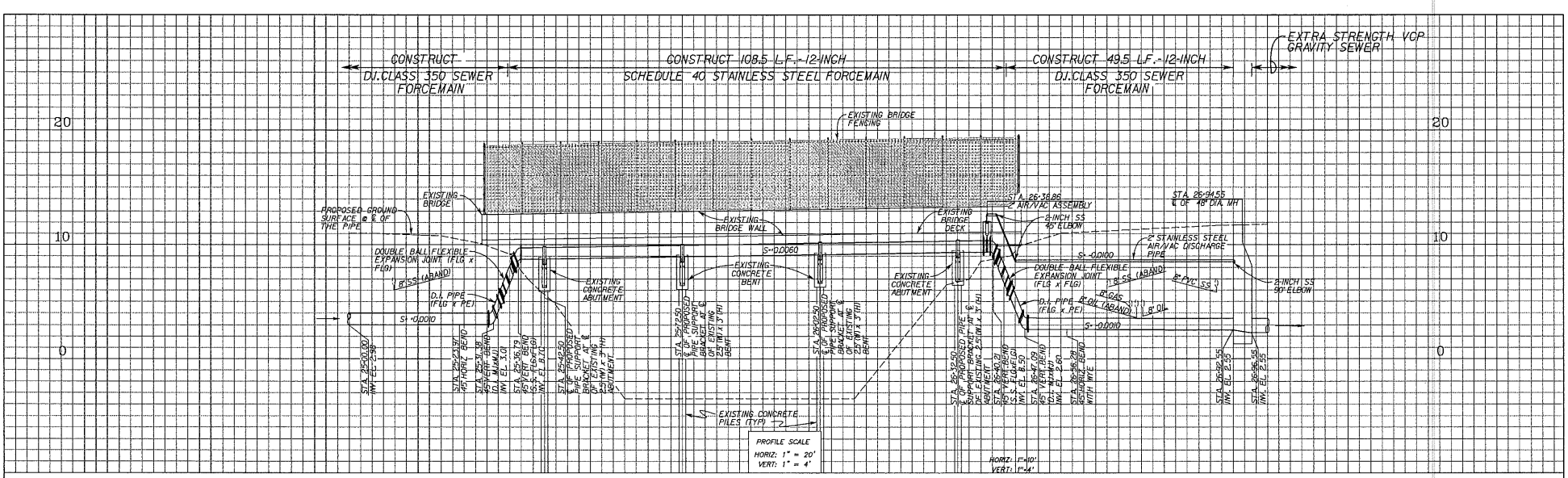
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

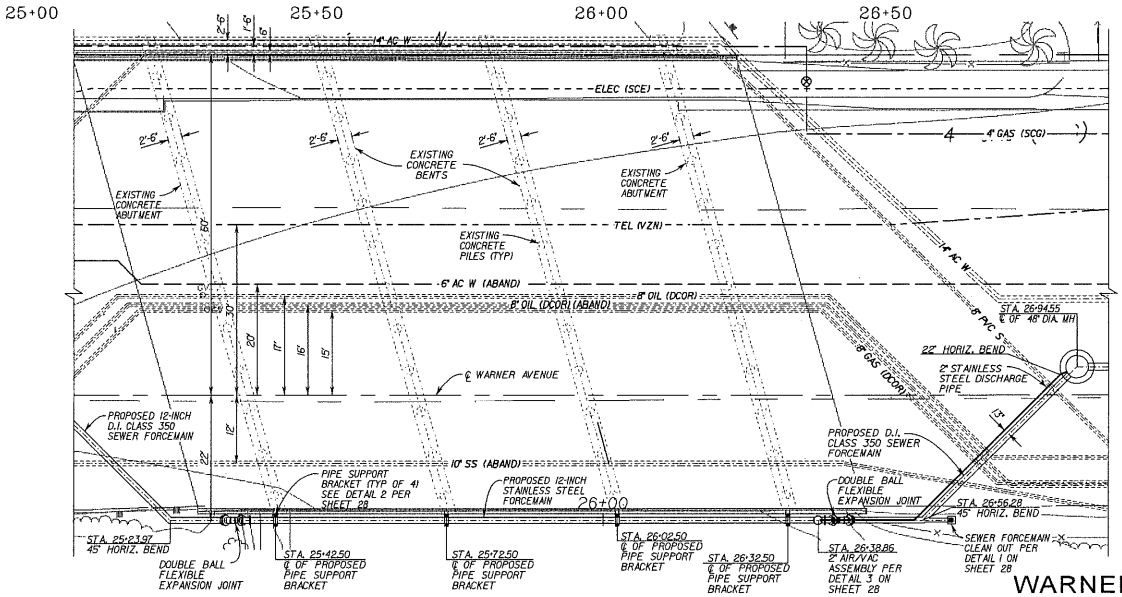
WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

PLAN AND PROFILE FROM STA. 46+50.00 TO STA. 48+29.98

SHEET NO. 26 OF 37

N:\0880 Huntington Beach\1085 WAGS & Lift Station C\80_psp-shi-09.dgn 3/23/2012





WARNER AVENUE

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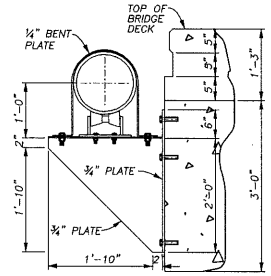
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

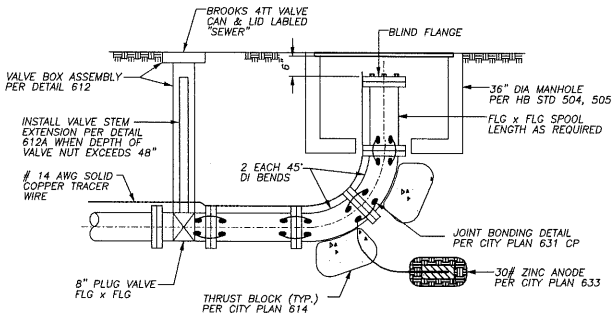
FORCEMAIN BRIDGE CROSSING DETAIL

SHEET NO. 27 OF 37

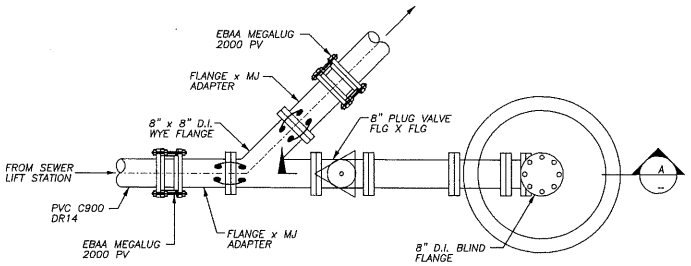
N:\0900 Huntington Beach\1098 WACS & Lift Station C\27_forcemain bridge_dtl.dgn 3/23/2012



SIDE ELEVATION



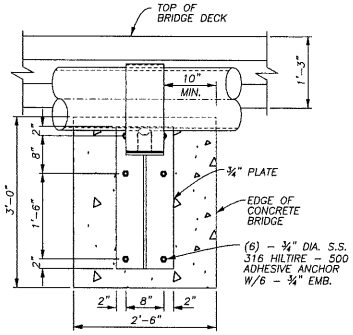
SECTION A



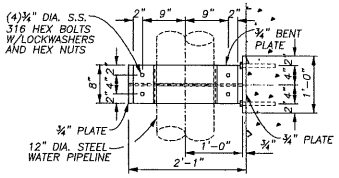
PLAN

FORCE MAIN CLEAN OUT

NOT TO SCALE



FRONT ELEVATION



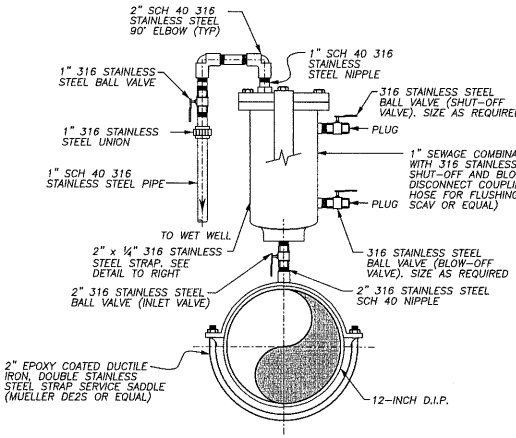
PLAN

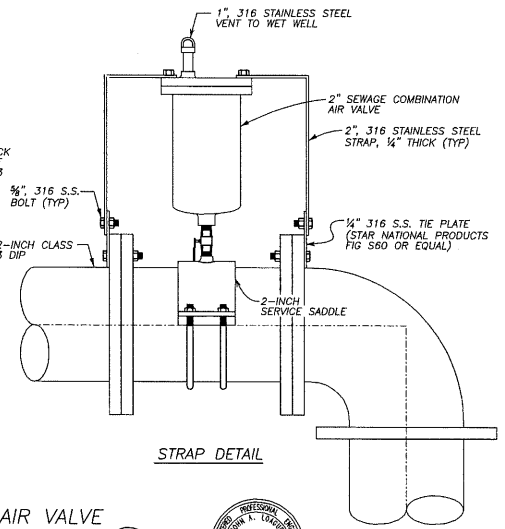
PIPE SUPPORT BRACKET NOTES:

1. STEEL PLATE SHALL BE ASTM A-36 AND COATINGS SHALL BE PER SPECIFICATION SECTION 09970.
2. ALL CONNECTIONS SHALL BE ¼" FILLET WELD ALL AROUND.
3. BOLT HOLES SHALL BE ⅞" DIAMETER.
4. EXISTING CONCRETE WALL SHALL BE 12" THICK MINIMUM.
5. CONTRACTOR SHALL NOT DAMAGE ANY EXISTING REBARS IN THE EXISTING CONCRETE WALL AND SHALL LOCATE EXISTING REBARS BEFORE DRILLING.
6. DESIGN OF THIS BRACKET IS BASED ON THE 2007 CALIFORNIA BUILDING CODE.
7. SPECIAL INSPECTION SHALL BE PROVIDED FOR ANCHOR INSTALLATION.
8. FIBER REINFORCED PLASTIC (FRP) NON-CORROSIVE, NO CONDUCTIVE 180° PIPE SADDLES SHALL BE INSTALLED TO ISOLATE PIPE FROM PIPE SUPPORT.

PIPE SUPPORT BRACKET 2/27

NOT TO SCALE





STRAP DETAIL

SEWAGE COMBINATION AIR VALVE ASSEMBLY AND SUPPORT DETAIL 3/27

NOT TO SCALE

RECORDED PROFESSIONAL ENGINEER JOHN A. LOAGUE No. 50292 Exp. 6/30/13 CIVIL STATE OF CALIFORNIA

WARNER AVENUE

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TWO WORKING DAYS BEFORE YOU DIG

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ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

FORCEMAIN DETAILS

SHEET NO. 28 OF 37

H:\0980 Huntington Beach\1095 WAGS & Lift Station C\28_force main_dtls.dgn 3/23/2012

LIST OF SYMBOLS

SYMBOL	DESCRIPTION
	CONDUIT RUN EXPOSED. HASH MARKS INDICATE NUMBER OF #12 AWG CONDUCTORS IN CONDUIT. SIZE PER CODE. ARROW INDICATES HOME RUN TO PANEL "A" CIRCUITS 1 AND 3 (COMMON NEUTRAL).
	CONDUIT RUN IN FLOOR, SLAB OR UNDERGROUND.
	FLEXIBLE CONDUIT CONNECTION WITH INTEGRAL GROUND CONDUCTOR
	INCOMING LINE.
	FLUORESCENT LIGHTING FIXTURE. TYPE AND MOUNTING AS NOTED.
	SINGLE-POLE TOGGLE SWITCH, 120V, 20A, HUBBLE #1223 "a" DENOTES OUTLETS CONTROLLED BY SWITCH.
	DOUBLE-POLE TOGGLE SWITCH, 120V, 20A HUBBLE #1222.
	MANUAL MOTOR STARTER, 1 HP. MAX., 120V WITH OVERLOAD HEATER FOR MOTOR SIZE INDICATED ON PLANS.
	DUPLEX CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE, 120V AC, 20A. MOUNTING HEIGHT AS NOTED. WP = OUTDOOR WEATHERPROOF. GFCI = GROUND FAULT CIRCUIT INTERRUPTER.
	ENCLOSURE TO BE DESCRIBED ON DRAWING.
	SURFACE MOUNTED PANEL.
	LINE DISCONNECT SWITCH, NON-FUSED UNLESS OTHERWISE NOTED. SWITCH RATING AS NOTED ON PLANS OR SPECIFICATIONS. NF = NON-FUSED, F = FUSED.
	CONTROL STATION FOR MOTOR, SEE SCHEMATIC FOR SWITCH ARRANGEMENT. LOS = LOCK-OUT-STOP.
	ELECTRIC MOTOR, NUMBER INDICATES HORSEPOWER
	JUNCTION BOX. AT ALL OUTDOOR LOCATIONS, BOX SHALL INCLUDE A NEMA 4 ENCLOSURE WITH HUBS FOR ALL CONDUIT ENTRANCES.

SYMBOL	DESCRIPTION
	DEVICE LOCATED IN FIELD ON OR NEAR PUMP (MOTOR).
	TRANSFORMER. DESCRIPTION AS NOTED ON PLANS OR SPECIFICATIONS.
	TRANSFORMER.
	THERMAL MAGNETIC BREAKER. 300 AT INDICATES TRIP AMPS. 400 AF INDICATES FRAME SIZE.
	CIRCUIT BREAKER. UPPER NUMBER IS CONTINUOUS TRIP ELEMENT RATING. * INDICATES FIELD SETTING BASED ON INSTALLED MOTOR.
	FUSE.
	THERMOSTAT. MOUNT AS NOTED ON PLANS.
	SQUIRREL CAGE MOTOR. IS INDICATES HORSEPOWER.
	POWER COMPANY METERING. SEE PLANS AND SPECIFICATIONS.
	GROUND.
	GROUND ROD 3/4" X 10' COPPERCLAD UNLESS OTHERWISE NOTED.
	GROUND WELL.
	NORMALLY OPEN PUSH BUTTON- MOMENTARY TYPE. DOTTED LINE INDICATES DEVICE MOUNTED REMOTE FROM PANEL.
	NORMALLY CLOSED PUSH BUTTON-MOMENTARY TYPE.
	LOS — LOCK-OUT-STOP PUSH BUTTON WITH LOCKING DEVICE.
	WPFR — NORMALLY OPEN INTERLOCK. LETTERS IDENTIFY RELAY COIL.
	WPFR — NORMALLY CLOSED INTERLOCK. LETTERS IDENTIFY RELAY COIL
	CONTROL RELAY. LETTERS IN CIRCLE IDENTIFY RELAY COIL

SYMBOL	DESCRIPTION
	TIME DELAY RELAY. LETTERS IN CIRCLE IDENTIFY TIME DELAY RELAY. SEE SCHEMATIC FOR OPERATING PARAMETERS. PROVIDE POWER CONNECTION AS REQUIRED.
	NCTO — NORMALLY CLOSED CONTACT TIMED TO OPEN AFTER ENERGIZATION.
	NOTC — NORMALLY OPEN CONTACT TIMED TO CLOSE AFTER ENERGIZATION.
	NCTC — NORMALLY CLOSED CONTACT, INSTANT OPEN ON ENERGIZATION. TIMED TO CLOSE AFTER DE-ENERGIZATION.
	NOTO — NORMALLY OPEN CONTACT, INSTANT CLOSE ON ENERGIZATION. TIMED TO OPEN AFTER DE-ENERGIZATION.
	TSH — TEMPERATURE SWITCH, NORMALLY CLOSED.
	TSH — TEMPERATURE SWITCH, NORMALLY OPEN.
	PSH — PRESSURE SWITCH, NORMALLY CLOSED.
	PSL — PRESSURE SWITCH, NORMALLY OPEN.
	OFF — ON-OFF SWITCH.
	INDICATING LIGHT, R-RED, G-GREEN, W-WHITE.
	CONDUCTORS-CONNECTED.
	CONDUCTORS- NOT CONNECTED.
	RTM — RUN TIME METER.
	SPACE HEATER.
	TELEPHONE OUTLET.
	MAGNETIC MOTOR STARTER, NEMA SIZE 1
	SS — SOLID STATE SOFT STARTER

LIST OF ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
A I C	AMPERES INTERRUPTING CAPACITY
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATOR
APPROX	APPROXIMATELY
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
BKR	BREAKER
BLDG	BUILDING
BP	BOOSTER PUMP
C	CONDUIT
C & I	CONTROLS & INSTRUMENTATION
CKT	CIRCUIT
CO	CONDUIT ONLY
COMB	COMBINATION
CONT	CONTROL
CPT	CONTROL POWER TRANSFORMER
DC	DIRECT CURRENT
DISCH	DISCHARGE
DN	DOWN
DWG	DRAWING
EF	EXHAUST FAN
EL	ELEVATION
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HZ	HERTZ
INSTR	INSTRUMENTATION
JP	JOCKEY PUMP
KVA	KILOVOLT AMPERES
KW	KILOWATT
KWH	KILOWATT HOUR
LCL	LEAST COMMON LOAD
LOS	LOCK-OUT STOP
LP	LIGHTING PANEL
LPU	LIVE PROTECTION UNIT
LSH	LEVEL SWITCH HIGH
LTG	LIGHTING
EM	EMERGENCY
FLA	FULL LOAD AMPERES
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FS	FLOW SWITCH
FT	FOOT I FLOW TRANSMITTER
G	GREEN
GD	GAS DETECTOR
M	MOTOR, MAGNETIC STARTER
mA	MILLIAMP
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MCS	MOLDED CASE SWITCH
MH	MANHOLE
MIN	MINIMUM
MTD	MOUNTED
NA	NOT APPLICABLE
N/C	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN, NUMBER
NTS	NOT TO SCALE
O/L	OVERLOAD
P	POLE, PHASE
PB	PULL BOX, PUSH BUTTON
PCP	PUMP CONTROL PANEL
PI	PRESSURE INDICATOR
PLC	PROGRAMABLE LOGIC CONTROLLER
PVC	POLYVINYL CHLORIDE
PRESS	PRESSURE
PSH	PRESSURE SWITCH HIGH
PT	PRESSURE TRANSDUCER
PWR	POWER
REC	RECEPTACLE
RPM	REVOLUTIONS PER MINUTE
RTM	RUNNING TIME METER
RTU	REMOTE TELEMETRY UNIT
SHLD	SHIELDED
SHT	SHEET
TS	TEMPERATURE SWITCH/TORQUE SWITCH
SIGS	SIGNALS
TDR	TIME DELAY RELAY
TYP	TYPICAL
TSP	TWISTED SHIELDED PAIR
ULT	ULTRASONIC LEVEL TRANSDUCER
V	VOLT, VOLTMETER
VFD	VERIABLE FREQUENCY DRIVE
W	WATT
W/	WITH
WP	WEATHER PROOF
XFMR	TRANSFORMER
XMTR	TRANSMITTER
XP	EXPLOSION PROOF
ZS	POSITION SWITCH (LIMIT SWITCH)

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TWO WORKING DAYS BEFORE YOU DIG

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DRAWN BY:	BG	MAR 2012
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JOHN A. LOAGUE
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R.C.E. NO.: 56814 EXP. DATE: 6/30/13

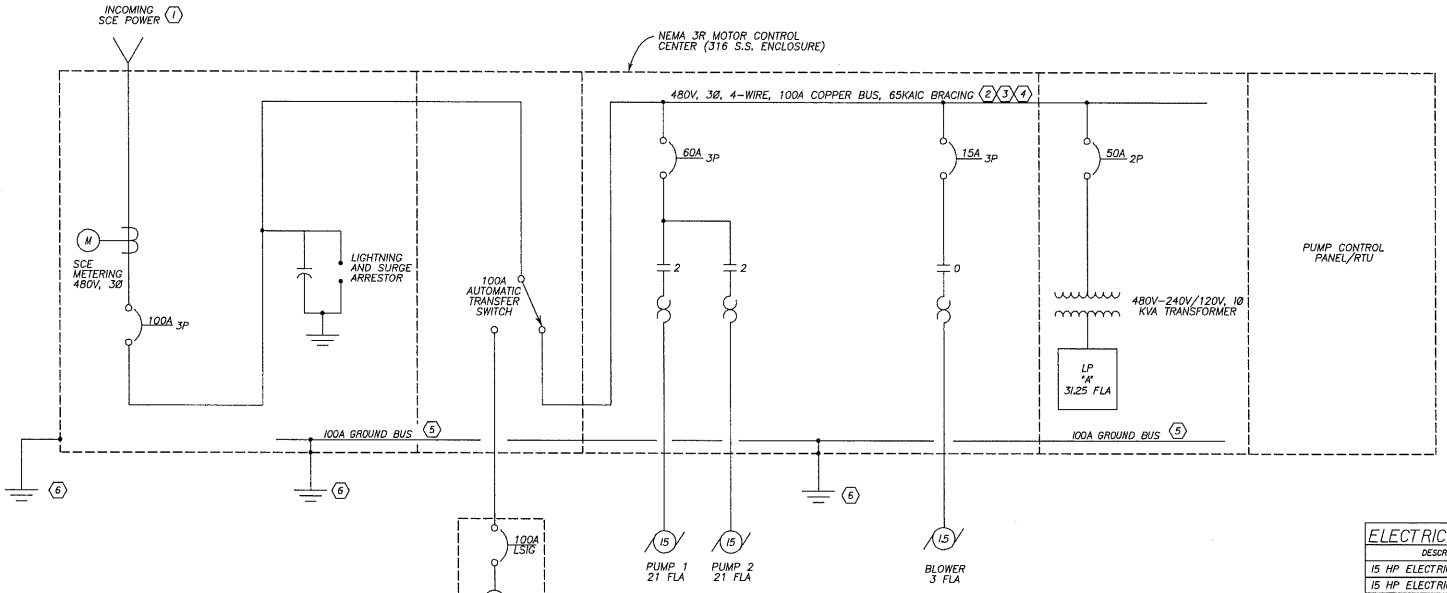
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

ELECTRICAL SYMBOLS AND ABBREVIATIONS

SHEET NO. 29 OF 37

N:\0980 Huntington Beach\1095 WACS & Lift Station CAD\E9_elec_mis.dgn 3/23/2012



SINGLE LINE DIAGRAM

NOT TO SCALE

ELECTRICAL LOAD CALCULATIONS	
DESCRIPTION	LOAD (AMPS)
15 HP ELECTRICAL MOTOR	21
15 HP ELECTRICAL MOTOR	21
1 ½ HP BLOWER	3
LP "A"	31.3
25% OF LARGEST LOAD	5.3
TOTAL LOAD	81.6

PANEL "A" SCHEDULE

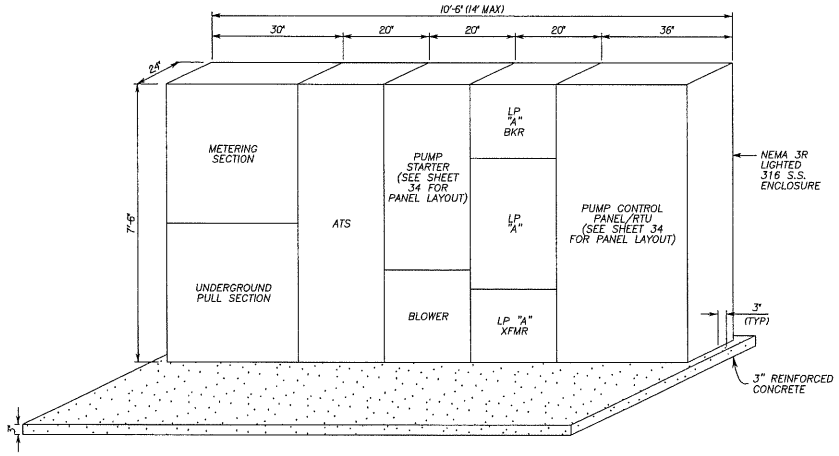
PANEL NAME LP "A" — MAIN 60A CB

240/120 VOLTS — 1 PHASE 3 WIRE — BUS 100 AMP

WATTAGE Ø A	WATTAGE Ø B	DESCRIPTION	REC	LTG	PLE	BKR	CIR	A	B	CIR	BKR	PLE	LTG	REC	DESCRIPTION	WATTAGE Ø A	WATTAGE Ø B
200		YARD LIGHT 1		1	1	15	1			2	20	1	1		YARD LIGHT 2	200	
	1200	½ HP SUMP PUMP			1	15	3			4	15	1	1		VALVE VAULT LIGHT		100
100		FLOW METER			1	15	5			6	15	1			⅓ HP BLOWER	1000	
	100	RTU CABINET			1	20	7			8	15	1			GEN BLOCK HEATER		2500
100		ULTRASONIC LEVEL CONTROLLER			1	15	9			10	15	1			GEN BATTERY CHARGER	500	
	180	MCC RECEPTACLE	1		1	15	11			12	15	1			AUTO DIALER		100
-		SPARE			1	15	13			14	15	1			SPARE	-	
	-	SPARE			1	15	15			16	15	1			SPARE		-
-		SPARE			1	15	17			18	20	1			SPARE	-	
	-	SPARE			1	15	19			20	20	1			SPARE		-
-		SPARE			1	15	21			22	15	1			SPARE	-	
	-	SPARE			1	15	23			24	15	1			SPARE		-
-		SPARE			1	15	25			26	15	1			SPARE	-	
	-	SPARE			1	15	27			28	15	1			SPARE		-
-		SPARE			1	15	29			30	15	1			SPARE	-	
400	1480	WATTS/LINE														1700	2700

TOTAL WATTS = 5,980 — AMPS = 24.9

LCL AMPS = 29.4



MOTOR CONTROL CENTER ELEVATION

NOT TO SCALE

NOTES:

1. PROVIDE SECONDARY CONDUITS WITH PULL ROPE FROM EXISTING PADMOUNTED TRANSFORMER TO SCE METER PER SCE REQUIREMENTS.
2. ALL CIRCUIT BREAKERS IN THE MAIN SWITCHBOARD AND THE MOTOR CONTROL CENTER SHALL HAVE AN INTERRUPTING RATING EQUAL TO OR GREATER THAN THE AVAILABLE FAULT CURRENT BUT SHALL NOT BE LESS THAN 30,000 AMPS RMS SYMMETRICAL VERIFY AVAILABLE FAULT CURRENT WITH SCE.
3. BREAKER TRIP SIZE SHALL BE COORDINATED WITH ACTUAL MOTOR INSTALLED.
4. INSURE ALL LOAD BREAKERS ARE COORDINATED WITH FEEDER BREAKERS. PROVIDE COORDINATION STUDY FOR REVIEW AND APPROVAL BY CITY.
5. PROVIDE 100A GROUND BUS THE FULL LENGTH OF THE ENCLOSURE AND INSTALL UFER AND GROUND RODS.
6. PROVIDE GROUNDING SYSTEM AS REQUIRED FOR GROUND RESISTANCE OF LESS THAN 5 OHMS.
7. PROVIDE CONDUIT SEALS ON ALL CONDUITS FROM WET WELL AND VALVE VAULT IN ACCORDANCE WITH THE NEC.

REGISTERED PROFESSIONAL ENGINEER — JUSTIN M. YE — No. E9379 — Exp. 12/31/12 — ELECTRICAL — STATE OF CALIFORNIA

Underground Service Alert — Call: TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

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ANTONIO OLMOS DATE

R.C.E. NO.: 56814 EXP. DATE: 6/30/13

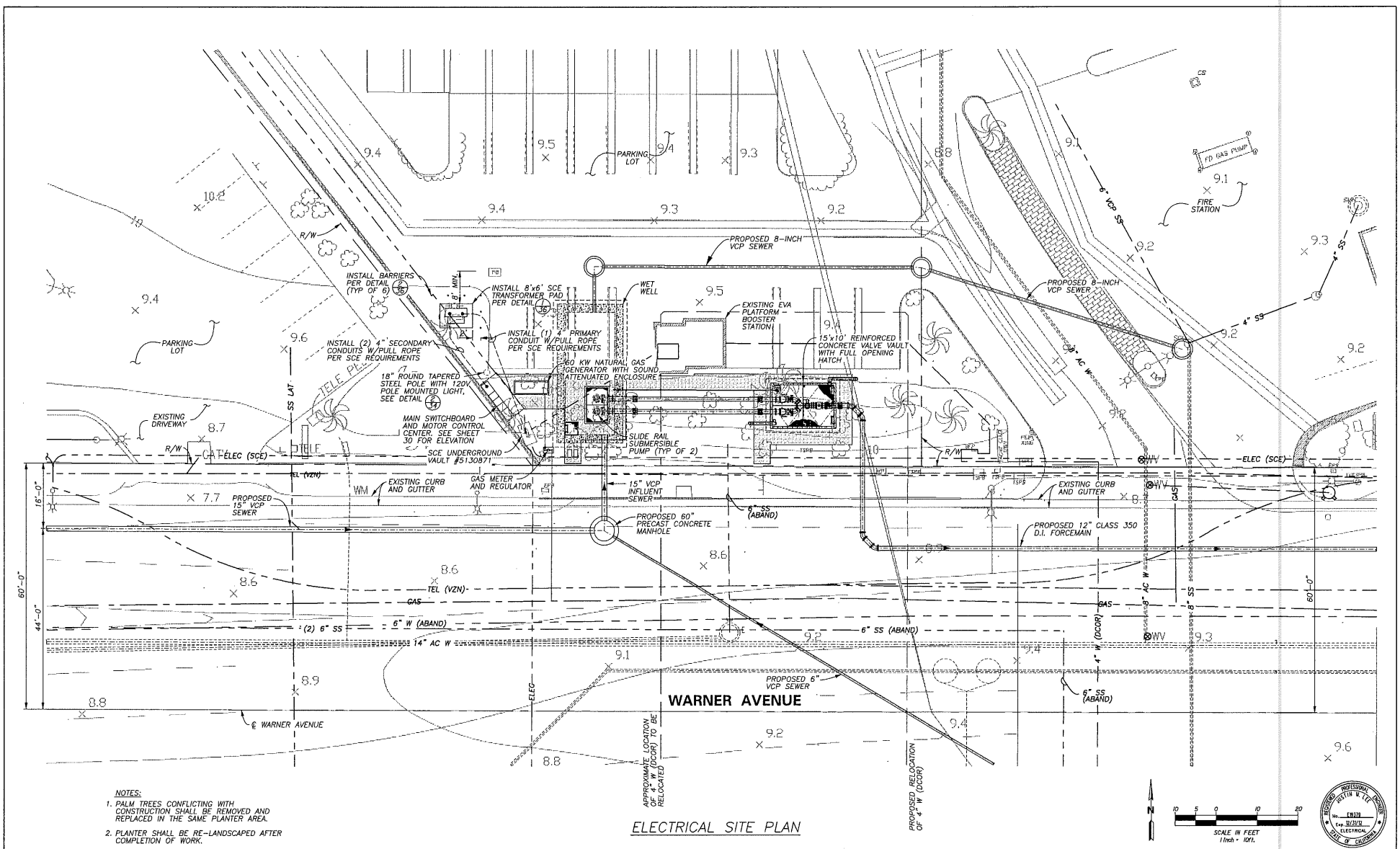
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

SINGLE LINE DIAGRAM, SWITCHBOARD AND MOTOR CONTROL CENTER ELEVATION

SHEET NO. 30 OF 37

N:\0960 Huntington Beach\1005 WACS & Lift Station C\30_engl_line.dgn 9/23/2012



ELECTRICAL SITE PLAN

NOTES:

1. PALM TREES CONFLICTING WITH CONSTRUCTION SHALL BE REMOVED AND REPLACED IN THE SAME PLANTER AREA.
2. PLANTER SHALL BE RE-LANDSCAPED AFTER COMPLETION OF WORK.

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CITY OF HUNTINGTON BEACH
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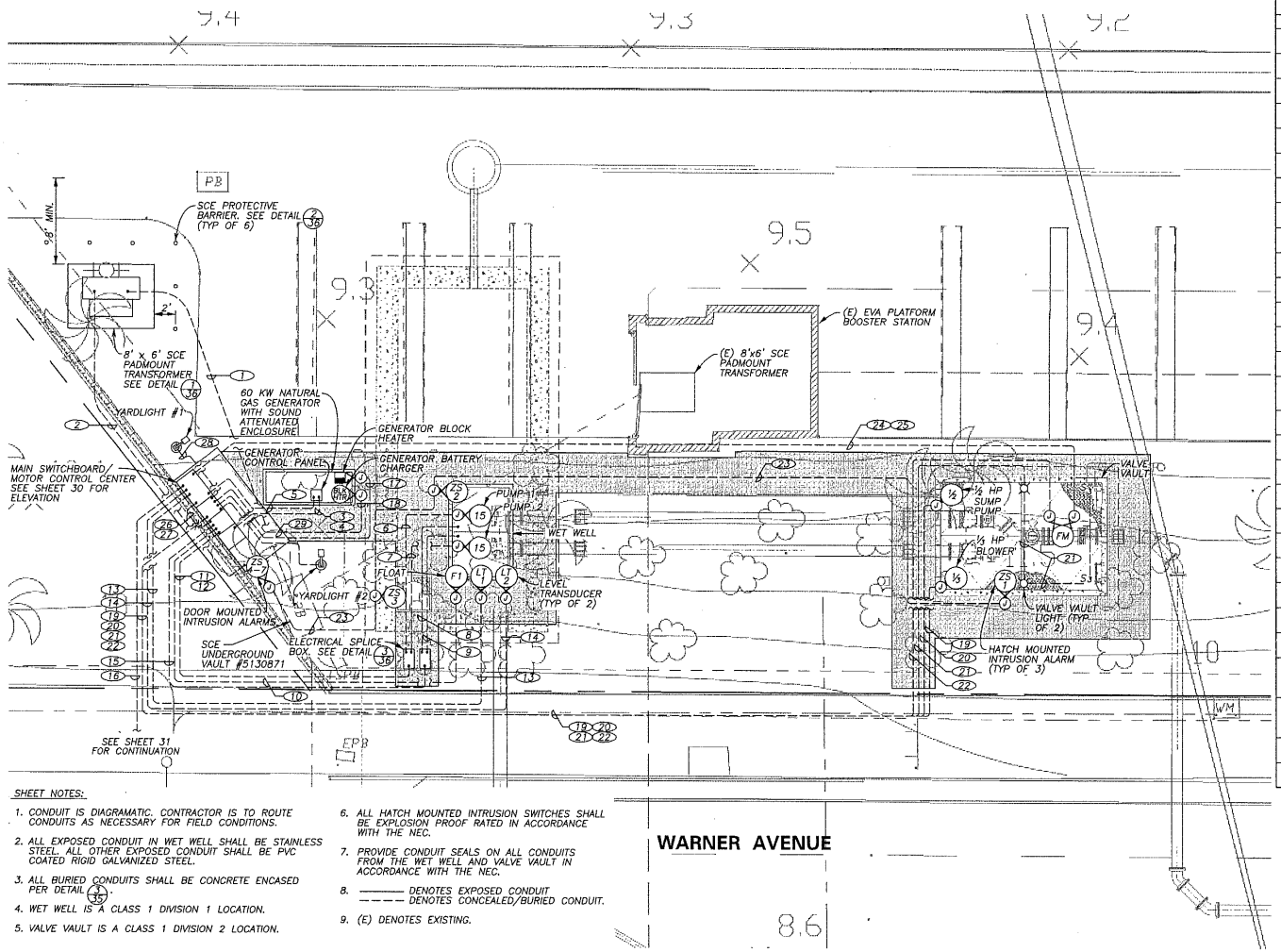
WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

ELECTRICAL SITE PLAN

SHEET NO. 31 OF 37

N:\0980 Huntington Beach\1095 WAGS & Lift Station C\31_elec_site_plan.dgn 3/23/2012



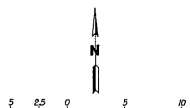
POWER PLAN

CONDUIT SCHEDULE

CONDUIT NO.	SIZE	CABLE QTY	CABLE SIZE	FROM	TO	REMARKS
1	4"	PULL ROPE		SCE UNDERGROUND VAULT	SCE TRANSFORMER	PULL ROPE ONLY, CABLE BY SCE
2	(2)4"	PULL ROPE		SCE TRANSFORMER	SCE METER	PULL ROPE ONLY, CABLE BY SCE
3	2"	4, 1	#8	GENERATOR	AUTOMATIC TRANSFER SWITCH	480V, 3Ø POWER, GROUND
4	1"	4	#12	AUTOMATIC TRANSFER SWITCH	GENERATOR	CONTROLS
5	1"	6	#12	GENERATOR	RTU	GEN RUN, GEN FAIL, GEN LOW BATTERY
6	2"	CABLE SUPPLIED WITH PUMP MOTOR		ELECTRICAL SPLICE BOX	PUMP 1	POWER CABLE (VERIFY LENGTH)
7	2"	CABLE SUPPLIED WITH PUMP MOTOR		ELECTRICAL SPLICE BOX	PUMP 2	POWER CABLE (VERIFY LENGTH)
8	1¼"	CABLE SUPPLIED WITH PUMP MOTOR		PUMP 1	ELECTRICAL SPLICE BOX	SEAL FAIL AND MOTOR TEMPERATURE SIGNAL
9	1¼"	CABLE SUPPLIED WITH PUMP MOTOR		PUMP 2	ELECTRICAL SPLICE BOX	SEAL FAIL AND MOTOR TEMPERATURE SIGNAL
10	1¼"	CABLE PROVIDED WITH FLOAT		FLOAT 1	PUMP STARTER CABINET	PUMP CALL
11	1¼"	3, 1	#8, #10	PUMP STARTER CABINET	ELECTRICAL SPLICE BOX	480V, 3Ø POWER, GROUND
12	1¼"	3, 1	#8, #10	PUMP STARTER CABINET	ELECTRICAL SPLICE BOX	480V, 3Ø POWER, GROUND
13	1¼"	CABLE PROVIDED WITH TRANSFORMER		ULTRASONIC LEVEL TRANSDUCER 1	RTU	4-20mA WET WELL LEVEL
14	1¼"	CABLE PROVIDED WITH TRANSDUCER		SUBMERSIBLE LEVEL TRANSDUCER 2	RTU	4-20mA WET WELL LEVEL
15	1"	8	#12	ELECTRICAL SPLICE BOX	RTU	PUMP 1 SEAL FAIL, HIGH MOTOR TEMP; PUMP 2 SEAL FAIL, HIGH MOTOR TEMP
16	2"	PULL ROPE		TELEPHONE PICKUP POINT	RTU	TELEPHONE SERVICE
17	1"	2, 1	#10, #12	LP "A" – CKT 8	GENERATOR BLOCK HEATER	240V, 1Ø POWER, GROUND
18	1"	2, 1	#12, #12	LP "A" – CKT 10	GENERATOR BATTERY CHARGER	120V, 1Ø POWER, GROUND
19	1"	2, 1	#12, #12	LP "A" – CKT 6	⅓ HP BLOWER	120V, 1Ø POWER, GROUND
20	1"	2, 1	#12, #12	LP "A" – CKT 3	½ HP SUMP PUMP	120V, 1Ø POWER, GROUND
21	1"	2, 1	#12, #12	LP "A" – CKT 4	VALVE VAULT LIGHTS	120V, 1Ø POWER, GROUND
22	1"	2, 1	#12, #12	LP "A" – CKT 5	FLOWMETER	120V, 1Ø POWER, GROUND
23	1"	2	#12	DOOR MOUNTED INTRUSION ALARM	RTU	INTRUSION ALARM
24	1"	1	#16 TSP	FLOWMETER	RTU	4-20mA WET WELL LEVEL
25	1"	2	#12	FLOWMETER	RTU	TOTALIZED FLOW
26	1½"	14	#12	PUMP STARTER CABINET	RTU	DIGITAL SIGNAL (SSMC 1 HAND, SSMC 2 AUTO, SSMC 1 RUN, SSMC 1 FAIL, SSMC 1 POWER FAIL, SSMC 1 HIGH MOTOR TEMP, SSMC 1 CALL)
27	1½"	14	#12	PUMP STARTER CABINET	RTU	DIGITAL SIGNAL (SSMC 1 HAND, SSMC 2 AUTO, SSMC 1 RUN, SSMC 1 FAIL, SSMC 1 POWER FAIL, SSMC 1 HIGH MOTOR TEMP, SSMC 1 CALL)
28	1"	2, 1	#12	LP "A" – CKT 1	YARDLIGHT #1	120V, 1Ø POWER, GROUND
29	1"	2, 1	#12	LP "A" – CKT 2	YARDLIGHT #2	120V, 1Ø POWER, GROUND

SHEET NOTES:

1. CONDUIT IS DIAGRAMATIC. CONTRACTOR IS TO ROUTE CONDUITS AS NECESSARY FOR FIELD CONDITIONS.
2. ALL EXPOSED CONDUIT IN WET WELL SHALL BE STAINLESS STEEL. ALL OTHER EXPOSED CONDUIT SHALL BE PVC COATED RIGID GALVANIZED STEEL.
3. ALL BURIED CONDUITS SHALL BE CONCRETE ENCASED PER DETAIL 1/35.
4. WET WELL IS A CLASS 1 DIVISION 1 LOCATION.
5. VALVE VAULT IS A CLASS 1 DIVISION 2 LOCATION.
6. ALL HATCH MOUNTED INTRUSION SWITCHES SHALL BE EXPLOSION PROOF RATED IN ACCORDANCE WITH THE NEC.
7. PROVIDE CONDUIT SEALS ON ALL CONDUITS FROM THE WET WELL AND VALVE VAULT IN ACCORDANCE WITH THE NEC.
8. ——— DENOTES EXPOSED CONDUIT
   – – – – DENOTES CONCEALED/BURIED CONDUIT.
9. (E) DENOTES EXISTING.



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STREET DESIGN		
MAINTENANCE		
RIGHT-OF-WAY		
P.T. & L.		
CONSTRUCTION		
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DESIGNED BY:	J. LEE	MAR 2012
CHECKED BY:	J. LOAGUE	MAR 2012

PREPARED UNDER THE SUPERVISION OF:
JOHN A. LOAGUE
R.C.E. NO.: 50282 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 55814 EXP. DATE: 6/30/13

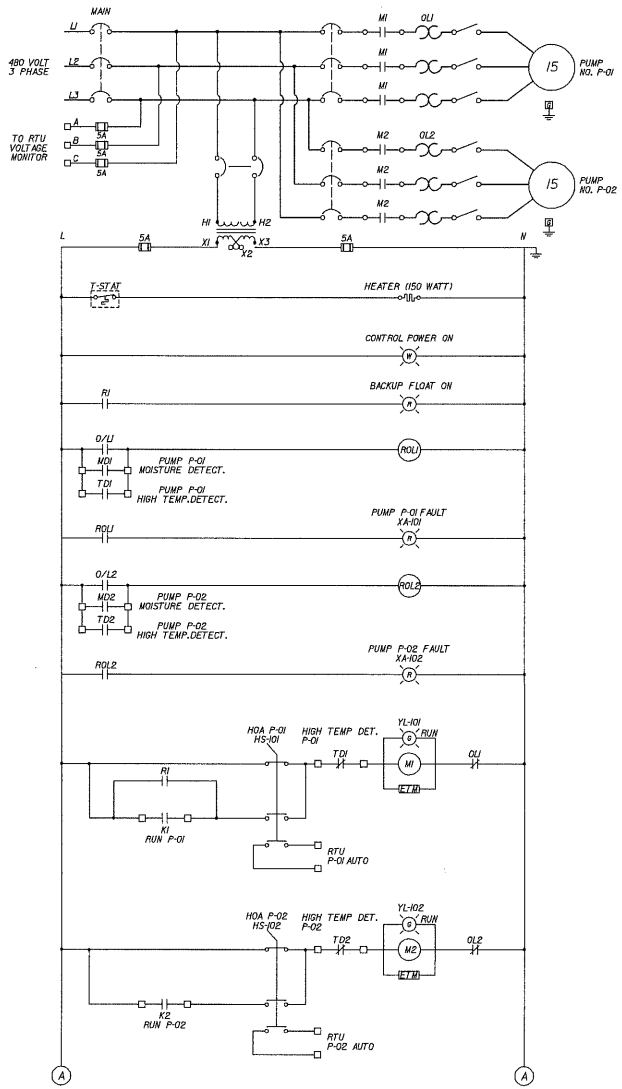
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

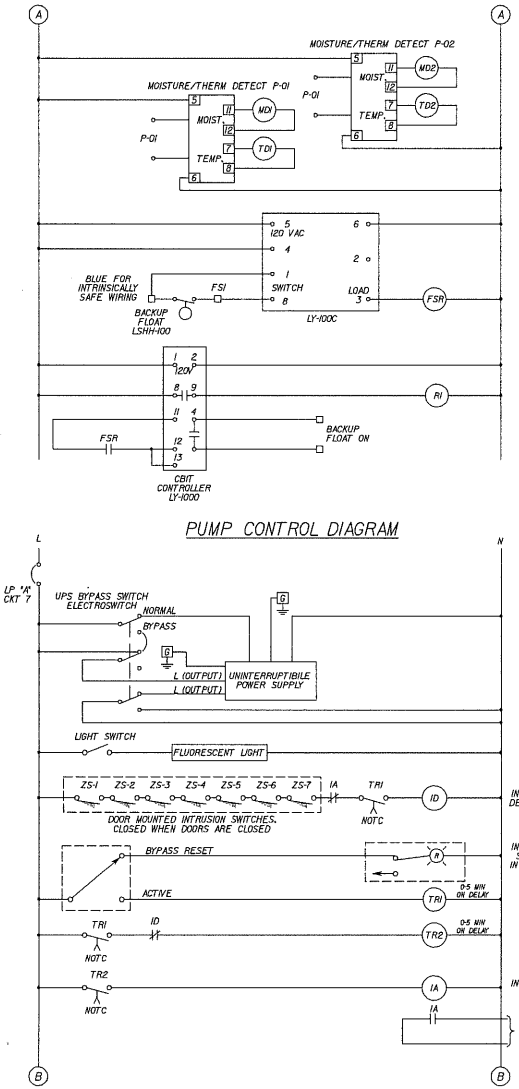
WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

POWER PLAN

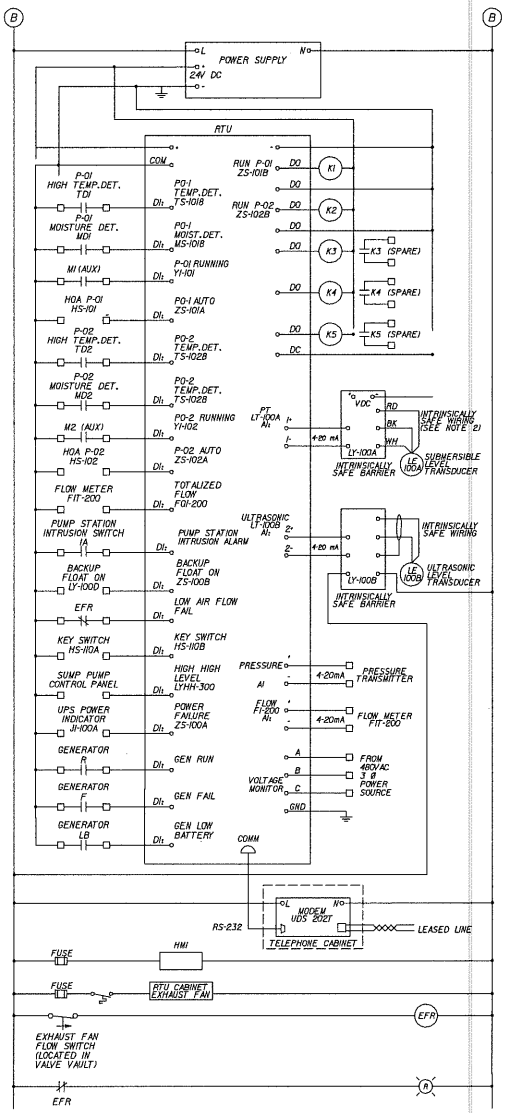
SHEET NO. 32 OF 37

N:\0080 Huntington Beach\1095 WAGS & Lift Station CADE_pr_power_pln.dgn 3/23/2012





PUMP CONTROL DIAGRAM



RTU CABINET CONTROL SCHEMATIC

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R.C.E. NO.: 56814 EXP. DATE: 6/30/13

CITY OF HUNTINGTON BEACH
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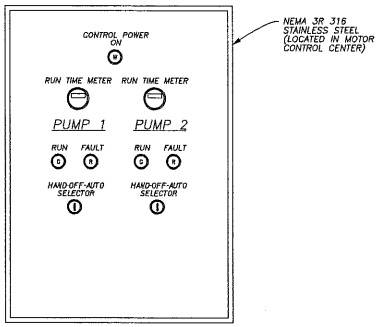
WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

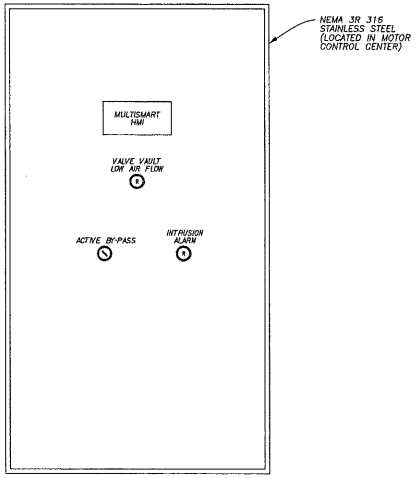
PUMP CONTROL DIAGRAM

SHEET NO. 33 OF 37

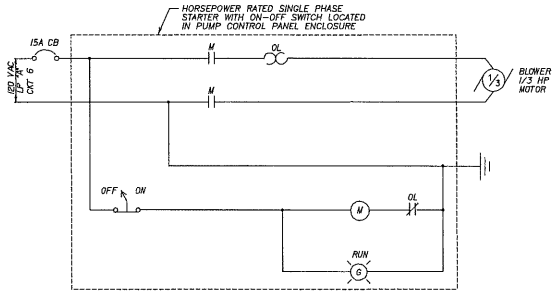
N:\0960 Huntington Beach\1095 WACS & Lift Station C\33_cntrl_diag.dgn 3/23/2012



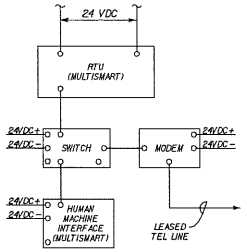
PUMP CONTROL PANEL LAYOUT (1)
NOT TO SCALE



RTU CABINET LAYOUT (2)
NOT TO SCALE



BLOWER CONTROL DIAGRAM (3)
NOT TO SCALE



RTU CONNECTION DIAGRAM (4)

REGISTERED PROFESSIONAL ENGINEER JUSTIN M. LEE No. E8376 Exp. 12/31/13 ELECTRICAL STATE OF CALIFORNIA

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ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

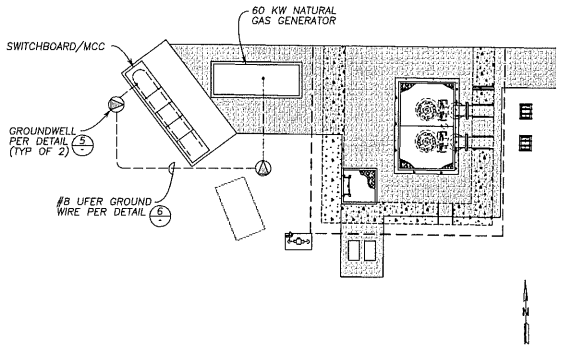
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

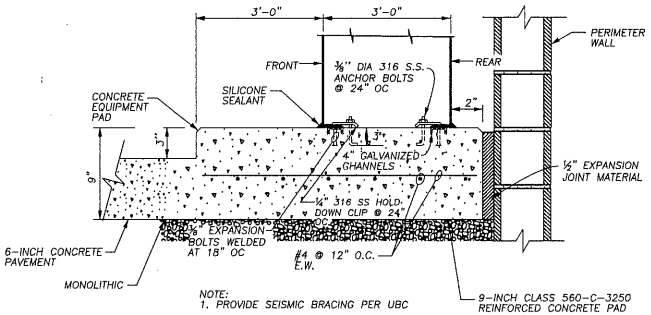
CONTROL PANEL LAYOUTS, BLOWER CONTROL AND RTU CONNECTION DIAGRAMS

SHEET NO. 34 OF 37

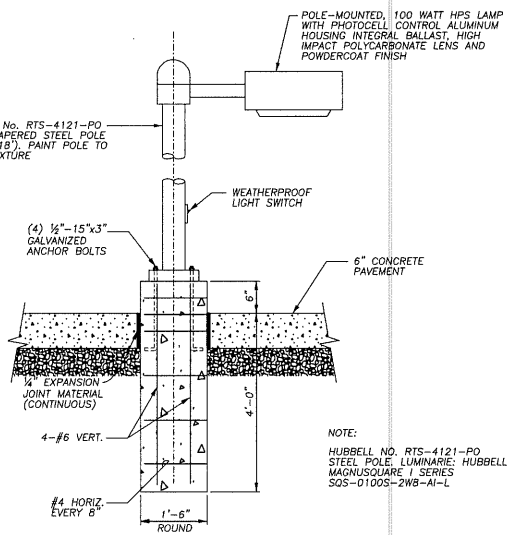
N:\0980 Huntington Beach\1985 WAGS & Lift Station C\34_cntrl_layout.dgn 3/23/2012



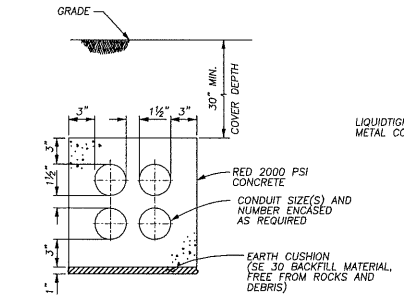
ELECTRICAL GROUND SYSTEM PLAN
SCALE = ⅛" = 1'-0"



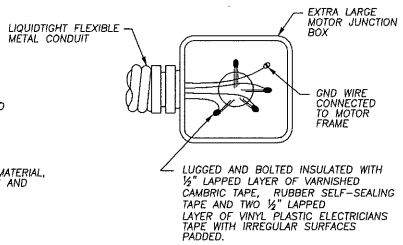
SWITCHBOARD/MCC MOUNTING DETAIL 1
NOT TO SCALE



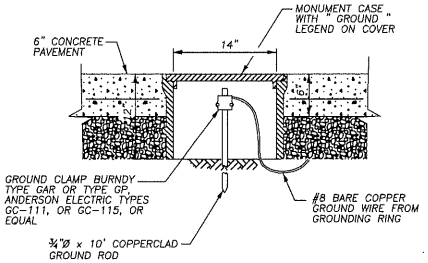
YARD LIGHT DETAIL 2
NOT TO SCALE



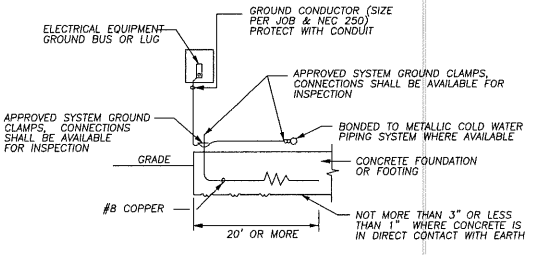
ENCASED CONDUIT DETAIL 3
NOT TO SCALE



MAKEUP AT MOTOR DETAIL 4 TYP
NOT TO SCALE



GROUND ROD AND WELL DETAIL 5
NOT TO SCALE



CONCRETE ENCASED (UFER) GROUND DETAIL 6 TYP
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER — AUSTIN W. LEE — No. (8)19 — Exp. 9/31/12 — ELECTRICAL — STATE OF CALIFORNIA

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R.C.E. NO.: 50292 DATE:
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ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

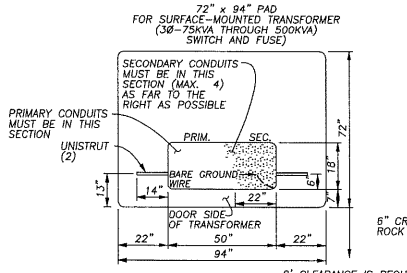
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

ELECTRICAL GROUND SYSTEM AND ELECTRICAL DETAILS

SHEET NO. 35 OF 37

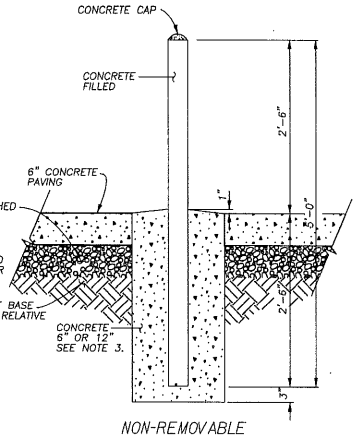
N:\0950 Huntington Beach\1095 WACS & Lift Station C\35_grnd_plan.dgn 3/23/2012



NOTE:
SIDE OF BACK PAD TO BE MINIMUM 3' FROM ADJACENT BUILDING SURFACE, MAY BE 2' IF BUILDING SURFACE IS NONCOMBUSTIBLE.

* GROUNDING MATERIALS FURNISHED AND INSTALLED BY CONTRACTOR.

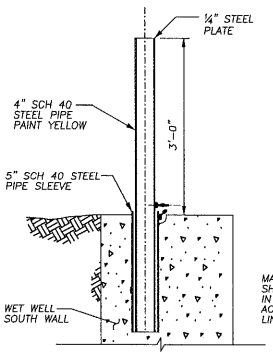
8'x6' PADMOUNT DETAIL (1)
NOT TO SCALE



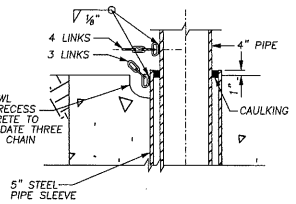
NON-REMOVABLE BARRIER POST DETAIL

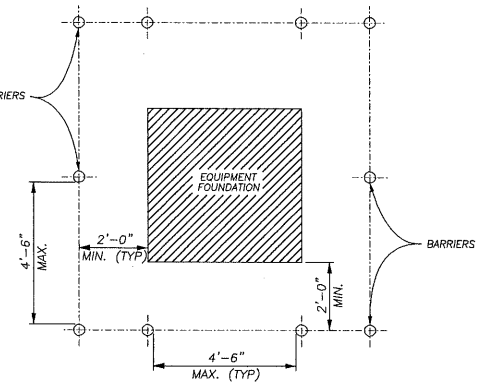
BARRIER TO BE ONE OF THE FOLLOWING:

1. 4" MIN. SCH 40 STEEL PIPE (¼" MIN WALL) FILLED WITH CONCRETE.
2. SPECIAL BARRIERS BY PRIOR SCE APPROVAL.
3. EQUIPMENT FOUNDATION PLAN REFLECTS TYPICAL DISTANCES FOR PROTECTION BARRIER LOCATION FOR STANDARD SCE EQUIPMENT.
4. PAINT YELLOW.



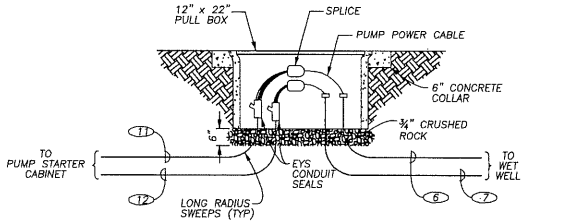
REMOVABLE POST DETAIL





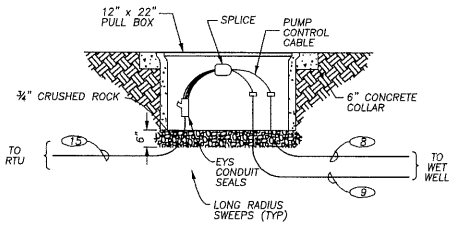
EQUIPMENT FOUNDATION PLAN

PROTECTION BARRIERS FOR UNDERGROUND DISTRIBUTION STRUCTURES (2)
NOT TO SCALE



(6)(7) 2" C, (POWER CABLE)
(11)(12) 2" C (3 - #8, 1 - #10 GND)

PUMP POWER CABLES



(8)(9) 2" C, (SEAL FAIL, MOTOR TEMP CONTROL CABLE)
(15) 1¼" C, (8 - #12) (CONTROLS)

PUMP CONTROL CABLES

PUMP POWER/CONTROL CABLES WET WELL SPLICE BOX (3/31)
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER JUSTIN M. LE No. E9379 Exp. 12/31/12 ELECTRICAL STATE OF CALIFORNIA

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R.C.E. NO.: 56814 EXP. DATE: 6/30/13

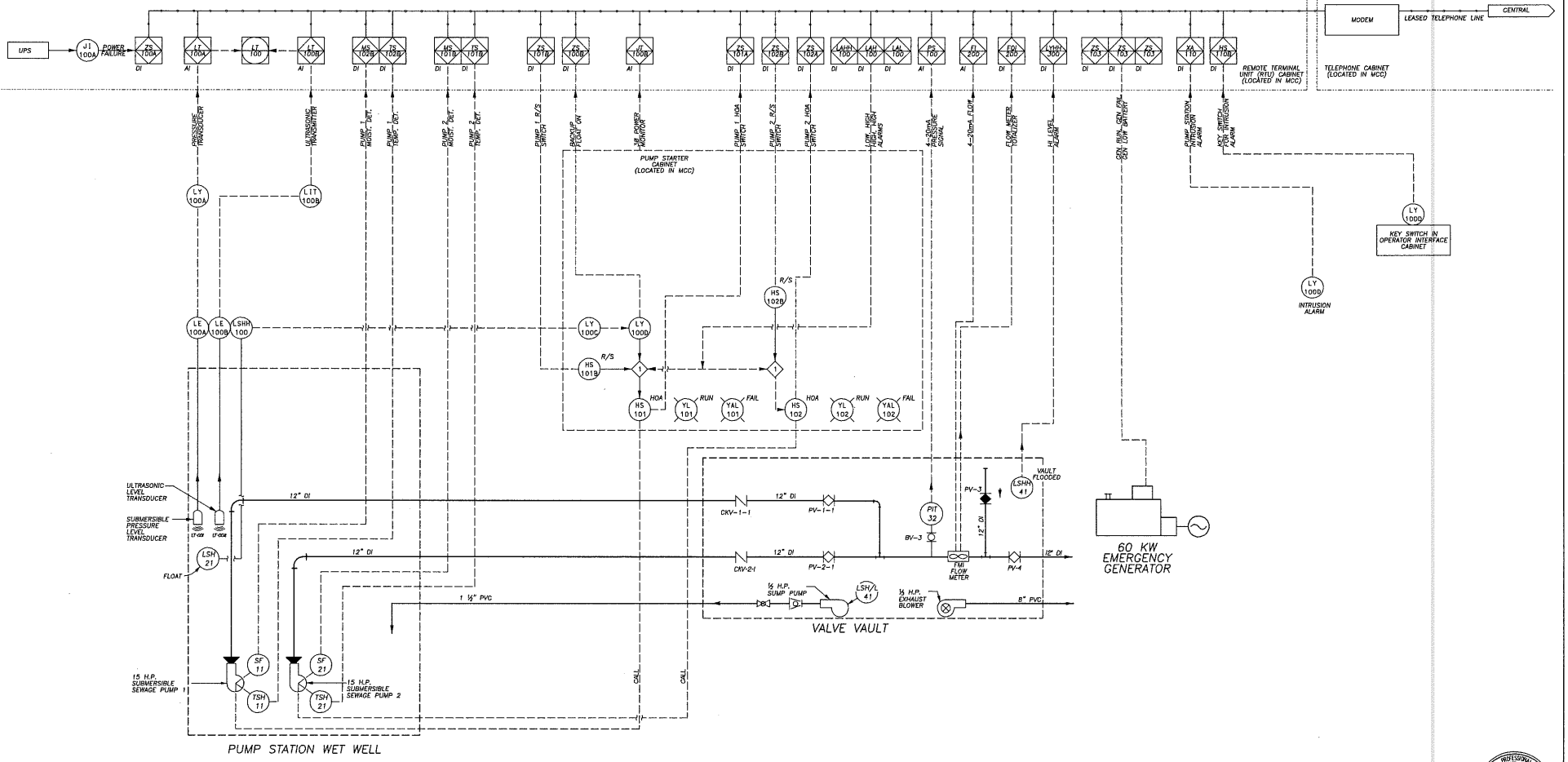
CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

SCE DETAILS

SHEET NO. 36 OF 37

N:\8960 Huntington Beach\1095 WACS & Lift Station C\36_sce_dtls.dgn 3/23/2012



REGISTERED PROFESSIONAL ENGINEER JUSTIN W. LEE No. E19279 Exp. 12/31/12 ELECTRICAL STATE OF CALIFORNIA

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JOHN A. LOAGUE
R.C.E. NO.: 50292 DATE:
APPROVED BY:
ANTONIO OLMOS DATE
R.C.E. NO.: 56814 EXP. DATE: 6/30/13

CITY OF HUNTINGTON BEACH
DEPARTMENT OF PUBLIC WORKS

WARNER AVENUE GRAVITY SEWER IMPROVEMENT PROJECT

PROCESS AND INSTRUMENTATION DIAGRAM

SHEET NO. 37 OF 37

N:\0980 Huntington Beach\1095 WAGS & Lift Station C\37_pnid_sht.dgn 3/23/2012

Attachment No. 3
Summary of Mitigation Measures

Description of Impact	Mitigation Measure
Impacts related to potential seismic ground shaking.	**G-1** Prior to the approval of project plans and specifications, the City shall confirm that the recommendations included in the Geotechnical Report for Sewer Lift Station Replacement Project, Warner Avenue Gravity Sewer Lift Station C Warner Avenue at Pacific Coast Highway, Huntington Beach, California (AESCO, January 23, 2012) have been incorporated into the project during final design.
Impacts related to potentially contaminated soils and groundwater.	**HM-1** Prior to construction of the proposed project, the contractor shall prepare and submit to the City for review, a site-specific Health and Safety Plan to address the handling of impacted groundwater and soil encountered during project construction. The Health and Safety Plan shall include at a minimum: • List of key personnel and description of responsibilities; • The use of appropriately 40-hour HAZWOPER trained operators and workers; • Notification of sub-contractors of the requirements set forth herein; • Hazard evaluation including physical and chemical hazards for all activities anticipated to be conducted in the vicinity of the intersection of Warner Avenue and Pacific Coast Highway; • Site control program including work zone, decontamination procedures and standard operating procedures; • Description of personal protective equipment (PPE); • Emergency response plan; • Applicable action levels; and • Job task safety analysis. Breathing zone photo-ionization detector (PID) readings shall be taken and readings shall be recorded in a field log. Based on previous investigations, Level D will be the required PPE worn by all field personnel within the exclusion zone. Any emergencies encountered during the field investigation will be addressed and documented accordingly.

Description of Impact	Mitigation Measure
Impacts related to potentially contaminated soils and groundwater.	**HM-2** Extraction and treatment of groundwater during project construction activities shall be performed in accordance with the recommendations of the Geotechnical Report, specifically: Under the general permit from the SARWQCB, MTBE is listed as a constituent of concern to be monitored with discharge limits not to exceed a 26.1 ug/l maximum daily limit, and a 13 ug/l monthly average limit. If other containments are detected, the discharge limits will be adjusted accordingly. Should De Minimus permit groundwater sampling activities indicate a sustained level of MTBE above the 13 ug/l monitoring limit, discharge activities will need to be reevaluated and may need to cease under the direction of the Executive Director and an alternative permitting and discharge structure pursued. In addition to monitoring, the General NPDES permit allows for on-site treatment of extracted groundwater to meet discharge limits. Typically, MTBE impacted groundwater is treated with granular activated carbon (GAC), biologically enhanced GAC, air stripping, chemical oxidation, and/or any combination of the aforementioned technologies, depending on levels of MTBE and extracted volume and flow rates. Alternatively, groundwater may be containerized pending sampling and disposal, if necessary. All containers shall be properly sealed to prevent leaks. Emergency response and cleanup equipment shall be available in the event of a release from the primary containment unit. If off-site transportation of water is conducted, manifests shall be completed and shall accompany each shipment that leaves the site. The General NPDES Permit allows for flexibility in discharge structure and monitoring frequency. Should any of the monitoring events for a specific constituent show effluent concentrations above the effluent limit, the frequency of monitoring for that constituent shall be increased to weekly or daily as directed by the Executive Officer.
Impacts related to potentially contaminated soils and groundwater.	**HM-3** Excavation and treatment of potentially impacted soil during project construction activities shall be performed in accordance with the recommendations of the Geotechnical Report, specifically: Excavated soil shall be monitored (screened in the field using a handheld device such as a PID, and sampled for analysis by a laboratory) to determine the presence of fuel hydrocarbons and fuel oxygenates. Soils that are potentially impacted with fuel hydrocarbons or fuel oxygenates shall be containerized

Description of Impact	Mitigation Measure	
		pending characterization. Optionally, soil sampling and laboratory analysis may be conducted in the area of excavation prior to excavation as a preemptive measure to pre-profile the soil. However, this option should not be taken as a replacement for monitoring and sampling during excavation activities. An operation plan shall be prepared and shall include a description of soil characterization, handling, storage, and disposition procedures. The Contractor shall be responsible for loading and transporting to a treatment or disposal facility that is acceptable to the City, including the decontamination of all trucks and equipment prior to leaving the site. The Contractor shall maintain all roads traveled free from all soil and debris. Waste disposal manifests shall be completed by the Contractor and shall accompany each shipment of soil that leaves the site. All loads shall be covered to prevent dust and spill loss during transport. The Contractor shall provide a summary report of the soil disposition including copies of manifests, scale tickets, and treatment or disposal certificates. The Contractor shall conduct waste transportation operations in accordance with Federal and State Department of Transportation requirements. This includes, but is not limited to, covering loads and adhering to weight limits.
Impacts related to flow of traffic.	**T-1**	Prior to construction of the proposed project, the contractor shall provide a traffic control plan that provides safe detours around construction activity and provide temporary traffic control (i.e., flag person) during concrete transport and other construction-related truck hauling activities.
Impacts related to special status plants.	**B-1**	Prior to the start of construction, pre-construction surveys for Coulter's saltbush, Davidson's saltscale, southern tarplant, salt marsh bird's-beak, Coulter's goldfields, Leopold's rush, estuary seablite, and woolly seablite shall be conducted. If any of these plants are found near the construction limits, a buffer shall be established by a qualified biologist around these plants to avoid any impacts. Construction personnel will be notified to avoid the area and a qualified biologist will monitor the area.

Description of Impact	Mitigation Measure	
Impacts related to special status plants.	**B-2**	Prior to the start of construction, the City shall ensure that a qualified biologist implement a transplantation and salvage plan (i.e., plant/seed material) for the woolly seablite, estuary seablite, and Leopold's rush, which have been observed within areas of potential disturbance. Transplantation of these plants shall occur at the Bolsa Chica Wetlands in coordination with Bolsa Chica Conservancy staff, and the additional propagation of salvaged material shall be performed to ensure each plant's survival. Individual planting of these species may also be required should transplantation or propagation be unsuccessful.
Impacts related to special status wildlife and nesting birds subject to the Migratory Bird Treaty Act.	**B-3**	Should construction activities be required during the bird breeding season (i.e., February 15 to July 31), a focused survey for Belding's Savannah Sparrow (BSS) shall be conducted no more than one week prior to construction activity within 200 feet of southern coastal salt marsh habitat. If no presence of BSS is observed within 200 feet of proposed construction activities, work may commence. Should this construction activity (within 200 feet of southern coastal salt marsh habitat) cease for a period of one week or longer, an additional focused survey for BSS shall be conducted prior to recommencement of construction. If surveys determine that BSS are present within 200 feet of proposed construction activity, consultation with CDFG shall be initiated prior to any construction activity. Additionally, should removal of the five palm trees be required between February 15 and July 31, pre-construction nesting surveys shall be conducted to determine the presence of any nesting bird species. These surveys should occur no more than 72 hours prior to tree removal. If no nests are observed, tree removal may commence. However, if an active nest is located, the site will be marked and avoided. Once the young from active nests have fledged, tree removal may commence. Surveys shall be conducted by a qualified biologist and a memorandum of the findings shall be submitted to the City.
Impacts related to light and glare.	**A-1**	Prior to the approval of project plans and specifications, the City shall confirm that the project specifications ensure that all lighting associated with the proposed project would be shielded or focused downward to comply with City requirements..
Impacts related to archaeological resources.	**C-1**	The construction contractor shall use archaeological and Native American monitoring during all ground disturbing activities, including, but not limited to, trenching, boring, and grading.

Description of Impact	Mitigation Measure
	C-2 Archaeological monitoring shall include inspection of soils to determine if cultural materials are present. Archaeological monitors shall follow earth-moving equipment and examine excavated sediments and excavation sidewalls for evidence of archaeological resources. The archaeological monitor shall have the authority to re-direct construction equipment in the event potential archaeological resources are encountered. In the event archaeological resources are encountered, work in the vicinity of the discovery shall halt until appropriate treatment of the resource is determined by a qualified archaeologist in accordance with the provisions of CEQA Section 15064.5. **C-3** In the laboratory, all artifacts shall be, identified, inventoried, and a determination of significance made. All cultural resource material shall then be transferred to an approved archaeological repository accompanied by a copy of the final monitoring report and all data in hard and electronic copy. The cost of curation, maintenance, and permanent storage of archaeological materials is assessed by the repository. **C-4** A final monitoring report shall be prepared that will include, but not be limited to, a discussion of the results of the monitoring, an evaluation and analysis of the materials collected, an itemized catalog of artifacts collected, an appendix of curation agreements and other appropriate communications, and a discussion of the project-specific monitoring plan. This report shall be filed with the South Central Coastal Information Center, California State Fullerton upon completion of monitoring and analysis of materials recovered (if any).
Impacts related to paleontological resources.	**C-5** The construction contractor shall use paleontological monitoring during all ground disturbing activities occurring at a depth of below 5 feet from the road or ground surface. Monitoring shall be conducted during all ground disturbing activities including, but not limited to, trenching, boring, and grading below 5 feet in depth. **C-6** Paleontological monitoring shall include inspection of exposed rock units and microscopic examination of matrix to determine if fossils are present. Paleontological monitors shall follow earth-moving equipment and examine excavated sediments and excavation sidewalls for evidence of significant paleontological resources. The monitor shall have the authority to re-direct construction equipment in the event potential paleontological resources are encountered. In the event fossil remains are encountered, work in the vicinity of the discovery

Description of Impact	Mitigation Measure
	shall halt until appropriate treatment of the resource is determined by a qualified paleontologist in accordance with the provisions of CEQA Section 15064.5. All efforts to avoid delays to project schedules shall be made. **C-7** In the laboratory, all fossils shall be prepared, identified, inventoried, and a determination of significance made. Specimen preparation and stabilization methods would be recorded for use by the paleontological repository. All fossil specimens shall then be transferred to a public museum or other approved paleontological repository accompanied by a copy of the final paleontological monitoring report and all data in hard and electronic copy. The cost of curation, maintenance, and permanent storage of fossil specimens is generally assessed by the repository. **C-8** The final paleontological monitoring report shall be prepared that will include, but not be limited to, "a discussion of the results of the monitoring, an evaluation and analysis of the fossils collected (including an assessment of their significance, age, and geologic context), an itemized inventory of fossils collected, a confidential appendix of locality and specimen data with locality maps and photographs, an appendix of curation agreements and other appropriate communications, and a discussion of the project-specific paleontological monitoring plan.
Impacts related to discovery of human remains.	**C-9** In the event human remains are encountered during construction activities, all excavation or disturbance in the area within the vicinity of the remains shall halt in accordance with Health and Safety Code §7050.5, Public Resources Code §5097.98 and 5097.94, and §15064.5 of the CEQA Guidelines and the Orange County Coroner shall be contacted. Within 24 hours of notification, the coroner will call the Native American Heritage Commission (NAHC) if the remains are thought to be Native American. If the remains are deemed Native American in origin, the NAHC immediately designates a person or persons it believes to be the most likely descended from the deceased (Most Likely Descendent) pursuant to Public Resources Code §5097.98 and CCR §15064.5. The Most Likely Descendent will then recommend means for treating and disposing with appropriate dignity the human remains and associated items.

ATTACHMENT 4 – PROJECT NARRATIVE

PROJECT LOCATION:

The project site is located along segments of Warner Avenue and Pacific Coast Highway in the City of Huntington Beach (refer to Attachment 1A, Site Vicinity, and Attachment 1B, Site Aerial). Specifically, the project site includes improvements within and immediately adjacent to Warner Avenue, between North Pacific Avenue and Edgewater Lane, and within and immediately adjacent to a 600-foot segment of northbound Pacific Coast Highway (PCH), north of Warner Avenue. Within the Warner Avenue segment, Warner Avenue is bridged approximately 100 feet over a channel connecting Huntington Harbour with Upper Bolsa Bay.

PROJECT PROPONENT:	City of Huntington Beach, Department of Public Works 2000 Main Street Huntington Beach, CA 92648
Contact Person:	Andrew Ferrigno, P.E.
Phone:	(714) 536-5291

GENERAL PLAN DESIGNATION:

The project site is located within the following general plan designations: ROW (Right-of-Way); P (OS-CR) (Public – Open Space – Commercial Recreation); CV-F1 (Commercial Visitor – 0.35 FAR); RMH-25 (Residential Medium High Density – 25 units per acre); Recently Annexed Area, Land Use Not Certified and unincorporated Bolsa Chica Wetlands (County of Orange) area.

ZONING:

The project site is located within the following zoning designations: ROW (Right-of-Way); PS (Public Semi-Public); CG (General Commercial); RMH (Residential Medium High Density); Recently Annexed Area, Land Use Not Certified; and unincorporated Bolsa Chica Wetlands (County of Orange) area.

PROJECT DESCRIPTION

In 2006 the City of Huntington Beach (City) began construction of the Warner Avenue Gravity Sewer Project. The purpose of that project was to upgrade existing gravity sewers in Pacific Coast Highway (PCH) and Warner Avenue, and to eliminate existing Lift Stations #B and #C and an existing Sunset Beach Sanitary District Lift Station. Also included in the project was the upgrade of Lift Station #D, located on Warner Avenue near Los Patos Avenue. Unfortunately, due to issues related to construction, only the upgrade of Lift Station #D was completed. Most of the reaches of sewer that were installed were found to have floated, creating numerous sags in the pipe, rendering most of the installation unusable.

The project has been redesigned and the new Warner Avenue Sewer Lift Station Project (proposed project) consists of the following elements: elimination of existing Lift Stations #B and #C, former Lift Station #D, and existing Sunset Beach Sanitary District Lift Station; construction of new gravity sewers from the existing Sunset Beach Sanitary District Lift Station and existing Lift Stations #B and #C to a new Lift Station #C; a new 12-inch forcemain from new Lift Station #C across the Warner Avenue Bridge to Weatherly Lane; and a new 15-inch gravity sewer from the new 12-inch forcemain terminus near Weatherly Lane to Edgewater Avenue, connecting to an existing 18-inch sewer which was salvaged from the 2006 improvement project (refer to Attachment 2, Proposed Project). The proposed project has been designed to serve existing demand with no net increase in overall sewer capacity. As such, the new sewer facilities will replace existing facilities only. The proposed location for the new Lift Station #C is in the planter area in front of the City-owned yacht club parking lot, on the north side of Warner Avenue, west of the Warner Avenue Fire Station. Note that although former Lift Station #D will be eliminated, existing Lift Station #D will be retained. Additional details of these proposed project elements are provided below. It should also be noted that Warner Avenue Bridge will be undergoing structural rehabilitation as part of the City's Huntington Beach Bridge Rehabilitation at Warner Avenue Project. Improvements associated with the proposed project will be constructed in coordination with this separate bridge rehabilitation project. The two projects may have coinciding construction schedules but will be subject to separate environmental and Coastal Commission review and approvals.

New Lift Station #C

The submersible Lift Station #C will incorporate a 12-foot by 30-foot by 22-foot deep wet well, two submersible pumps capable of pumping peak wet weather influent flow (i.e., 1,200 gallons per minute) installed in the wet well, a 15-foot by 10- foot by 8-foot deep valve vault, a 60 kW natural gas outdoor emergency generator, a 125 gallon natural gas and liquid propane gas (LPG) emergency backup tank, and outdoor electrical service and motor control center. A 100 amp, 480 volt, 3-phase electrical service will be required from Southern California Edison (SCE). The motor control center will contain the main breaker, automatic transfer switch, pump starters, single phase transformer, load center, and the pump control panel. All electrical equipment will be located in an outdoor enclosure. Lift Station #C will also include two 18-foot-high, 100-watt pole-mounted yard lights.

Gravity and Force Sewer Mains

All sewer mains will require trenching within the Warner Avenue and PCH public street rights-of-way. Construction activities within these public streets will result in temporary lane closures. Approximately 1,000 lineal feet (L.F.) of new 15-inch gravity sewer will be constructed within PCH and Warner Avenue from existing Lift Station #B to the new Lift Station #C. Approximately 300 L.F. of new 10-inch gravity sewer will be constructed in Warner Avenue, from the existing Sunset Beach Sanitary District Lift Station, across PCH, to connect to the new 15-inch gravity sewer. Approximately 750 L.F. of new 12-inch forcemain (i.e., pressurized main pipe) will be constructed within Warner Avenue from new Lift Station #C, across Warner Avenue Bridge, to a manhole near the intersection of Warner Avenue and Weatherly Lane. The forcemain will be attached to the south side of Warner Avenue Bridge with the use of a support

system. Approximately 2,100 L.F. of new 15-inch gravity sewer will be constructed in Warner Avenue from the new 12-inch forcemain terminus to near the intersection of Warner Avenue and Edgewater Lane, where it will connect to an existing section of 24-inch sewer with an 18-inch liner.

Demolition

The installation of new gravity sewer mains and a new Lift Station #C will eliminate the need for existing Lift Stations #B and #C and the existing Sunset Beach Sanitary District Lift Station. Also, former Lift Station #D is no longer needed due to improvements as part of the 2006 improvement project. All four lift stations, including concrete pads, will be demolished. Following demolition, former Lift Station #D and existing Lift Station #C, both situated on the south side of Warner Avenue, will be planted with native vegetation. Approximately 80.5 cubic yards (CY) of demolished material related to the four lift stations is anticipated to be disposed of at a landfill. In addition to lift station demolition, a total of twelve sanitary manholes located within the Warner Avenue and PCH public street rights-of-way will be demolished. These sanitary manholes are associated with the failed 2006 improvement project. Demolition will be accomplished by excavating the vertical section of the pipe and manhole and then abandoning the associated failed horizontal sewer main by filling it with concrete. Following demolition, abandoned sanitary manholes within the street will be repaved and six sanitary manholes, located along the unpaved south side of Warner Avenue, will be backfilled and replanted with native vegetation.

Dewatering

Due to the shallow depth of groundwater, construction of the proposed project will require dewatering during sewer main trenching and excavation/construction for Lift Station #C. Dewatering will be accomplished with the use of casing pipe and pumps, and by drilling eight-inch-diameter, 40-foot-deep holes for wellpoints around the perimeter of sewer main trenches. In addition, an estimated four wellpoints will be drilled in the City-owned yacht club parking lot for the construction of Lift Station #C.

Additional Construction Information

Construction of the proposed project is expected to take approximately 220 working days. A crew of approximately 10-15 construction workers will be at the project site during construction. Construction equipment would include the following: asphalt concrete cutting equipment, drill rig 8-inch auger, backhoe, dump trucks, flat bed pipe trailer, excavators, backhoe, drill rig 16-inch auger, hydraulic press, crane, concrete delivery truck, bridge inspection truck, loader, asphalt truck, roller, and jackhammer. Construction staging will be in the City-owned yacht club parking lot located on the north side of Warner Avenue, west of the Warner Avenue Fire Station. Construction personnel parking will be in the City-owned yacht club parking lot or along Warner Avenue. Throughout the duration of construction, there will be a loss of approximately 25 parking spaces within the City-owned parking lot.

All components of the proposed project, including Lift Station #C, gravity sewers, and forcemain, will be constructed, tested, and deemed fully operational, prior to the decommissioning and demolition of the existing sanitary sewage system. All at-grade features of the existing sewage system, including manholes, will be removed and these areas will be either replanted or repaved.

Operation of the Proposed Project

Operation and maintenance activities associated with the proposed project, such as regular testing of lift stations and regular cleaning of forcemains, will decrease over existing conditions because there will be fewer lift stations and forcemains. Maintenance of the 125 gallon storage tank and emergency generator, including testing and refilling any used natural gas and LPG, will be minimal.

SURROUNDING LAND USES AND SETTING:

The project site is surrounded by residential, general commercial, and open space/park uses. Huntington Harbour is located immediately north of the project site, Bolsa Bay and the Bolsa Chica Ecological Reserve are located immediately south of the project site, and Bolsa Chica State Beach and Sunset Beach are located less than 500 feet west of PCH.

OTHER PREVIOUS RELATED ENVIRONMENTAL DOCUMENTATION:

City of Huntington Beach Mitigated Negative Declaration No. 03-01 (Warner Sewer Lift Station), State Clearinghouse No. 2004091154.

OTHER AGENCIES WHOSE APPROVAL IS REQUIRED (AND PERMITS NEEDED)

State of California Department of Transportation (Caltrans) Encroachment Permit; California State Lands Commission (easement to abandon Lift Station #C); California Coastal Commission (Coastal Development Permit); City of Huntington Beach (Coastal Development Permit per the Local Coastal Plan); Santa Ana Regional Water Quality Control Board (General Construction); and South Coast Air Quality Management District (SCAQMD) for Generator (Authority to Construct).

The City of Huntington Beach has an agreement with the Orange County Sanitation District for the proposed project.

Attachment No. 5
Project-Generated Construction Source Noise/Vibration Prediction Model

Appendix

Project-Generated Construction Source Noise Prediction Model

Warner Ave

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold*	377	55.0
	75	72.3
	100	69.0
	150	64.4
	200	61.1
	250	58.5
	300	56.4
	350	54.7
	400	53.1
	450	51.8
	500	50.6
	550	49.5
	600	48.5

Assumptions:	Reference Emission Noise Levels (L_{eq}) at 50 feet[1]	Usage Factor[1]
Backhoe	74.0	0.4
Dump Truck	72.0	0.4
Excavator	77.0	0.4
Front End Loader	75.0	0.4

Ground Type	Soft
Source Height	8
Receiver Height	5
Ground Factor	0.63

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Backhoe	70.0
Dump Truck	68.0
Excavator	73.0
Front End Loader	71.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
76.9

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006.

[2] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006.

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold

Appendix

Project-Generated Construction Source Noise Prediction Model

Warner Ave

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{max} dBA)
Threshold*	126	75.0
	30	90.8
	50	85.0
	75	80.4
	100	77.1
	150	72.4
	200	69.1
	250	66.6
	300	64.5
	350	62.7
	400	61.2
	450	59.9
	500	58.7

Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Backhoe	80	0.4
Dump Truck	84	0.4
Excavator	85	0.4
Front End Loader	80	0.4

Ground Type	Soft
Source Height	8
Receiver Height	5
Ground Factor	0.63

Predicted Noise Level [2]	L_{max} dBA at 50 feet[2]
Backhoe	80.0
Dump Truck	84.0
Excavator	85.0
Front End Loader	80.0

Maximum Noise Level (L_{max} dBA at 50 feet)
85.0

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006.

[2] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006.

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold

Appendix

Project-Generated Construction Source Vibration Prediction Model

Warner Ave

AECOM

Location	Distance to Nearest Receiver in feet	Predicted Vibration Level (PPV)	Predicted Vibration Level (VdB)	Equipment	Reference Distance	PPV at 25 feet (in/sec)[1]	Approximate Lv (VdB) at 25 feet[2]
Distance to Receptor	75	0.017	72.6	Large Bulldozer	25	0.089	87
Distance to Impact	43	0.039	79.9				
Distance to Receptor	240	0.022	74.7	Pile Driver (Impact)	25	0.644	104
Distance to Impact	160	0.040	80.0				
Distance to Receptor	240	0.006	63.1	Pile Driver (sonic)	25	0.170	93
Distance to Impact	65	0.041	80.1				

Sources:

[1] Where PPV is the peak particle velocity

[2] Where Lv is the RMS velocity expressed in vibration decibels (VdB), assuming a crest factor of 4.

Source: FTA 2006

Sound-attenuated and weather-protective enclosures

> For generator sets from 10 to 1000 kW

Our energy working for you.™

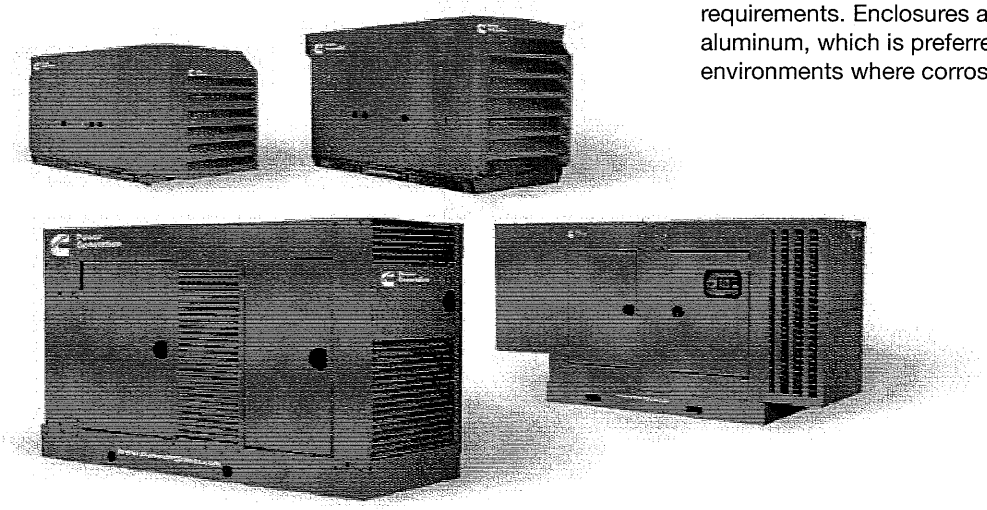
Power Generation

- **> Diesel generator set enclosures**
  10 to 1000 kW
  Weather-protective
  Level I, Level II, Level III
- **> Spark-ignited generator set enclosures**
  20 to 150 kW
  Weather-protective
  Level I, Level II

Sound-attenuated and weather-protective enclosures from Cummins Power Generation Inc. meet even the strictest sound requirements and provide optimum protection from inclement weather.

Cummins Power Generation diesel and spark-ignited generator sets are available with sound-attenuated and weather-protective enclosures. Pre-assembled, pre-integrated and delivered as part of the entire power system, these enclosures are designed to speed installation time and reduce costs.

Choose from three levels of sound-attenuation, depending on model size, to comply with even the strictest noise requirements. Enclosures are constructed of steel or aluminum, which is preferred in coastal regions or other environments where corrosion is a concern.



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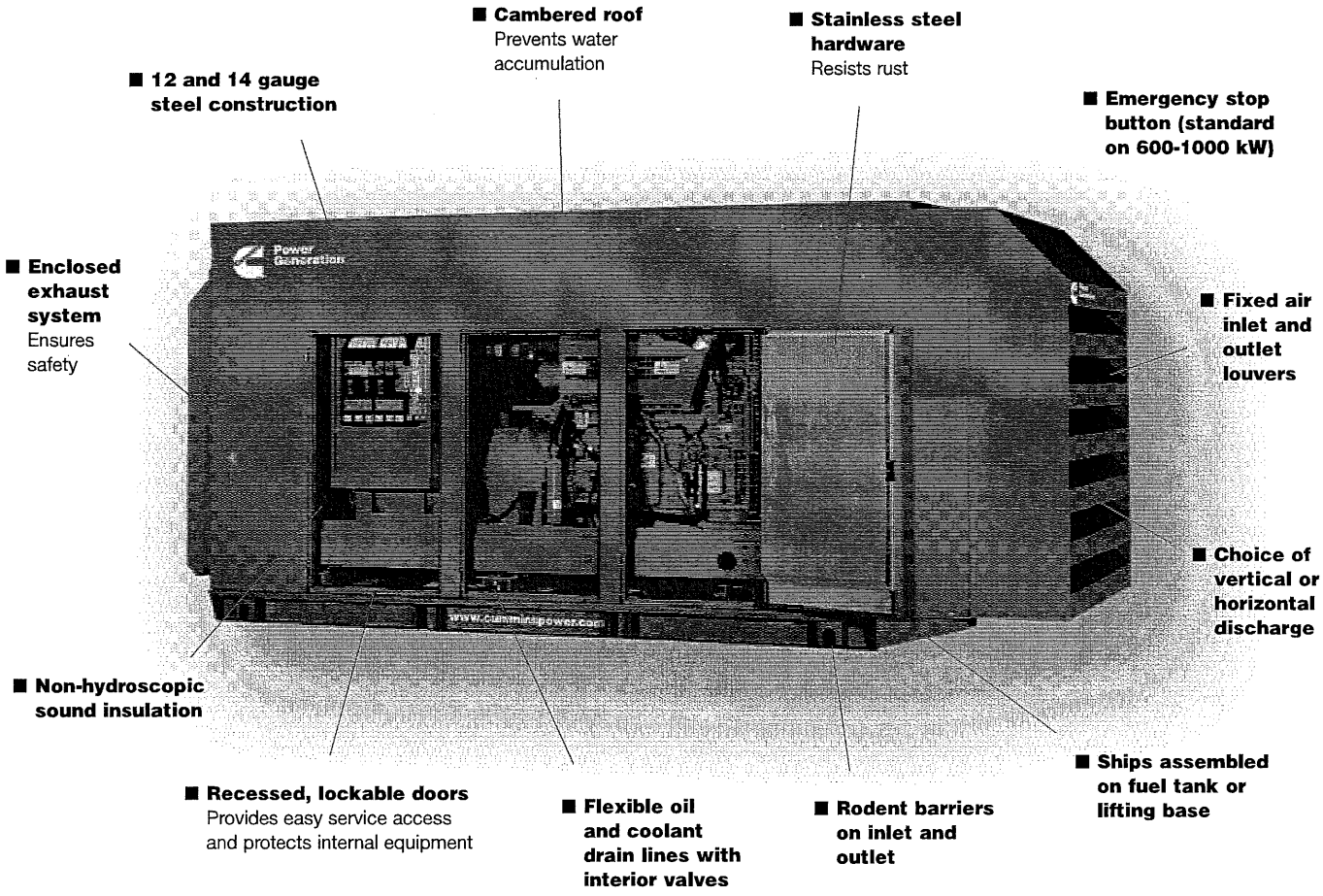


> Three levels of sound attenuation
  Level I: 70 to 89 d(B)A*
  Level II: 63 to 78 d(B)A*
  Level III: 68 to 70 d(B)A*
> Compact footprint, low profile design
> Easy access to all major generator and engine control components for servicing
> Fully-house, enclosed exhaust silencer ensures safety and protects against rust
> Enclosure, generator set, exhaust system and tank are pre-assembled, pre-integrated and shipped as one package, saving time and labor costs
> All-steel construction with stainless steel hardware offers durability
> Upgrade kits
> Enclosures mounted directly to a sub-base fuel tank or lifting base
> UL2200-listed
> Customer options available to meet your application needs

Enclosure options

> Aluminum enclosure is wind-rated to 150 mph (per ASCE 7-05 exposure D, category 1 importance factor)
> Kits available to up-fit existing generator sets or to upgrade existing enclosures with additional sound attenuation
> Exterior oil and coolant drains with interior valves for ease of service
> Overhead 2-point lifting brackets (some models)

* Full load at 7 meters, steel enclosures

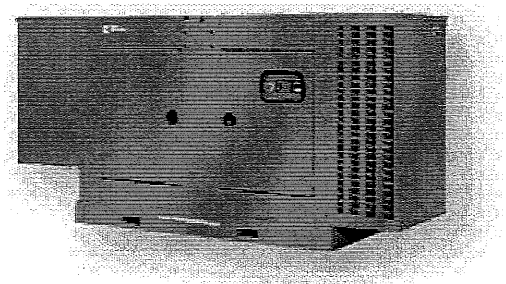
Choose from weather protective enclosure or three levels of sound attenuation:

Sound levels (dB(A))*				
kW	Model	Weather-protective	Level I	Level II
Diesel				
10	DSKAA	78	68	65
15	DSKAB	81	69	66
20	DSKBA	80	70	67
25	DSKFA	82	72	69
35	DGBB	82	71	63
35	DGGD	81	72	66
40	DGBC	82	72	63
40	DGHD	79	71	64
50	DGCA	83	72	66
50	DGHE	79	70	65
60	DGCB	84	73	67
60	DSFAD	87	79	71
80	DGCG	84	76	67
80	DSFAE	87	82	72
100	DGDB	86	77	70
100	DSGAA*	87	-	73
100	DSHAF	95	88	78
125	DGDK	86	80	71
125	DSGAB*	87	-	74
125	DSHAE	95	88	78
150	DGFA	89	77	72
150	DSGAC*	88	-	75
150	DSHAA	95	88	78
175	DGFB	90	78	72
175	DSHAB	95	88	78
200	DGFC	91	80	74
200	DSHAC	95	88	78
230	DGFS	91	81	75
230	DSHAD	96	89	78
250	DQDAA	90	86	71
275	DQDAB	89	86	71
275	DQHAA	86	85	74
300	DFCB	86	84	71
300	DQDAC	89	86	71
300	DQHAB	89	88	76
350	DFCC	87	85	72
350	DFEG	85	83	72
400	DFCE	89	85	73
400	DFEG	89	85	73
450	DFEJ	87	84	73
500	DFEK	88	85	76
600	DFGB	85	78	74
600	DQCA	87	79	74
750	DFGE	87	80	75
750	DFHA	91	81	77
750	DQCB	87	79	74
750	DQFAA	89	79	75
800	DFHB	91	81	77
800	DQCC	87	79	74
800	DQFAB	89	79	75
900	DFHC	93	83	78
900	DQFAC	88	80	76
1000	DFHD	90	80	76
1000	DQFAD	90	80	76

Sound levels (dB(A))*				
kW	Model	Weather-protective	Level I	Level II
Spark-ignited				
20	GGMA	77	N/A	66
25	GGMB	78	N/A	66
30	GGMC	79	N/A	67
35	GGFD	80	73	65
42/47	GGFE	83	73	66
60	GGHE	86	77	68
70/75	GGHF	87	77	69
85	GGHG	85	79	75
100	GGHH	86	80	76
125	GGLA	85	79	75
150	GGLB	85	79	75

***Also available Level III**

100 kW	DSGAA	68 dB(A)
125 kW	DSGAB	69 dB(A)
150 kW	DSGAC	70 dB(A)



Diesel generator sets from 100 to 150 kW (models **DSGAA, DSGAB, DSGAC**) are available in **Level III** sound attenuation.

Shown: 100 kW Tier 3 diesel generator set (model DSGAA).

* Full load at 7 meters, steel enclosures

Diesel package dimensions (in.)

Tank capacity (gal.)	Weather-protective			Level I			Level II, III		
	Length	Width	Height	Length	Width	Height	Length	Width	Height
35-80 kW									
70	83	40	63	83	40	81	102	40	81
140	83	40	71	83	40	89	102	40	89
100-230 kW									
109	105	40	67	108	40	85	142	40	87
173	105	40	72	108	40	90	142	40	92
309	105	44	87	N/A	N/A	N/A	145	43	97
336	105	40	86	108	40	104	142	40	106
230-500 kW									
Lifting base	188	82	100	188	82	100	222	82	100
300	188	82	104	188	82	104	222	82	104
400	188	82	106	188	82	106	222	82	106
500	188	82	108	188	82	108	222	82	108
600	188	82	111	188	82	111	222	82	111
660	188	82	113	188	82	113	222	82	113
720	188	82	114	188	82	114	222	82	114
850	188	82	118	188	82	118	222	82	118
1470	200	82	128	200	82	128	200	82	128
1700	234	82	128	234	82	128	234	82	128
600-1000 kW									
200	260	98	133	303	98	133	315	98	133
660	260	98	133	303	98	133	315	98	133
1000	260	98	137	303	98	137	315	98	137
1500	260	98	142	303	98	142	315	98	142
2000	280	98	142	320	98	142	320	98	142
2400	332	98	142	330	98	142	332	98	142

Spark-ignited package dimensions (in.)

Model number	Weather-protective			Level I			Level II		
	Length	Width	Height	Length	Width	Height	Length	Width	Height
20 kW									
GGMA	65	30	46	N/A	N/A	N/A	85	30	47
25 kW									
GGMB	65	30	46	N/A	N/A	N/A	85	30	47
30 kW									
GGMC	65	30	46	N/A	N/A	N/A	85	30	47
35 kW									
GGFD	83	40	54	83	40	72	83	40	72
45 kW									
GGFE	83	40	54	83	40	72	83	40	72
60 kW									
GGHE	83	40	54	83	40	72	83	40	72
70 kW									
GGHF	83	40	54	83	40	72	83	40	72
85 kW									
GGHG	105	40	70	105	60	70	142	60	70
100 kW									
GGHH	105	40	70	105	60	70	142	60	70
125 kW									
GGLA	105	40	70	105	60	70	142	60	70
150 kW									
GGLB	105	40	70	105	60	70	142	60	70

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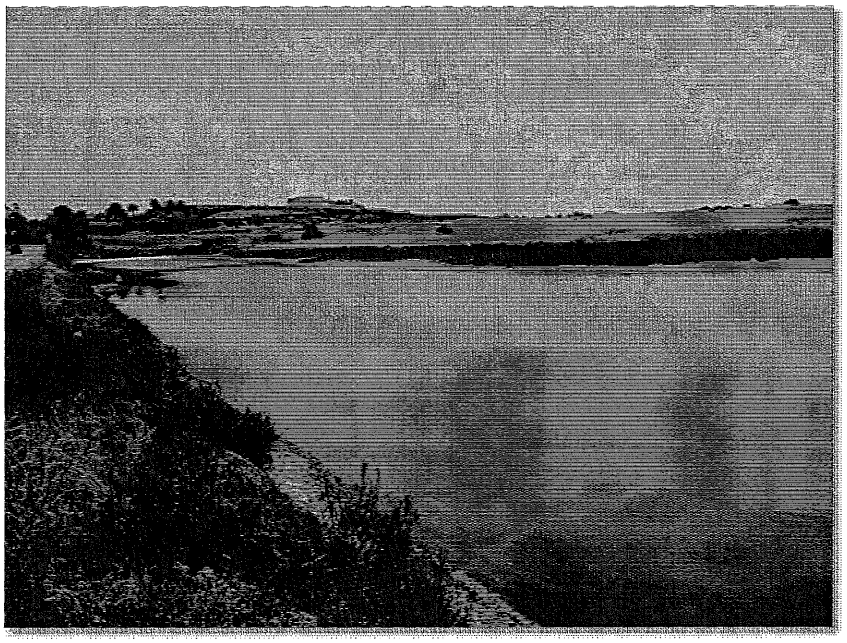
Attachment No. 6
Phase I Cultural Resources Assessment Letter Report for the Warner Avenue Sewer Lift Station Project

PHASE I CULTURAL RESOURCES INVESTIGATION FOR THE WARNER AVENUE SEWER LIFT STATION PROJECT, HUNTINGTON BEACH, ORANGE COUNTY, CALIFORNIA



Prepared for:

City of Huntington Beach
2000 Main Street
Huntington Beach, CA 92648

Prepared by:

AECOM
515 South Flower Street, 9th Floor
Los Angeles, California 90071

Author:

James R. Wallace, M.A., RPA
Sara Dietler, B.A.

May 2012

U.S.G.S. Quadrangle: Seal Beach CA

Keywords: Bolsa Chica Wetland, Gabrieliño, Huntington Beach, Sewer Lift Station

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May 14, 2012

Anne Pietro
Senior Project Manager
AECOM
999 Town & Country Road, 4th Floor, Orange, CA 92868
T 714.567.2400
Anne.Pietro@aecom.com

Subject: Phase I Cultural Resources Assessment Letter Report- for the Warner Avenue Sewer Lift Station Project, Huntington Beach, Orange County, California

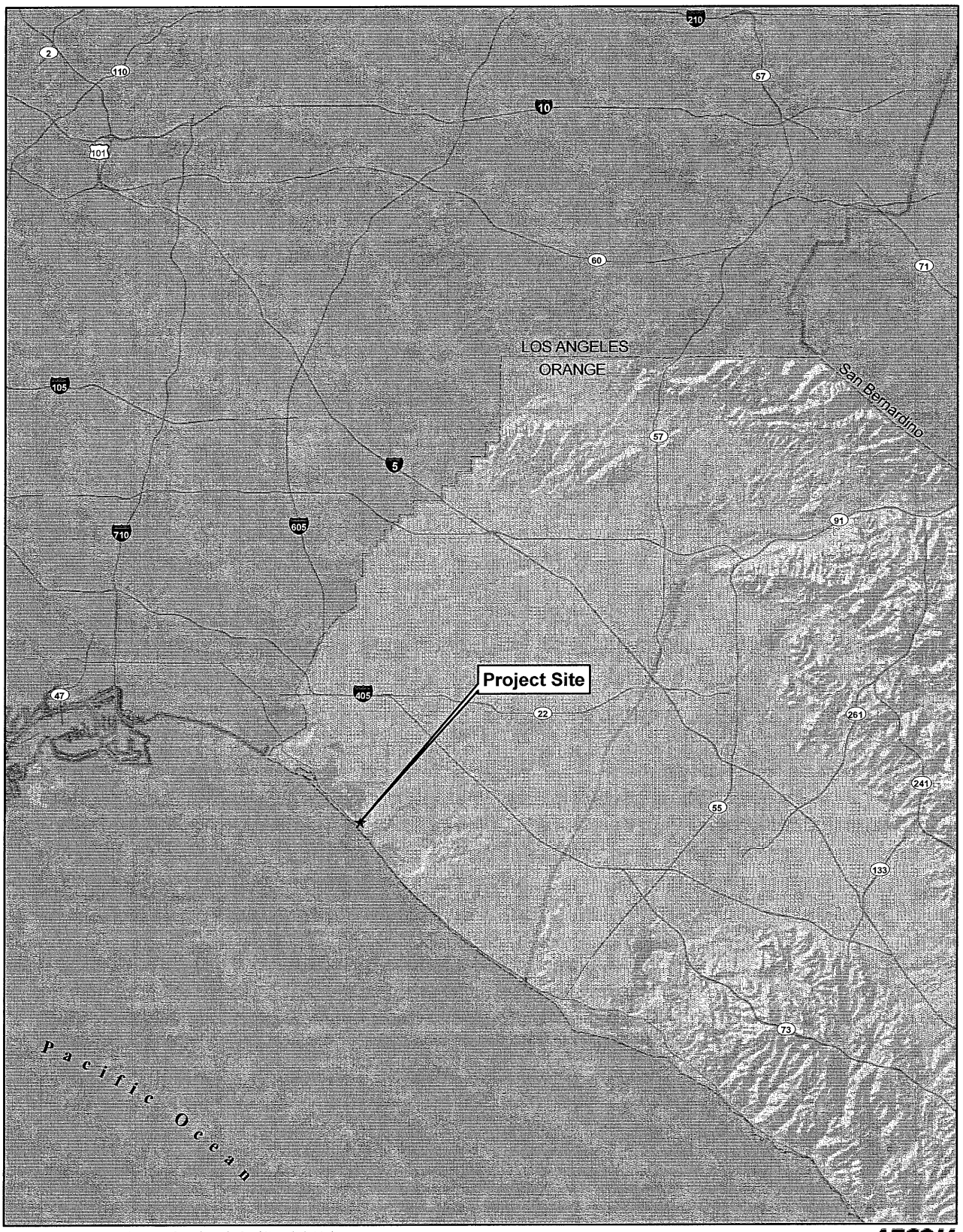
Dear Ms. Pietro;

This Phase I cultural resources investigation has been undertake to evaluate the effects of the proposed Warner Avenue Sewer Lift Station Project (proposed project). The proposed project is a redesign of the previously completed Warner Avenue Gravity Sewer Project, which will replace unusable segments of the system as well as replace several existing and former Lift Stations that are part of the system. This document is prepared in support of a Draft Initial Study/Mitigated Negative Declaration prepared in accordance with CEQA, Public Resources Code Section 21000 *et seq.* and the State CEQA Guidelines, CCR Section 15000 *et seq.*

PROJECT LOCATION AND DESCRIPTION

The project site is located on the Seal Beach 7.5-minute topographic quadrangle map in Township 5 South, Range 11 West, Section 28 on Warner Avenue and Pacific Coast Highway (PCH) in the City of Huntington Beach (Figures 1 and 2). The Western terminus of the project site is west of the intersection of Warner Avenue and PCH, adjacent to Bolsa Chica State Beach. The eastern terminus of the project site is at the intersection of Edgewater Lane and Warner Avenue. A segment of the project site extends from the intersection of PCH and Warner northward approximately 600 feet along PCH (Figure 3).

The project site is bounded by Bolsa Bay to the south, Bolsa Chica Mesa to the east and Huntington Harbour to the north. The project site is less than 1,000 feet from the Pacific Ocean, and is north of the Bolsa Chica wetland complex. Just south of the project site is the Bolsa Chica Ecological Reserve, which is a nature reserve to protect coastal wetlands. The wetlands surrounding Bolsa Bay have been an ecologically rich and diverse resource for thousands of years. The resources provided by the Pacific Ocean, nearby Santa Ana and San Gabriel rivers, and the biodiversity of the local wetlands has drawn human occupation to the area for at least 9,000 years.



Source: ESRI 2012 USGS 7.5" Quardrangle Seal Beach (1981)

0 2.5 5 7.5 10 Miles

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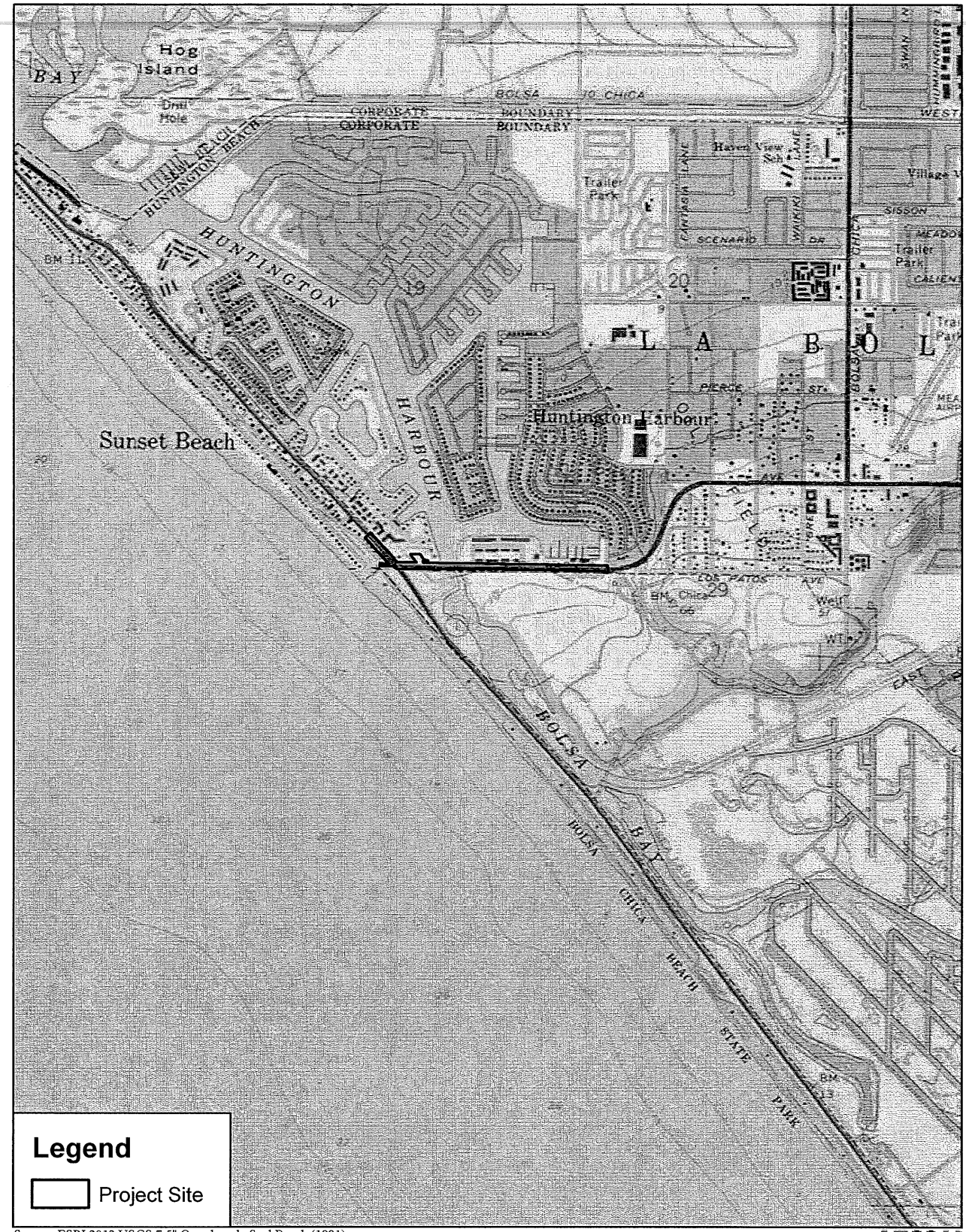
Figure 1
Regional Location Map

Phase I Cultural Resources Investigation For The
Warner Avenue Sewer Lift Station Project, Huntington Beach, Orange County, California



Source: ESRI 2012 USGS 7.5" Quardrangle Seal Beach (1981)

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0 0.25 0.5 0.75 1 Miles

Figure 2
Project Site

Source: ESRI 2012 USGS 7.5" Quardrangle Seal Beach (1981)

0 250 500 750 1,000 Feet

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Figure 3
Project Site

Phase I Cultural Resources Investigation For The
Warner Avenue Sewer Lift Station Project, Huntington Beach, Orange County, California

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PROPOSED PROJECT WORK

In 2006, the City of Huntington Beach (City) began construction of the Warner Avenue Gravity Sewer Project. The purpose of that project was to upgrade existing gravity sewers in PCH and Warner Avenue, and to eliminate existing Lift Stations "#B" and "#C" and an existing Sunset Beach Sanitary District Lift Station. Also included in the project was the upgrade of Lift Station "#D", located on Warner Avenue near Los Patos Avenue. Unfortunately, due to issues related to construction, only the upgrade of Lift Station "#D" was completed. Most of the reaches of sewer that were installed were found to have floated, creating numerous sags in the pipe, rendering most of the installation unusable.

The project has been redesigned and the new Warner Avenue Sewer Lift Station Project (proposed project) consists of the following elements: elimination of existing Lift Stations "#B" and "#C", former Lift Station "#D", and existing Sunset Beach Sanitary District Lift Station; construction of new gravity sewers from the existing Sunset Beach Sanitary District Lift Station and existing Lift Stations "#B" and "#C" to a new Lift Station "#C"; a new 12-inch forcemain from new Lift Station "#C" across the Warner Avenue Bridge to Weatherly Lane; and a new 15-inch gravity sewer from the new 12-inch forcemain terminus near Weatherly Lane to Edgewater Avenue, connecting to an existing 18-inch sewer which was salvaged from the 2006 construction project. The proposed location for the new Lift Station "#C" is in the planter area in front of the yacht club parking lot, on the north side of Warner Avenue, west of the Warner Avenue Fire Station. The submersible Lift Station "#C" will incorporate a 14-foot by 26-foot by 22-foot deep wet well, a 15 by 10 by 8 foot deep valve vault, a 60 kW natural gas outdoor emergency generator, and outdoor electrical panels and electrical service transformer.

NATURAL SETTING

Historically, the City of Huntington Beach was referred to as the Shell Beach, the Town of Smeltzer, and then Gospel Swamp due to revival meetings held in the marshland. Later it became known as Fairview and then Pacific City. Eventually Pacific City ceded power to Henry Huntington in a bid to obtain access to the Red Car, and it has subsequently been known as Huntington Beach. Between downtown Huntington Beach and Huntington Harbor lies a marshy wetland, much of which is protected within the Bolsa Chica Ecological Reserve. Prehistorically, Native Americans lived on the upland mesas, exploiting shellfish and other resources from the wetlands. Prior to 1899 there was a natural ocean entrance to the wetlands where the East Garden Grove Wintersburg Channel, once a small stream, is now located. In 1899 a structure was built, the *Bolsa Chica Gun Club*, which dammed off Bolsa Chica from the tidal flow of the ocean. In the 1970s through the 1990s a portion of a planned housing development was set aside to create the reserve. Eventually the Bolsa Chica Conservancy was created and the wetlands underwent restoration and preservation by opening an inlet to the ocean that had been dammed since 1899 (Amigos de Bolsa Chica 2010).

CULTURAL SETTING

As a framework for discussing the types of cultural resources that might exist in the vicinity of the project site, the following section summarizes our current understanding of major prehistoric developments that

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occurred in coastal Orange County and provides brief presentation of the history of the immediate vicinity of the project site. The prehistoric and historic context presented here is abbreviated in nature.

Prehistoric Overview

Coastal southern California and Channel Islands have had human occupation beginning at least 13,000 years Before Present (B.P.) (Arnold et al. 2004). The earliest groups that appeared in the coastal southern California area were most likely small bands of marine mammal hunters and shellfish collectors that migrated from northern territories seeking new resources to exploit (Erlandson 1994; Rick et al. 2005; Vellanoweth and Altschul 2002: 97-98). The first evidence of human occupation of Orange County dates to 8,000 or 9,000 years B.P. There have been several sites studied within the county that have been dated to this period; some of these sites include: ORA-246, ORA-339, ORA- 1403, and ORA-1406 (Arrington and Sikes 2006: Ch. 32-11). These early archaeological sites represent small temporary camps that demonstrate evidence of a marine-based foraging economy.

The "Millingstone Cultural Horizon" or "Millingstone Period" between 8,000 and 3,500 years B.P. marked several important economic and settlement changes (Wallace 1955; Warren 1968). Departing from the subsistence strategies of their nomadic predecessors, Millingstone populations established semi-permanent settlements. These settlements were located primarily on the coast and close to estuaries, lagoons, lakes, streams, and marshes. A variety of resources, including seeds, fish, shellfish, small mammals, and birds, were exploited. Millingstone occupations are typically identified by the presence of handstones (manos) and millingstones (metates). Most of these millingstone implements were used to process plant materials suggesting that subsistence was largely based upon terrestrial plant and seed gathering strategies. Lack of evidence of marine subsistence along coastal sites during this time period suggests that coastal occupants also became more focused upon terrestrial foraging (McCawley 1996:2). During the Millingstone Period there were small stable populations along the Orange County coast, in particular Newport Bay, where the inhabitants had a variety of ecosystems to exploit including the bays, estuaries, marshes, and the Santa Ana and San Gabriel River systems (Koerper et al. 2002). These groups most likely moved seasonally between the coast and interior foothills. Some sites along the coast of Orange County (most notably ORA-1405 Component B and ORA-64) have produced fired-clay artifacts such as figurines, effigies, and small vessels. This suggests that a small, localized pottery industry may have existed during this early time period (Arrington and Sikes 2006: 32-13).

Although many aspects of Millingstone culture persisted, by 3,500 B.P. a number of socioeconomic changes had occurred (Erlandson 1994; Wallace 1955; Warren 1968). These changes are associated with the period known as the Intermediate Horizon (Wallace 1955). Increasing population size necessitated the intensification of existing terrestrial and marine resources (Erlandson 1994). This was accomplished in part through use of new technological innovations including the mortar and pestle for processing acorns, the dart and atlatl (spear thrower), and the circular shell fishhook. These new technologies resulted in a more diverse and reliable diet. Evidence for shifts in settlement patterns has been noted as well at a variety of locations, and these changes are interpreted by many researchers as reflecting increasingly territorial and sedentary populations. During this period approximately 4,000 to 3,000 years B.P. settlements in Orange County decreased in number, in particular in Newport Bay. However, in the Bolsa

Chica wetlands, settlements increased indicating a possible shift in available resources (Koerper et al. 2002: 67-68; Mason et al. 1997). The Intermediate Horizon marks a period in which specialization in labor emerged, travel routes were extended, and trading networks became an increasingly important means by which both utilitarian and non-utilitarian materials were acquired.

The Late Prehistoric period, spanning from approximately 1,500 years B.P. to the Spanish mission era, is the period associated with the florescence of contemporary Native American groups. During this period in southern California large-scale cultural, economic, and demographic changes occurred. Large groups of people emigrated from the Shoshonean territories in the Mojave Desert to coastal southern California. These migrants eventually displaced the local Cupan-speaking groups in Los Angeles, Orange, and northern San Diego counties, as well as the southern Channel Islands. This event was known as the "Shoshonean Wedge" (Kroeber 1976; McCawley 1996; Vellanoweth and Altschul 2002: 102-103). It was these late arrivals to the region that the first European explorers encountered when they ventured for the first time into present-day Orange County.

Population levels in coastal southern California were higher in the Late Prehistoric period than in any other period until European contact. Native American villages were reported by early explorers to have been most abundant near the Los Angeles River, in the area north of downtown Los Angeles known as the Glendale Narrows, and along the river's various outlets into the sea (Gumprecht 1999). The Santa Ana River too, was lined by villages and other settlements up to the river outlet in Huntington Beach. The Santa Ana River became a vital asset for trade and communication as populations grew during the Late Prehistoric Period (Koerper et al 2002; Leonard and Hall 1975: 9).

During the Late Prehistoric period, trade flourished in southern California. Shell beads and soapstone from the Channel Islands and raw materials and projectiles from the deserts were exchanged in intricate trade networks bringing goods throughout the region (Arnold 1992; McCawley 2002: 58). Several important technological advancements were made at this time, notably the emergence of the bow and arrow, the plank canoe, and the widespread use of the circular shell fish hook (Arnold 1995; Koerper et al. 2002: 69; Rick et al. 2005; Vellanoweth, Martz, and Schwartz 2002: 98-99). These technologies provided opportunities to expand settlements, exploit new resources, and build larger trading networks.

The Late Prehistoric period, spanning from approximately 1,500 years ago to the Mission Era, is the period associated with the florescence (or periods of great development) for the Gabrielino (Wallace 1955). The Gabrielino occupied what is presently Los Angeles County and northern Orange County, along with the southern Channel Islands, including Santa Catalina, San Nicholas, and San Clemente (Kroeber 1925). They are reported to have been second only to their Chumash neighbors in terms of population size and regional influence (Bean and Smith 1978). Settlement at this time is believed to have consisted of dispersed family groups that revolved around a relatively limited number of permanent village settlements that were located centrally with respect to a variety of resources (Koerper et al. 2002).

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Historic Overview

In 1784, former Spanish soldier Manuel Nieto was given a land grant that included much of the area between the San Gabriel and Santa Ana rivers, from the San Gabriel Mountains to the Pacific Ocean. This land was divided into ranchos and passed on to Nieto's descendants. Present-day Huntington Beach was once part of the Rancho Las Bolsas. The land was mostly used for cattle and sheep ranching. During the American governance of California, Nieto's descendants sold off much of the original lands granted. Rancho Las Bolsas was one of the last ranchos that were owned by Nieto's descendants. By the late 1840's, the Nieto family lost the land to Able Stearns because of unpaid debt. Portions of the land were later sold and partitioned as small communities (Martz 2010: 9-10).

Notable in the history of the Bolsa Chica wetland near the project site is the Bolsa Chica Gun Club, formed in 1899. This club became very popular within the community during the first half of the twentieth century. During the end of World War II, Bolsa Chica was incorporated the 1940 Harbor Defense Board Program, constructing coastal defense locations along the southern California coast (Whitney-Desautels 1990). By 1964, the Bolsa Chica Gun Club was disbanded (Martz 2010: 10-11; Bolsa Chica Land Trust 2009).

RESEARCH METHODS

Native American Contact Program

As part of this investigation, a sacred lands file (SLF) search of the project site, and vicinity was requested from the Native American Heritage Commission (NAHC). A letter was mailed to the NAHC on March 14, 2012 requesting that a sacred lands file search be conducted for the proposed project and that contact information be provided for Native American groups or individuals who may have concerns about cultural resources in the project site. The NAHC responded to the request in a letter dated April 4, 2012, indicating the results of the sacred lands file search and providing the names of groups and individuals who may have an interest in the proposed project.

Archival Research and Previous Studies

Previously conducted cultural resource investigations, as well as the characteristics of known archaeological sites, were reviewed as part of this investigation in an attempt to create a model of historic and archaeological site sensitivity for the project site. A 0.5-mile radius around the project site was reviewed and is referenced as the "study area" in this document. Information on both the previously conducted investigations, as well as the known recorded cultural resource sites, was obtained from the South Central Coastal Information Center (SCCIC) at California State University, Fullerton in March 2012. In addition, the National Register of Historic Places (NRHP) database, listings for the California State Historic Resources Inventory (HRI), and the California Historical Landmarks (CHL) Register were examined to determine whether any sites in this radius were listed on or had been determined eligible for these registers.

Paleontological Records Search

A paleontological records search was requested from the Los Angeles Natural History Museum (NHM) on March 14, 2012 in order to determine the level of paleontological sensitivity within the project site. The request was accompanied by a project description and a map of the project site. The NHM responded with the results of the search April 5, 2012.

Field Investigation

A short reconnaissance survey was conducted by James Wallace, M.A., RPA, on March 28, 2012. The purpose of this survey was to discover and document new prehistoric and historic cultural resources, as well as to assess previously recorded cultural resources within or adjacent to the project site. In addition, areas where Lift Stations were proposed to be removed were investigated to assess potential ground disturbance that may impact potential cultural resources.

RESEARCH RESULTS

Native American Contact Program

On March 14, 2012, a letter was prepared and mailed to the Native American Heritage Commission (NAHC) to request information and concerns regarding Traditional Cultural Properties or other resources that might be affected by the proposed project. The letter requested that a SLF check be conducted for the proposed project and that contact information be provided for Native American groups or individuals who may have concerns about cultural resources in the project site. The NAHC responded to the request in a letter dated April 4, 2012. The letter stated;

> "The Native American Heritage Commission (NAHC) conducted a Sacred Lands File search of the 'area of potential effect,' (APE) based on the USGS coordinates provided and Native American cultural resources *were identified* in the [APE] (e.g. project site) you specified. There are Native American cultural resources in the APE and in close proximity to the APE. Also, please note; the NAHC Sacred Lands Inventory is not exhaustive and does not preclude the discovery of cultural resources during any project groundbreaking activity."

The letter also included an attached list of Native American contacts.

Letters were mailed on April 5, 2012, to each group or individual provided on the contact list. Maps depicting the project site and response forms were attached to each letter. A total of 16 parties were indicated on the contact list. Responses were received from four parties on the list. In addition, Mr. Dave Singleton of the NAHC requested additional consultation with project archaeologist, Sara Dietler.

As the project site is in an area of known cultural resource sensitivity, Mr. Singleton was concerned about the proposed project and requested further discussion. In an email dated April 4, 2012, Mr. Singleton expressed that "under other circumstances we [NAHC] or the tribes, or their attorneys might oppose this project" as a way to send a message to developers in this area that have recently been in the news

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regarding improper, and unpermitted excavation activities which have impacted nearby cultural resource sites. Mr. Singleton specifically mentioned Hearthside Homes and California Coastal Communities, Inc. In a follow-up conversation between project archaeologist Sara Dietler and Mr. Singleton, Ms. Dietler provided Mr. Singleton with additional project-specific information regarding the nature of the proposed project and the level of disturbance in light of the previous development of the Warner Avenue Gravity Sewer Project. Ms. Dietler also discussed and agreed with Mr. Singleton that appropriate mitigation for the proposed project would entail archaeological and Native American monitoring in order to protect and identify any possible cultural resources that may be encountered during excavation for the proposed project.

Mr. Robert Dorame, cultural consultant for the Gabrielino Tongva Indians of California, submitted the following comments via a Native American Response form received April 27, 2012:

> Here are two issues connected to this project site that will require Native American monitoring during any soil disturbances.
>
> 1. The project site is not only within the one half mile standard boundary of the excavation of Native American human remains, but may well be situated on a western portion of ORA-85 since Warner Avenue was built on ORA-85 and there are indicators that this archaeological site extends further west. To be clear, in 2006, 12 human remains, five animal remains and cultural artifacts were found in close proximity to Warner and Los Patos and not only on the eastern part of the Brightwater development where a large concentration of artifacts, remains and ceremonial items were also uncovered.
>
> 2. Many homeowners adjacent to Warner, on the north side of Los Patos, told me of the artifacts they had found on their property over the years, indicating that ORA-85 extends further than manmade boundaries of streets.
>
> 3. The California Coastal Commission has been enforcing Special Condition 23 which relates to pre-historic sites across Warner Avenue. Having the California Office of Historic Preservation's guidelines as the only measure of protection leaves any pre-historic site material uncovered during this project unprotected and with a possibility of damage or destruction.
>
> It is essential that a Native American monitor be present during any and all soil disturbance during this project.

Mr. Anthony Morales, Chairperson of the Gabrielino/Tongva San Gabriel Band of Mission [Indians], contacted project archaeologist Sara Dietler via phone on April 30, 2012. Mr. Morales indicated that all the areas along the PCH just below the Bolsa Chica bluffs are culturally sensitive. During the discussion Mr. Morales asked if any cultural materials had been uncovered during the previous phase of the project. Ms. Dietler informed him that the City had indicated there were no findings but there is no available documentation to this effect. Mr. Morales mentioned that he is currently serving as a Most Likely Descendant in that area and he is concerned that there is no documentation of the prior phase of

construction on record. Also, Mr. Morales recommended archaeological and Native American monitoring during ground disturbing activities and requested to be informed of the proposed project start date and findings.

Mr. John Tommy Rosas, Tribal Administrator and Tribal Litigator of the Tongva Ancestral Territorial Tribal Nation, replied via email to AECOM on April 6, 2012. His comments regarding the proposed project consisted of the following; "That's in a very sensitive area and a full review of all the conditions needs to be done and we need more info on actual excavations."

The final comment was received on April 7, 2012 from Mr. Andy Salas, Chairman of the Gabrieleno Band of Mission Indians of the Los Angeles Basin. Mr. Salas' comments in regards to the proposed project consisted of the following, "This email is in response to your letter dated April 5, 2012 in regards to the Seal Beach project. The proposed project is within a highly culturally sensitive area and in order to protect our resources we're requesting one of our experienced & certified Native American monitors to be on site during all ground disturbances. In all cases, when the NAHC states there are 'no records of sacred sites in the subject area; they always refer the contractors back to the Native American Tribes whose tribal territory the project site is in. This is due to the fact, that the NAHC is only aware of general information on each California NA Tribe they are NOT the 'experts' on our Tribe. Our Elder Committee & Tribal Historians are the experts and is the reason why the NAHC will always refer contractors to the local tribes. Please contact our office regarding this project to coordinate a NA monitor to be present."

There were no additional comments received.

Paleontological Records Search

A paleontological records search was conducted by Dr. Samuel McLeod, Vertebrate Paleontology Division of the Natural History Museum of Los Angeles County on April 5, 2012. The records check indicated that there are no known vertebrate fossil localities directly within the project site boundaries. However, vertebrate fossil localities have been recorded from nearby the project site in the same sedimentary rock units that are found within the project site.

The western portion of the project site has surficial deposits of younger Quaternary Alluvium, derived primarily as fluvial deposits from the San Gabriel River that flows to the north, as well as associated drainages of the river. The eastern portion of the project site may also present some surficial Quaternary Terrace deposits, nominally mapped as marine but with terrestrial components.

The closest recorded fossil vertebrate locality to the project site is LACM 65113, just north-northeast of the project site along Warner Avenue near Bolsa Chica Street. This locality produced Pleistocene age specimens of mammoth (*Mammuthus*), between six and eight feet deep and specimens of fossil bison (*Bison*), between fourteen to twenty feet in depth. At Sunset and Bolsa Chica beaches west of the project site, there are three localities from the intertidal zone or just offshore that produced fossil specimens of Late Pleistocene age: LACM 1121 produced mammoth (*Mammuthus*), sea otter (*Enhydra*), and horse

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(Equus); LACM 3291 produced camel (*Camelops hesternus*); and LACM 6912 produced mammoth (*Mammuthus*), groundsloth (*Paramylodon*), horse (*Equus*), and bison (*Bison*).

ARCHIVAL RESEARCH AND PREVIOUS STUDIES

Previous Cultural Resources Investigation Reports

The records search revealed that a total of 11 cultural resource investigations were previously conducted within 0.5 miles of the study area (Table 1). These cultural resource investigations include: eight cultural resource assessments, one survey only, one test excavation, and one monitoring report. Project sites which overlapped with or included the project site or portions of the project site included: OR-00001, OR-00425, OR-00573, OR-01186, OR-02177, OR-02693, and OR-04146. One hundred percent of the project site has been included in previous investigations. However, likely due to the presence of development and paved roadway, no sites have been recorded within in the project site itself as a result of these studies.

Table 1. Previous Surveys Conducted within 0.5-mile of the Project Site

Author	Report # (OR-)	Title	Date
Ahlering, Michael L.	00001*	Report of a Scientific Resources Survey and Inventory: Conducted for the City of Huntington Beach, California	1973
Duke, Curt	02177*	Cultural Resource Assessment for the AT&T Wireless Services Facility Number C838.1, County of Orange	2000
Duke, Curt	02693*	Cultural Resource Assessment AT&T Wireless Services Facility No. 13002a Orange County, California	2002
Cooley, Theodore	00573	Report of Test Excavation: CA-ORA-83, CA-ORA-85, CA-ORA-288	1973
Knell, Edward J.	01433	Cultural Resources Monitoring of a Portion of the Unocal Oil Pipeline Replacement Project, Los Patos Avenue and Marina View Place, Huntington Beach, Orange County, California	1995
Mabry, Theo N.	00425*	Records Search and Archaeological Reconnaissance Bolsa Chica Mesa, Orange County, CA	1979
Maniery, M., B. Padon, C. Baker, and K. Syda	01995	Cultural Resources Inventory and Evaluation of Selected Resources within the Bolsa Chica Project, Orange County, California	1995
Martz, Patricia	03908	Archaeological Survey of the Bolsa Chica Land Trust Habitat Restoration Project, Huntington Beach	2010
Ross, Lester and Roger J. Desautels	01186*	Bolsa Chica Archaeological Research Project Phase I Surface Survey and Historic Research of Bolsa Chica Bay Area, California	1970
Whitney-Desautels, Nancy A.	01868	Historical Significance: Bolsa Chica Military Reservation Bolsa Chica Mesa Huntington Beach, Orange County, California	1990
Wlodarski, Robert J.	04146*	LA3001-Sunset Beach 3841 Warner Avenue, Huntington Beach, California 92649	2011

*=indicates project overlaps the current project site.

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Previously Recorded Cultural Resources Site Records

Prehistoric archaeological sites have been documented on or near Bolsa Chica Mesa since the 1920's. Some of the sites documented in the area, such as ORA-83 (less than one mile east of the study area), have been reported to be significant due to size and scientific potential of the artifact assemblages and their ability to provide insight into the prehistory of Orange County (Cooley 1973). Due to development, many of these sites have been highly disturbed and/or removed. Recent investigations by Martz (2010) have found evidence of shell scatters that may be associated or may be remnants of sites investigated nearly forty years earlier, but which have been disturbed or obscured as a result of development, restoration, and natural processes. The site numbers that were assigned to the site locations identified during the Martz study (2010) are a separate series and not linked with the previous sites (CA-ORA-84 and CA-ORA-85) recorded in the same locations and vicinity.

A total of seven previously recorded cultural resources were identified within the study area, of 0.5-mile around the project site, during the archival record search (Table 2). Six of these resources (CA-ORA-84/289, CA-ORA-85, CA-ORA-288, CA-ORA-1698, CA-ORA-1699 and CA-ORA-1700) are prehistoric shellfish scatters or shell middens, CA-ORA-84/289 and CA-ORA-85 also evidenced habitation.

Sites CA-ORA-1698 through 1700 were documented in 2010 by Martz during the Trust Habitat Restoration Project within the Bolsa Chica Ecological Reserve (Martz 2010). These scatters may represent or be associated with prehistoric sites such as CA-ORA-84 and 85, and CA-ORA-289, located on the upper and lower benches of Bolsa Chica Mesa (Cooley 1973; Mabry 1979; Martz 2010; Ross and Desautels 1970) and are mapped within the study area as shown in Cooley 1973.

The prehistoric site CA-ORA-85, as described by Cooley (1973) and Mabry (1979), is located south of Warner Avenue east of Warner pond and west of Los Patos Avenue. This location is similarly described by Martz (2010) as CA-ORA-1699. The shell scatter CA-ORA-1699 may be associated with, or may be the remaining constituents of CA-ORA-85. The identified location is within 300 feet of the project site. CA-ORA-85 was first identified within this vicinity in the 1920's (Mabry 1979: 3).

The remaining resource, P-30-162259 is identified as World War II gun emplacements that were used as part of the World War II coastal defense fortification at Bolsa Chica. These types of installations along the southern California coast were constructed as part of the 1940 Harbor Defense Board Program that was enacted to protect the exposed shorelines of California during the war. These gun emplacements are NRHP eligible under criteria A and C (Whitney-Desautels 1990).

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Table 2. Previously Recorded Archaeological Sites within 0.5-Mile of the Project Site[1]

Permanent Trinomial (CA-ORA-)/ P-Number (P-30-)	Description/Resource Name	Date Recorded	Significance
84/289	Prehistoric Shell Midden/Habitation	196; Updates 1970, 1988 2010	Not eligible
85	Prehistoric Shell Midden/Habitation	1964	Not eligible
288	Prehistoric Shell Midden/Processing Site	1973	Not eligible
1698	Prehistoric Shell Scatter, Possibly associated with CA-ORA-85	2010	Not eligible
1699	Prehistoric Shell Scatter	2010	Not eligible
1700	Prehistoric Shell Scatter, Possibly associated with CA-ORA-85	2010	Not eligible
162259	World War II gun emplacements	1994	NRHP eligible

[1]= No recorded sites overlap with the current project site.

The site CA-ORA-78 was mentioned by Cooley (1973), Martz (2010), and Ross and Desautels (1970), though the site primary record is not available at the SCCIC. This resource is the structural remnants of the Bolsa Chica Gun Club. Originally located at the southeastern portion of the lower bench of Bolsa Chica Mesa (Martz 2010: 10), the gun club was formed in 1899 by wealthy business men from Los Angeles and Pasadena, as a popular recreation organization for local wealthy residents. The club was disbanded in 1964 because a fire damaged the club beyond repair (Martz 2010: 10-11; Bolsa Chicha Land Trust 2009). In addition, remnants of a shell scatter adjacent to the remains of the gun club were documented by Martz (2010). Thus, CA-ORA-78 is a multi-component site where the prehistoric and historic components may be eligible for the NRHP under Criteria D (Martz 2010: 15). The location of CA-ORA-78 is south of the project site within the ecological reserve.

One additional primary record that was not available was for CA-ORA-83, also known as the "Cogged Stone Site." This large prehistoric midden has been known for the cogged stones that have been recovered from this site. CA-ORA-83 has been described as one of the most important and interesting prehistoric sites in the Bolsa Chica wetland (Ahlering 1973; Cooley 1973; Martz 2010; Ross and Desautels 1970; www.bolsachicalandtrust.org). The site is located southeast of the project site on the southern extent of Bolsa Chica Mesa within the ecological reserve. CA-ORA-83 is NRHP eligible under Criteria D.

No additional sites or historic structures other than those discussed above were listed within the study area on the NRHP database, HRI, or CHL.

Historic Maps and Aerial Photography

Historic topographic maps and aerial photography indicate that in 1952, Warner Avenue appears to be a small two-lane paved road. Warner Bridge is also present at this time. By 1972, some of the present-day

built environment is present or under construction. Warner Avenue and Warner Bridge were widened and largely modified by this time. The Huntington Harbor Yacht Club and Warner Fire Station are not present in 1972 (www.historicaerials.com). The Bolsa Chica Gun club is mapped on a 1941 15-minute War Department Corps of Engineers U.S. Army Quadrangle as located in the Bolsa Chica wetland approximately .25 miles from the project site (War Department Corps of Engineers U.S. Army 1941: Las Bolsas Quadrangle 15-minute series). Sanborn Fire Insurance maps were not available for the project site. However, Sanborn Fire Insurance maps with coverage of Huntington Beach south of the project site indicate that Huntington Beach was largely undeveloped except for oil wells and some small dwellings and businesses.

FIELD INVESTIGATION

Much of the investigation was concentrated at the southern boundary of the project site along the southern shoulder of Warner Avenue just north of the Bolsa Chica Ecological Reserve, adjacent to Warner pond. The focus of the effort in this area was due to the fact that previously recorded site P-30-1699, which may constitute the remnants of CA-ORA-85, was located southeast of Warner pond in a fenced enclosure within the Bolsa Chica Ecological Reserve. Martz (2010) notes that Warner pond is the northwestern boundary of this prehistoric shell scatter.

Lift Station #B

Lift Station #B is located on the east side of PCH approximately 500 feet from the corner of PCH and Warner Avenue within a completely built modern environment. The Lift Station power panel measures 56 by 47 by 20 inches. The lift station itself is an underground structure with the above grade power panel shown in Plate 1. A metallic plaque on the station provides the model number (MEUGDI-M100W/TB-MOD). The station and its components are made from concrete and metal. The station was constructed in 1962 and is a wet well/dry well facility with recessed pumps for pumping sanitary sewage to a higher elevation.

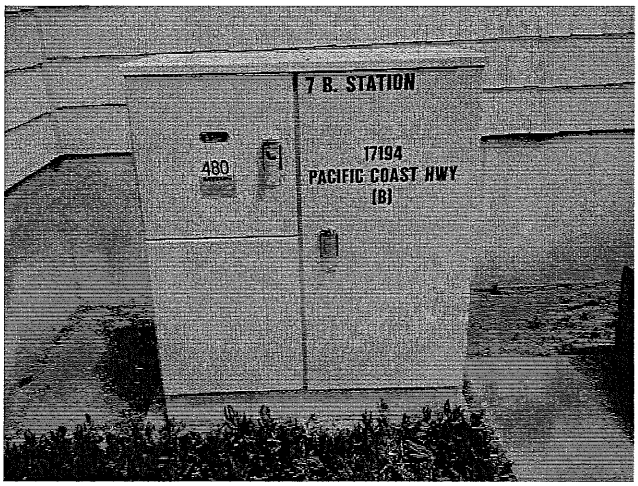

Plate 1. Lift Station #B, view towards east.

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District Lift Station and PCH/Warner Avenue Intersection

The district Lift Station power panel is located within the state beach parking lot near the intersection of PCH and Warner Avenue (Plate 2). The station consists of three structures approximately 50 to 70 inches tall and 30 to 40 inches wide. One unit has a metal plaque with model number (MEUGDX-M2001V/TB). The station was constructed in 1962 and is a wet well/dry well facility with recessed pumps for pumping sanitary sewage to a higher elevation.

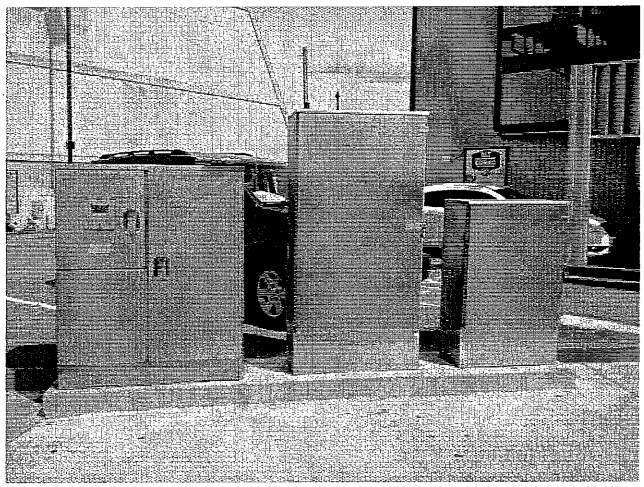

Plate 2. Sunset Beach Sanitary District Lift Station, view toward north.

Aproximately 50 feet south of the Sunset Beach Sanitary District Lift Station is an enclosed patch of open sand and vegetation that appears to have a small cut bank from the sewage system (Plate 3). This area is within the State Beach entrance. Ground visibility was 20 percent as the surface was obscured by ice plant and coastal shrubs. The soil observed was brown to grey silty sand, poorly sorted. The area is littered from road debris. A marine shell scatter mostly composed of *Chione sp.* was observed. This area appears to be highly disturbed or possibly redeposited beach sand fill (Plate 4).

Plate 3. Observed soil near Sunset Beach Sanitary District Lift Station.

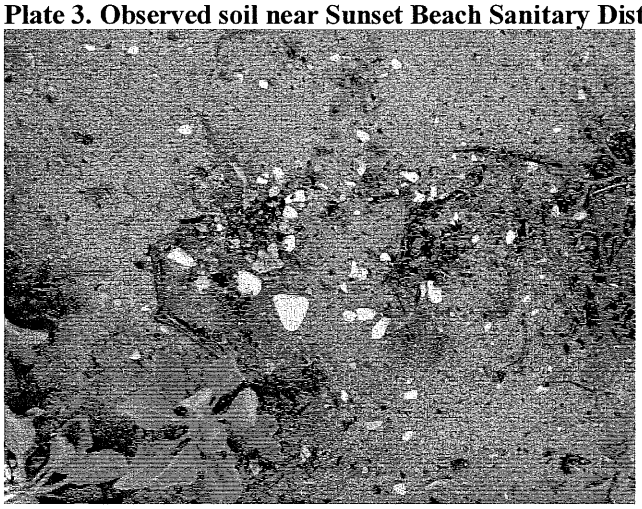

Plate 4. Marine shell scatter observed near Sunset Beach Sanitary District Lift Station.

Lift Station #C and Warner Bridge

Lift Station #C is located on the south side of Warner Avenue across from the Warner Fire Station, west of the Warner Bridge (Plate 5). The Lift Station power panel measures 60 by 45 by 20 inches. A metal plaque on the station provided the model number (MEUH4GX-I-M100-B480). The station and its components are made from concrete and metal. The station was constructed in 1962 and is a wet well/dry well facility with recessed pumps for pumping sanitary sewage to a higher elevation.

Plate 5. Lift Station #C, view towards south.

Approximately 5 to 20 feet from the south shoulder of Warner Avenue is the ecological reserve (Plate 6). This location within the reserve appears to be relatively undisturbed and undeveloped, except for disturbances resulting from natural processes. Soil visibility is approximately 15 percent. Vegetation appears to be coastal shrub species. Marine shell *Chione sp.* and *Haliotus sp.* were observed in a small

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scatter at the east side of Warner Bridge approximately 15 feet south of Warner Avenue within the ecological reserve, above the cut bank, approximately 300 feet from Lift Station #C.

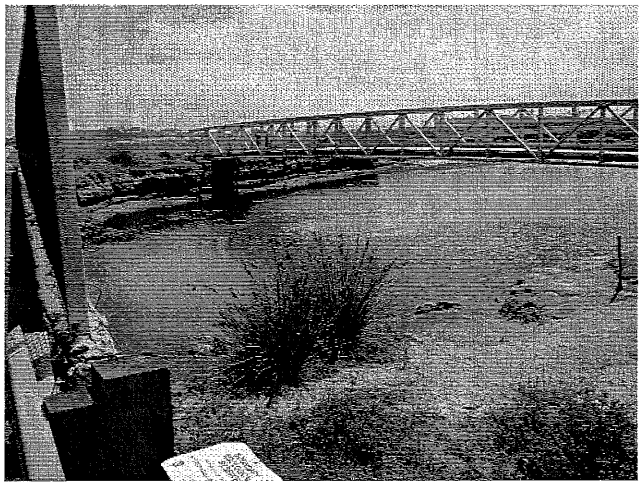

Plate 6. Ecological preserve from Warner Bridge, view toward east.

Lift Station #D and Warner Pond

Lift Station #D is located on the South side of Warner Avenue across from Edgewater Avenue at the eastern terminus of the project site (Plate 7). The Lift Station power panel measured 60 by 45 by 20 inches. A metal plaque was on the station provided model number (MEUGDX-I-M150WTB-MOD). The station and its components are made from concrete and metal. The station was constructed in 1962 and is a wet well/dry well facility with recessed pumps for pumping sanitary sewage to a higher elevation.

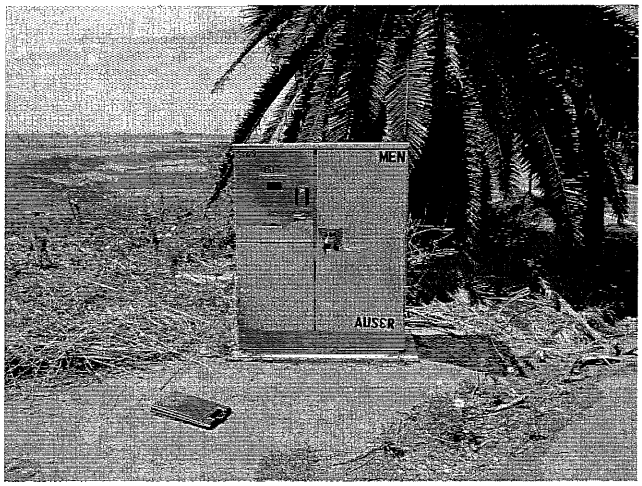

Plate 7. Lift Station #D, view towards southwest.

Much of the area near Lift Station #D and Warner pond between Warner Avenue and the reserve was densely covered in ice plant, as well as other various weeds and grasses, resulting in ground visibility of

less than ten percent. Ground surface was visible in areas that were heavily disturbed by the construction of the existing sewage system. Soil observed was coarse grained, brown, silty sand, poorly sorted.

Shellfish remains (*Chione sp.* and *Cerithidea californica*) were discovered east of Warner pond near a sewage outlet just south of Warner Avenue. This area investigated was within 50 to 200 feet of Lift Station #D. Near the southern shoreline of Warner pond approximately 500 to 600 feet from Lift Station #D, a scatter of *Cerithidea californica* was observed. These shells appeared to be more recent and may be a natural deposition from the pond as the water recedes. The observed species of marine shell occur naturally in the environment.

REGULATORY SETTING

Cultural resources are limited, nonrenewable resources of scientific, cultural, and educational value and are afforded protection under state (California Environmental Quality Act, or CEQA), and local (Orange County) laws and regulations. This study satisfies project requirements in accordance with CEQA (13 PRC, 2100 et seq.) and Public Resources Code Section 5097.5 (Stats 1965, c 1136, p. 2792).

CEQA

Cultural resources in California are protected by a number of federal, state, and local regulations, statues, and ordinances. The determination of California Register of Historic Resources (CRHR) significance of a resource is guided by specific legal context outlined in Sections 15064.5 (b), 21083.2, and 21084.1 of the Public Resources Code (PRC), and the CEQA Guidelines (California Code of Regulations Title 14, Section 15064.5). A cultural resource may be eligible for listing on the CRHR if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage:
2. is associated with the lives of persons important in our past;
3. 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 values; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

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RESULTS AND RECOMMENDATIONS

Results

Archaeological
The survey of the project site did not result in the discovery of any unknown cultural resources. However, seven previously recorded resources, including six prehistoric sites are located within the study area, clustered southeast of the eastern terminus of the project site. Two of these, CA-ORA-1699 and CA-ORA-85 (which may represent the same site), are located directly south of Warner Avenue within 100 feet of the eastern terminus of the project site. These archaeological sites may extend beyond their mapped locations under Warner Avenue. In general, the area of the project site is known to have a high level of archaeological sensitivity and many interested parties consulted, including local Native American groups, maintain a high level of interest and concern with regards to the proposed project.

Built Environment
Based on information provided by the City of Huntington Beach, all of the Lift Stations within the project site (Lift Stations #B, #C, #D and the Sunset Beach Sanitary District Lift Station), were constructed in 1962 and as such are 50 years in age. The proposed project would include demolition of these Lift Stations. Although these stations are historic in age, they are not a unique resource or the work of a master, and do not appear to be eligible for the CRHR or contributor to a historic district. Therefore, they do not qualify as a historical resource as defined by CEQA. Though these structures are historic in age, it was determined unnecessary to record them as historic resources because they are well documented, very common infrastructure with no historic information potential and are not eligible for the CRHR.

Paleontological
The uppermost layers of soil and younger quaternary alluvium in the project site are unlikely to contain significant fossil vertebrate remains. However, deeper excavations that extend down into older Quaternary deposits, or any excavation into the Quaternary Terrace deposits, if present, in the project site, may encounter significant vertebrate fossils of Late Pleistocene age. Any substantial excavations in the project site, therefore, should be monitored closely to quickly and professionally recover any fossil remains discovered. Any fossil materials uncovered during mitigation activities should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

Fossil remains were not encountered on the surface of the project site during the course of this Phase I background research and field survey. However, the potential to encounter significant fossil remains is high as a result of the sensitive nature of the formations within the project site, and the depth of proposed excavation.

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Recommendations

Archaeological

Based on the results of the archival research and the Sacred Lands File search, it is possible that prehistoric archaeological resources may be present within the project site. Such resources may lie beneath the surface, obscured by pavement, vegetation, or development. Because the potential to encounter archaeological resources exists for the proposed project, the construction contractor shall use archaeological and Native American monitoring during all ground disturbing activities, including, but not limited to, trenching, boring, and grading.

Archaeological monitoring would include inspection of soils to determine if cultural materials are present. Archaeological monitors would follow earth-moving equipment and examine excavated sediments and excavation sidewalls for evidence of archaeological resources. The archaeological monitor shall have the authority to re-direct construction equipment in the event potential archaeological resources are encountered. In the event archaeological resources are encountered, work in the vicinity of the discovery shall halt until appropriate treatment of the resource is determined by a qualified archaeologist in accordance with the provisions of CEQA Section 15064.5.

In the laboratory, all artifacts would be identified, inventoried, and a determination of significance made. All cultural resource material would then be transferred to an approved archaeological repository accompanied by a copy of the final monitoring report and all data in hard and electronic copy. The cost of curation, maintenance, and permanent storage of archaeological materials is assessed by the repository.

A final monitoring report shall be prepared that will include, but not be limited to: a discussion of the results of the monitoring; an evaluation and analysis of the materials collected; an itemized catalog of artifacts collected; an appendix of curation agreements and other appropriate communications; and a discussion of the project-specific monitoring plan. This report shall be filed with the South Central Coastal Information Center, California State Fullerton upon completion of monitoring and analysis of materials recovered (if any).

Paleontological

Paleontological deposits exposed during future earth disturbing activities may be evidenced by the occurrence of fossils or fossil-containing formations. Deep grading up to at least 22 feet in depth may be required for installation of Lift Stations and other components of the system. For the reasons described above, it is possible that buried or otherwise obscured paleontological resources may be present within the project site. Because the potential to encounter paleontological resources exists for the proposed project, the construction contractor shall use paleontological monitoring during all ground disturbing activities occurring at a depth of below 5 feet from the road or ground surface. Monitoring shall be conducted during all ground disturbing activities including, but not limited to, trenching, boring, and grading. The paleontological monitor will observe ground disturbing activities throughout the project site to depth of excavation required for utilities installation.

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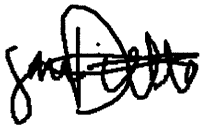
Paleontological monitoring would include inspection of exposed rock units and microscopic examination of matrix to determine if fossils are present. Paleontological monitors would follow earth-moving equipment and examine excavated sediments and excavation sidewalls for evidence of significant paleontological resources. The monitor shall have the authority to re-direct construction equipment in the event potential paleontological resources are encountered. In the event fossil remains are encountered, work in the vicinity of the discovery shall halt until appropriate treatment of the resource is determined by a qualified paleontologist in accordance with the provisions of CEQA Section 15064.5. All efforts to avoid delays to proposed project schedules would be made.

In the laboratory, all fossils would be prepared, identified, inventoried, and a determination of significance made. Specimen preparation and stabilization methods would be recorded for use by the paleontological repository. All fossil specimens would then be transferred to a public museum or other approved paleontological repository accompanied by a copy of the final paleontological monitoring report and all data in hard and electronic copy. The cost of curation, maintenance, and permanent storage of fossil specimens is generally assessed by the repository.

The final paleontological monitoring report shall be prepared that will include, but not be limited to: a discussion of the results of the monitoring; an evaluation and analysis of the fossils collected (including an assessment of their significance, age, and geologic context); an itemized inventory of fossils collected; a confidential appendix of locality and specimen data with locality maps and photographs; an appendix of curation agreements and other appropriate communications; and a discussion of the project-specific paleontological monitoring plan.

Very truly yours,



Sara Dietler, B.A.
Project Paleontologist

Attachment A – References Cited

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ATTACHMENT A

References Cited

Ahlering, Michael L.
1973 Report of A Scientific Resources Survey and Inventory: Conducted for the City Huntington Beach, California. On file, California State University, Fullerton, South Central Coastal Information Center, Fullerton, California (OR-1).

Amigos De Bolsa Chica
2010 *The History of Bolsa Chica.* Electronic document, http://www.amigosdebolsachica.org/history.htm, accessed April 4, 2012.

Arnold, Jeanne E., Michael Walsh and Sandra E. Hollimon
1992 Complex Hunter-Gatherer-Fishers of Prehistoric California: Chiefs, Specialists, and Maritime adaptations of the Channel Islands. *American Antiquity* 57:60-84

1995 Transportation Innovation and Social Complexity among Maritime Hunter-Gatherer Societies. *American Anthropologist* 97:733-747

2004 The Archaeology of California. *Journal of Archaeological Research* 12(1):1-73.

Arrington, Cindy and Nancy Sikes
2006 *Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and II.* On file, California State University, Fullerton, South Central Coastal Information Center, Fullerton, California (OR-3373).

Bean, Lowell John and Charles R. Smith
1978 *Gabrielino.* In *Handbook of North American Indians*, vol. 9, pp. 538–562. Robert F. Heizer, editor. Smithsonian Institution, Washington, D.C.

Bolsa Chica Land Trust
2009 Bolsa Chica Land Trust History. Electronic document, http://www.bolsachicalandtrust.org/history.html, accessed April 4, 2012.

Cooley, Theodore G.
1973 Report of Test Excavation: CA-ORA-83, CA-ORA-85, and CA-ORA-288. On File, California State University, Fullerton, South Central Coastal Information Center, Fullerton, California (OR-00573).

Erlandson, Jon M.
1994 *Early Hunter-Gatherers of the California Coast.* Plenum Press, NY.

Gumprecht, Blake
1999 *The Los Angeles River: Its Life, Death and Possible Rebirth.* John Hopkins University Press, Baltimore, MD.

Koerper, Henry C., Roger D. Mason, and Mark L. Peterson

2002 Complexity, Demography, and Change in Late Holocene Orange County. In *Catalyst to Complexity Late Holocene Societies of the California Coast,* edited By Jon M. Erlandson and Terry L. Jones, Perspectives in California Archaeology Volume 6. Los Angeles : Cotsen Institute of Archaeology University of California, Los Angeles.

Kroeber, A. L.

1925 Handbook of Indians of California. *Bureau of American Ethnology Bulletin 78,* Smithsonian Institution, Washington D.C.

1976 *Handbook of the Indians of California.* Reprinted. Dover Publications, New York Originally published 1925, Bulletin 78, Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.

Leonard, Nelson N. III and Mathew C. Hall

1975 Description and Evaluation of Cultural Resources within the US Army Corps of Engineers Santa Ana River Project. On file, California State University, Fullerton, South Central Coastal Information Center, Fullerton, California (OR-00270).

Mabry, Theo N.

1979 Records Search and Archaeological Reconnaissance Bolsa Chica Mesa, Orange County, CA. On file, California State University, Fullerton, South Central Coastal Information Center, Fullerton, California (OR-00425).

Martz, Patricia

2010 Archaeological Survey of the Bolsa Chica Land Trust Habitat Restoration Project, Huntington Beach, California. On file, California State University, Fullerton, South Central Coastal Information Center, Fullerton, California (OR-03908).

Mason, R.D., H.C. Koerper, and P.E. Langenwalter II

1997 Middle Holocene adaptations on the Newport Coast of Orange County. In *Archaeology of the California Coast during the Middle Holocene,* edited by J.M. Erlandson and M.A. Glassow, 35-60. Los Angeles: UCLA Institute of Archaeology.

McCawley, William

1996 The First Angelinos: The Gabrielino Indians of Los Angeles. Malki Museum Press, Banning.

2002 A Tale of Two Cultures the Chumash and Gabrielino. In *Islanders and Mainlanders Prehistoric Context for the California Bight*, edited by Jeffrey H. Altschul and Donn R. Grenda, 41-66. SRI Press, Tucson, Arizona.

Nationwide Environmental Title Research

2009 HistoricAerials.com. Electronic document, http://www.historicaerials.com/ Accessed April 4, 2012.

Rick, Torben C., Jon M. Erlandson, Rene L. Vellanoweth, and Todd J. Braje

2005 From Pleistocene Mariners to Complex Hunter-Gatherers: The Archaeology of the California Coast. *Journal of World Prehistory* 19: 169-228.

Ross, Lester and Roger J. Desautels
1970 Bolsa Chica Archaeological Research Project Phase I Surface Survey and Historic Research of Bolsa Chica Bay Area, California. On file, California State University, Fullerton, South Central Coastal Information Center, Fullerton, California (OR-01186).

Vellanoweth, Rene L. and Jeffrey H. Altschul
2002 Antiquarians, Culture Historians, and Scientists: The Archaeology of the Bight. In *Islanders and Mainlanders Prehistoric Context for the California Bight*, edited by Jeffrey H. Altschul and Donn R. Grenda, 85-112. SRI Press, Tucson, Arizona.

Vellanoweth, Rene L., Patricia Martz, and Steven J. Schwartz
2002 Complexity and the Late Holocene Archaeology of San Nicolas Island. In *Catalyst to Complexity Late Holocene Societies of the California Coast,* edited By Jon M. Erlandson and Terry L. Jones, Perspectives in California Archaeology Volume 6. Los Angeles : Cotsen Institute of Archaeology University of California, Los Angeles.

Wallace, W.J.
1955 A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* Vol. 11, no. 3.

War Department Corps of Engineers U.S. Army
1941 Las Bolsas Quadrangle 15-minute series.

Warren, Claude N.
1968 Cultural Traditions and Ecological Adaptation on the Southern California Coast. In *Archaic Prehistory in the Western United States*, edited by Cynthia Irwin-Williams. Eastern New Mexico University Contributions in Anthropology 1(3):1–14.

Whitney-Desautels, Nancy A.
1990 Historical Significance: Bolsa Chica Military Reservation Bolsa Chica Mesa Huntington Beach, Orange County, California, on file California State University, Fullerton, South Central Coastal Information Center, Fullerton, California (OR-01868).