GAIL FARBER, Director

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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ADOPTED
BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES

64 September 6, 2016

LORI GLASGOW
EXECUTIVE OFFICER

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, California 90012

Dear Supervisors:

TRANSFER OF REAL PROPERTY
FROM THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT
TO THE CITY OF AGOURA HILLS
MEDEA CREEK–PARCEL 1EX
(SUPERVISORIAL DISTRICT 3)
(3 VOTES)

SUBJECT

This action is to approve the transfer of real property and flood control facilities for Medea Creek from the Los Angeles County Flood Control District to the City of Agoura Hills.

IT IS RECOMMENDED THAT THE BOARD ACTING AS THE GOVERNING BODY OF THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT:

1. Acting as a responsible agency for the City of Agoura Hills' proposed Medea Creek Restoration Project, consider the Mitigated Negative Declaration prepared and adopted by the City of Agoura Hills, together with any comments received during the public review period; certify the Board has independently considered and reached its own conclusions regarding the environmental effects of the project, as shown in the Mitigated Negative Declaration; find, on the basis of the whole record before the Board, that there is no substantial evidence the project will have a significant effect on the environment; and adopt the Mitigation Monitoring Program for the project.

2. Find that the fee interest in Medea Creek, Parcel 1EX, located in the City of Agoura Hills, is no longer required for the purposes of the Los Angeles County Flood Control District.

3. Authorize the transfer of fee interest and the appurtenant flood control facilities for Medea Creek, Parcel 1EX, from the Los Angeles County Flood Control District to the City of Agoura Hills.

4. Delegate authority to the Chief Engineer of the Los Angeles County Flood Control District or her designee to sign the Quitclaim Deed and authorize delivery to the City of Agoura Hills.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

The purpose of the recommended actions is to approve the transfer of fee title and appurtenant flood control facilities (Improvements) for Medea Creek, Parcel 1EX (Medea Creek), from the Los Angeles County Flood Control District to the City of Agoura Hills.

The City developed the Medea Creek Restoration Project, which involves the naturalization of a 425-foot-long concrete segment of Medea Creek, including the restoration of approximately 1.25 acres of riparian habitat and the installation of trail improvements and educational signage. The transfer of the Improvements will render Medea Creek to be surplus to the District's needs.

Implementation of Strategic Plan Goals

The Countywide Strategic Plan directs the provision of Operational Effectiveness/Fiscal Sustainability (Goal 1). The project will enhance the new riparian habitat and public recreational opportunities in the area, thereby improving the quality of life for the residents of the County of Los Angeles. The transfer will eliminate the need to maintain the property and reduce the District's expenses and potential liabilities.

FISCAL IMPACT/FINANCING

There will be no impact to the County General Fund.

The fee title and Improvements will be transferred to the City gratis. However, the Quitclaim Deed contains a condition that the property can only be used for flood control and/or public recreation purposes. Any other uses will require the City to pay the District fair market value. The City shall be responsible for the maintenance and operations of Medea Creek.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

Medea Creek, Parcel 1EX, is located south of Kanan Road in the City of Agoura Hills.

Pursuant to California Government Code Section 65402, notification of the proposed transfer was submitted to the City's Planning Department for its report as to conformance with the City's adopted General Plan. By a letter dated March 15, 2016, from the City, it was deemed by the City that the proposed sale conforms to its General Plan.

The proposed transfer is authorized by Section 2, subsection 13, of the Los Angeles County Flood Control Act. This section provides as follows: "The Los Angeles County Flood Control District is hereby declared to be a body corporate and politic, and has all the following powers…13. To lease, sell or dispose of any property (or any interest therein) whenever in the judgment of the board of supervisors of the property, or any interest therein or any part thereof, is no longer required for the purpose of the district…"

The Quitclaim Deed does not transfer rights to any oil, gas, petroleum, or other hydrocarbon and minerals.

The Quitclaim Deed will be approved by County Counsel as to form prior to execution and will be recorded.

ENVIRONMENTAL DOCUMENTATION

The District is acting as a responsible agency for the proposed project. The City, as lead agency, prepared an Initial Study, consulted with the County of Los Angeles Department of Public Works, and adopted the enclosed Mitigated Negative Declaration on March 25, 2015, that found the project will not have a significant effect on the environment.

The project is not exempt from payment of a fee to the California Department of Fish and Wildlife, pursuant to Section 711.4 of the State of California Fish and Game Code, to defray the costs of fish and wildlife protection and management incurred by the California Department of Fish and Wildlife. The City has paid the fee. Upon the Board's finding that the project will not have a significant effect on the environment, Public Works will file a Notice of Determination with the office of the Registrar-Recorder/County Clerk of the County in accordance with Section 21152(a) of the California Public Resources Code and pay the required filing fees with the County Clerk in the amount of $75.

IMPACT ON CURRENT SERVICES (OR PROJECTS)

This transaction will transfer the responsibility for the maintenance of Medea Creek from the District to the City.

CONCLUSION

Please return one adopted copy of this letter to the Department of Public Works, Survey/Mapping & Property Management Division.

Respectfully submitted,

GAIL FARBER

Director

GF:SH:dsEnclosure

c: Auditor-Controller (Accounting Division–Asset Management)
Chief Executive Office (Rochelle Goff)
County Counsel
Executive Office

City of Agoura Hills

Medea Creek Restoration Project

Final

Initial Study - Mitigated Negative Declaration

February 2015

rincon

Environmental Scientists Planners Engineers

Medea Creek Restoration Project

Final
Initial Study – Mitigated Negative Declaration

Prepared for:

City of Agoura Hills
30001 Ladyface Court
Agoura Hills, CA 91301
Contact: Allison Cook
(818) 597-7300

Prepared by:

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February 2015

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INTRODUCTION

This Initial Study has been prepared for the Medea Creek Restoration Project ("the project") in compliance with the California Environmental Quality Act (CEQA) Statute and Guidelines (Public Resources Code Section 21000 et. seq. and California Code of Regulations Title 14, Chapter 3 Sections 15000–15387, respectively. The Initial Study addresses the potential environmental effects resulting from the proposed project.

LEGAL AUTHORITY AND FINDINGS

This Initial Study has been prepared in accordance with the *California Environmental Quality Act (CEQA) Guidelines* and relevant provisions of CEQA of 1970, as amended. The purposes of an Initial Study are:

(1) To provide the Lead Agency with the necessary information to decide whether to prepare an Environmental Impact Report (EIR) or a Mitigated Negative Declaration;

(2) To enable the Lead Agency to modify a project, mitigating adverse impacts, thus avoiding the need to prepare an EIR; and

(3) To provide sufficient technical analysis of the environmental effects of a project to permit a judgment based on the record as a whole, that the environmental effects of a project have been adequately mitigated.

IMPACT ANALYSIS AND SIGNIFICANCE CLASSIFICATION

The following sections of this Initial Study provide discussions of the possible environmental effects of the proposed project for specific issue areas that have been identified on the CEQA Initial Study Checklist. Potential effects are discussed and evaluated for each issue.

A "significant effect" is defined by Section 15382 of the CEQA Guidelines as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance." According to the *CEQA Guidelines*, "an economic or social change by itself shall not be considered a significant effect on the environment, but may be considered in determining whether the physical change is significant."

Following the evaluation of each environmental effect determined to be potentially significant is a discussion of mitigation measures and the residual effects or level of significance remaining after the implementation of the measures. In those cases where a mitigation measure for an impact could have a significant environmental impact in another issue area, this impact is discussed as a residual effect.

INITIAL STUDY

PROJECT TITLE

Medea Creek Restoration Project

LEAD AGENCY and CONTACT PERSON

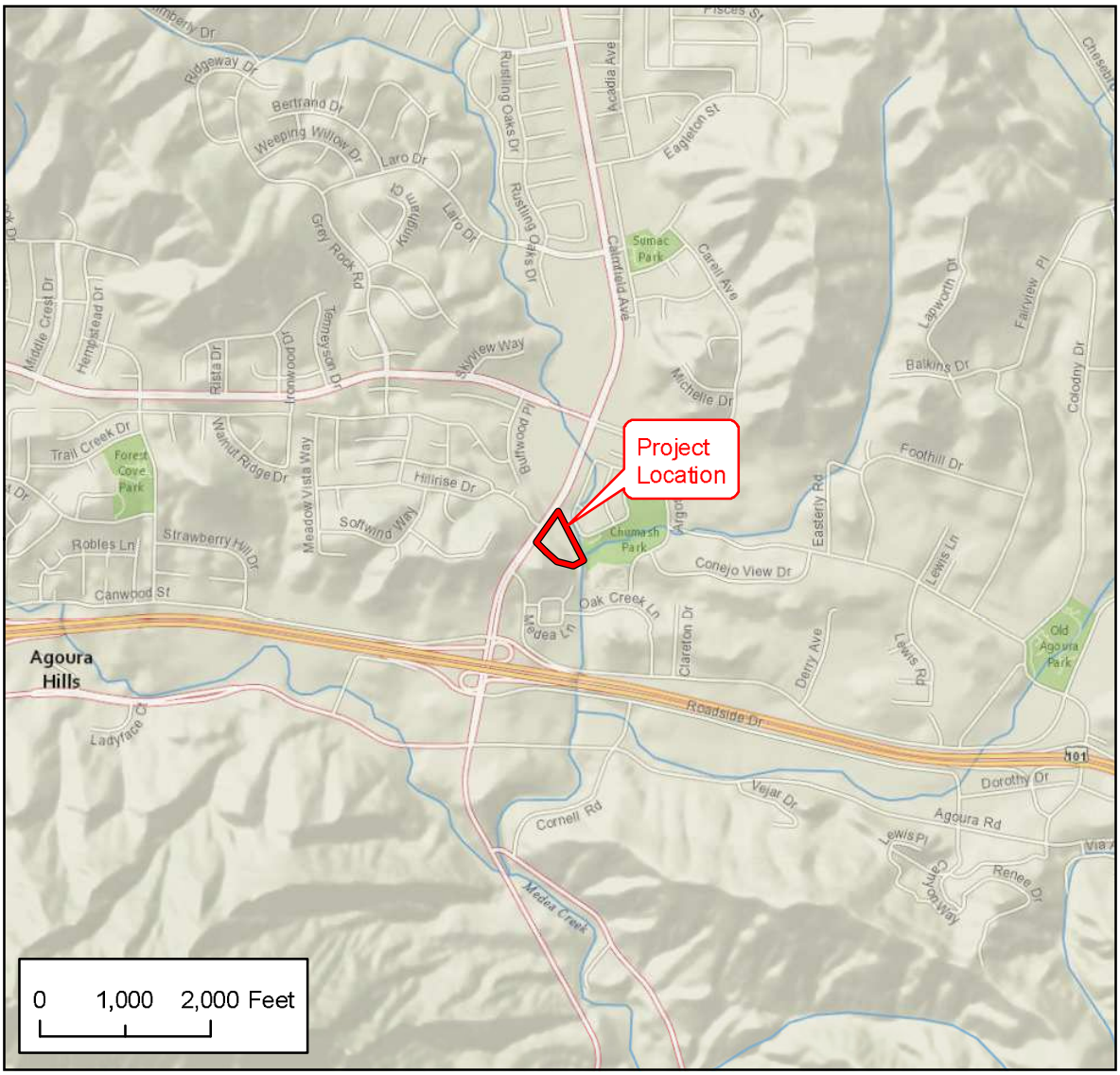
City of Agoura Hills
30001 Ladyface Court
Agoura Hills, CA 91301
Allison Cook, Principal Planner/Environmental Analyst
(818) 597-7310

PROJECT PROPONENT

City of Agoura Hills
30001 Ladyface Court
Agoura Hills, CA 91301

PROJECT SITE CHARACTERISTICS

The Medea Creek Restoration project site (project site) is located within the City of Agoura Hills (City) between Canwood Street and Thousand Oaks Boulevard on the east side of Kanan Road. The City is located in the eastern Conejo Valley between the Simi Hills and Santa Monica Mountains in western Los Angeles County. The site is depicted in Township 1 North, Range 18 West of the U.S. Geographical Survey (USGS) Thousand Oaks 7.5-minute topographic quadrangle. **Figure 1,** *Regional Location*, shows the regional context of the project site. The project site includes an approximately 450-foot reach of Medea Creek and its associated access roads and right-of-way, located between Kanan Road and Chumash Park. This reach of Medea Creek is currently contained in a trapezoidal concrete channel with a slope of one percent. This channel, which collects flows from a steep box culvert draining under Kanan Road, conveys flows to a naturally vegetated segment of the creek approximately 450 feet south of Kanan Road that includes riparian vegetation and pool habitat. Currently, there are vehicle access/maintenance roads bordering the channel on either side. An informal trail is present along the edge of existing fence behind the back yards of residential parcels adjacent to the east side of the channel (off Medea Valley Drive and Rock Tree Drive), which connects Chumash Park to Kanan Road. This trail is unimproved, consisting of a dirt surface with steep gradients. It is located within the current channel right-of-way and does not cross the rear portion of the private residential parcels. Another informal trail is located on the open space property along the west side of the channel, and terminates at a "look out" on the top of the hill of the open space property. A major trunk sewer line serving a significant portion of the City parallels the existing channel on the west side along this reach of the creek. The sewer line is owned and maintained by the Las Virgenes Municipal Water District.



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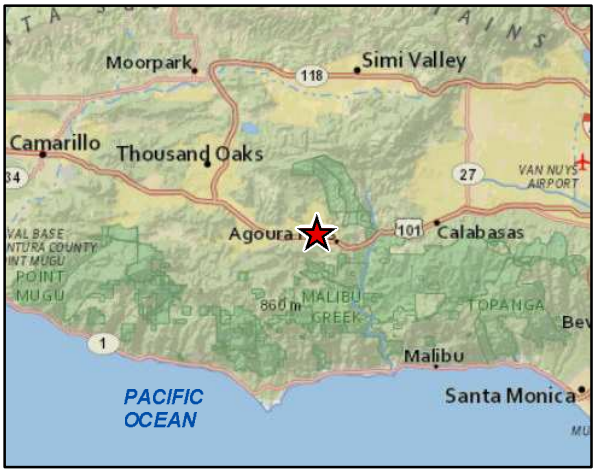
N

★ Project Location



Regional Location

Figure 1

The project site totals 574,992 square feet (13.2 acres) and includes the following Assessor Parcel Numbers (APNs):

APN	Owner	Proposed Action
2048-007-900	L.A. County Flood Control	Channel naturalization on upper portion
2048-007-004	Archstone Smith Oak Creek II LLC	Channel naturalization, ADA trail and landscaping on portion of this HOA open space area near the channel and Kanan Road
2048-007-901	City of Agoura Hills	Trail on a portion of Chumash Park area

Land uses surrounding the project site are residential single-family development and Chumash Park to the east; Kanan Road and commercial shopping center development to the north; Kanan Road, residential single-family development, and open space to the west; and a naturalized portion of Medea Creek to the south abutted by an apartment complex. Chumash Park provides ball fields, playground, picnic table and restroom facilities. **Figure 2,** *Project Location*, depicts the project site and its immediate surroundings. **Figure 3** provides photographs showing the existing conditions at the project site.

a. Existing General Plan Designation: The existing land use designations for the project site in the City's General Plan are the following: Open Space-Restricted (OS-R); Open Space-Deed Restricted (OS-DR); and Park (P).

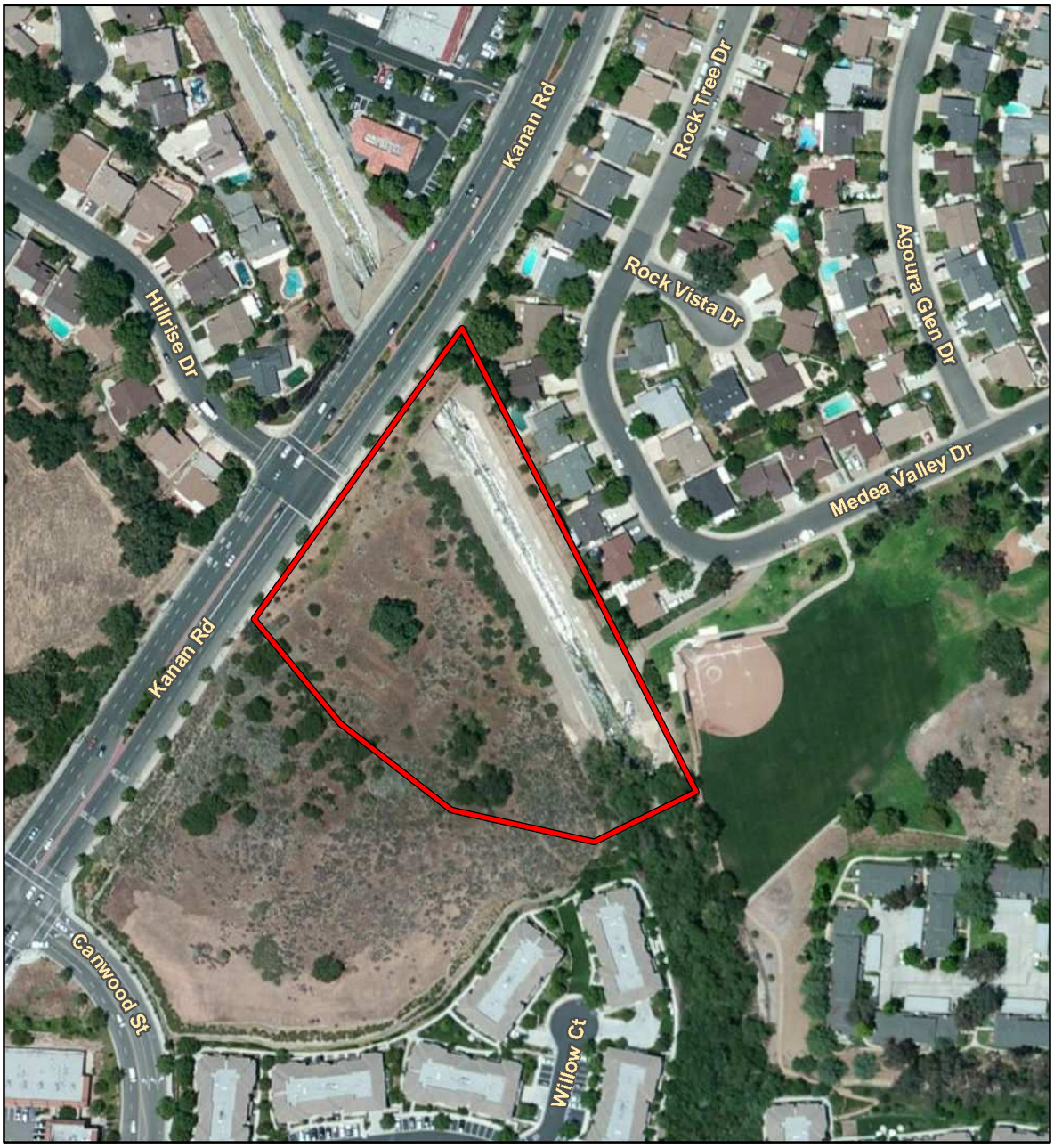
b. Existing Zoning: The project site is currently zoned as follows: Open Space-Deed Restricted (OS-DR); Park (P); and Open Space-Restricted – Flood Control – Drainage (OS-R – FC – D).

PROJECT DESCRIPTION

The purpose of the project is twofold: (1) naturalize a portion of Medea Creek for aesthetic and biological habitat purposes; and (2) improve pedestrian connections in the area, particularly from the east to west sides of Kanan Road and points beyond.

Project implementation would involve removal of approximately 425 linear feet of concrete trapezoidal channel and construction of a natural channel stabilized with native vegetation, boulders and log structures. The project would also provide pedestrian connectivity from Kanan Road through a vacant parcel to the west of Medea Creek, to Chumash Park east of Medea Creek via a footbridge. **Figure 4,** *Site Plan*, illustrates the project components. More detailed information regarding the various phases of the proposed project is provided below and in Appendix D, preliminary construction drawings.

a. Demolition. As part of the proposed project, most of the existing concrete channel and the asphalt access roads on the eastern and western sides would be demolished and the rubble would be hauled off site to an appropriate refuse disposal facility. Demolition activity would occur over a duration of two weeks. Removal of demolition debris off site would require approximately 50-70 total truck trips, up to five truck trips per day. A 25-foot-long section of concrete channel directly downstream from the Kanan Road culvert would remain in place and a concrete cutoff wall would be constructed, as shown in **Figure 5,** *Channel Features*. The concrete apron and cutoff wall would be designed to protect the existing culvert from scour and undermining, due to the velocities of flow leaving the culvert.



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Project Location

0 100 200 Feet

N

Project Location

Figure 2

Photo 1: View of concrete-lined creek channel, facing southeast.

Photo 2: Storm drain outlet at southern end of reach, facing west from Chumash Park.

Site Photos

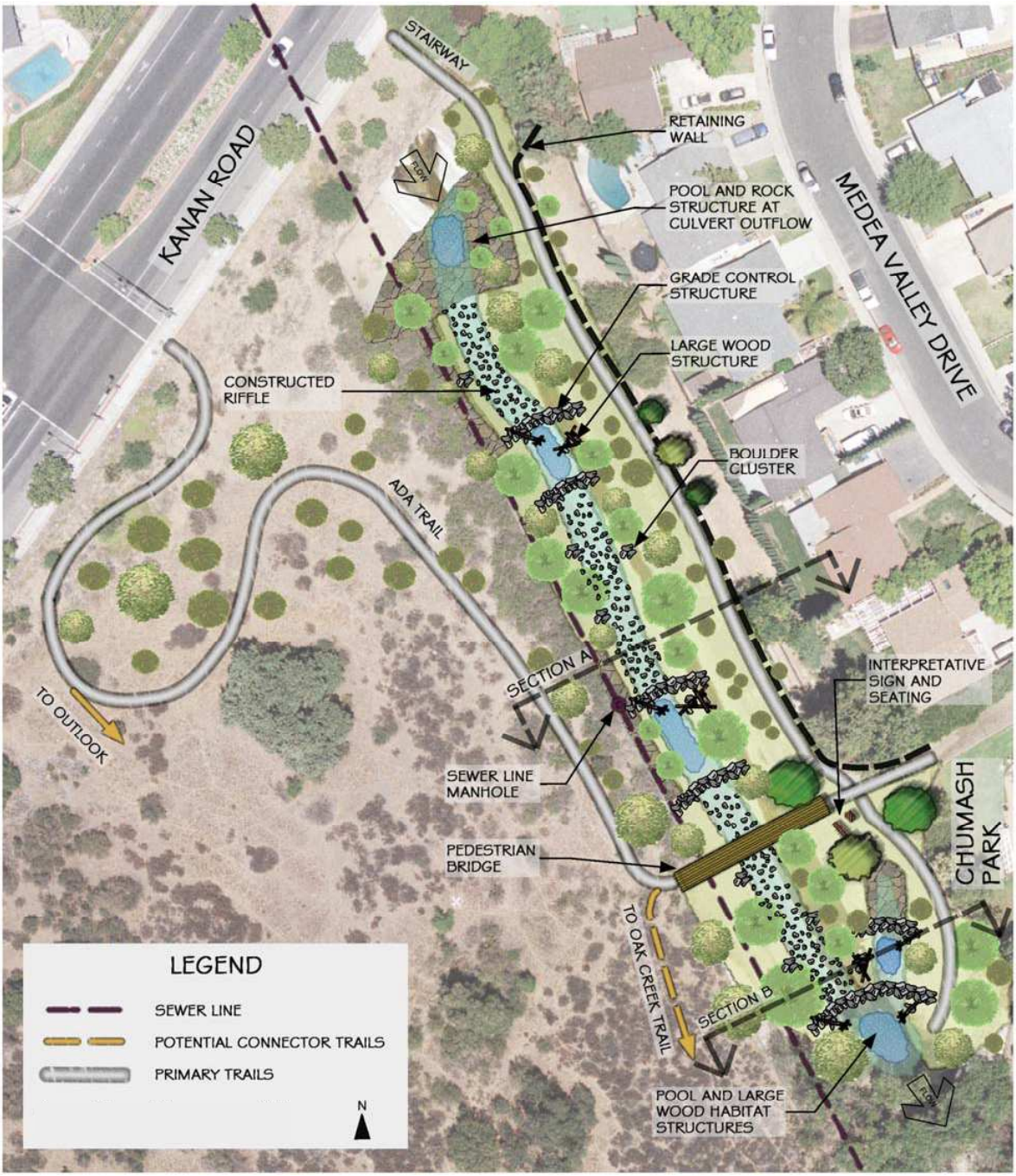
Figure 3a

Photo 3: View of project site, facing north.

Photo 4: View of channel, facing southeast.

Site Photos

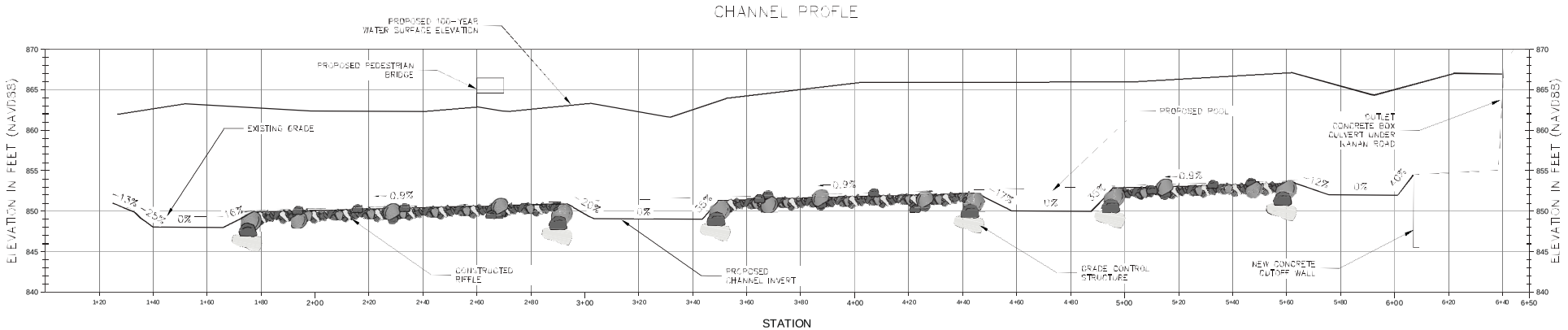
Figure 3b



Source: Questa Engineering

Site Plan

Figure 4



Source: Questa Engineering

Channel Features

Figure 5

City of Agoura Hills

Demolition of the existing channel would generate approximately 1,000 cubic yards of waste. During demolition activities, it is anticipated that five workers would be on-site with up to 10 workers present during high activity days. Construction equipment would include up to two excavators, one rubber tire front loader, one bulldozer, and two to three dump trucks.

b. Restoration. Once removal of the concrete channel is complete, the creek would be restored to a natural condition through the planting of native riparian vegetation, which would be generally consistent with vegetation found south of the project site. The project would also entail the construction of a pedestrian trail from Kanan Road to Chumash Park, crossing Medea Creek via a footbridge. The alignment of the trail and the location of the bridge are shown in **Figure 4**. Construction activities for the restoration component of the project would take about four months. Up to 20 truck trips would be required to complete the restoration component. Construction equipment would include up to two back excavator bulldozers, one skip loader, one small dump truck, one crane, and two cement trucks for the concrete work. During restoration activities, five workers would be anticipated on-site with up to 10 workers present during high activity days.

Channel Gradient Control. The first restoration component involves the slope of the channel. The current channel has a slope of approximately one percent with an elevation drop of approximately 4 feet over the 425-foot project reach. If the concrete was to be removed and the existing slope maintained, then flow velocities would be high, turbulent flow would dominate, and the channel bed would likely undergo significant bed degradation (Questa, 2013).

The proposed project addresses these issues through a series of pools and riffles with rock weirs constructed throughout the sequences to ensure that the channel features are maintained over time. Varying the number of rock weirs and their vertical drop heights allows for numerous options; however, to accommodate passage of the rainbow trout (*Oncorhynchus mykiss*) that inhabit the downstream channel, the project design limits drop heights to less than one foot (see **Figure 6,** *Channel Grading*). In addition to the gradient control weirs, constructed riffles would be installed using a variety of rock sizes to mimic a natural channel riffle.

The channel banks along the riffles and grade control structures would be planted with willow stakes to ensure that vegetation cover becomes part of the overall channel structure. Willow would be planted in the deep trenches associated with the weir and keyway construction. The trenches would be of sufficient depth so that willow planting could have access to underflow and groundwater resources. Additional riparian planting would be completed on the flood plains and channel banks to insure long-term stability of the channel.

Bank Slope Configuration. The existing concrete bank slopes are currently 1.5 (horizontal) to 1 (vertical). For the restoration of the bank slopes to be successful, the angle of the slope would be reduced. Typically, a slope of 2:1 or flatter is recommended for re-vegetation. Steeper slopes such as 1.75:1 can be re-vegetated but require greater effort; colonization and growth can be slower. As shown in **Figure 7,** *Proposed Channel Sections*, the project has been designed with a minimum bank slope of 2:1, with most slopes at least 2.5:1 or flatter.

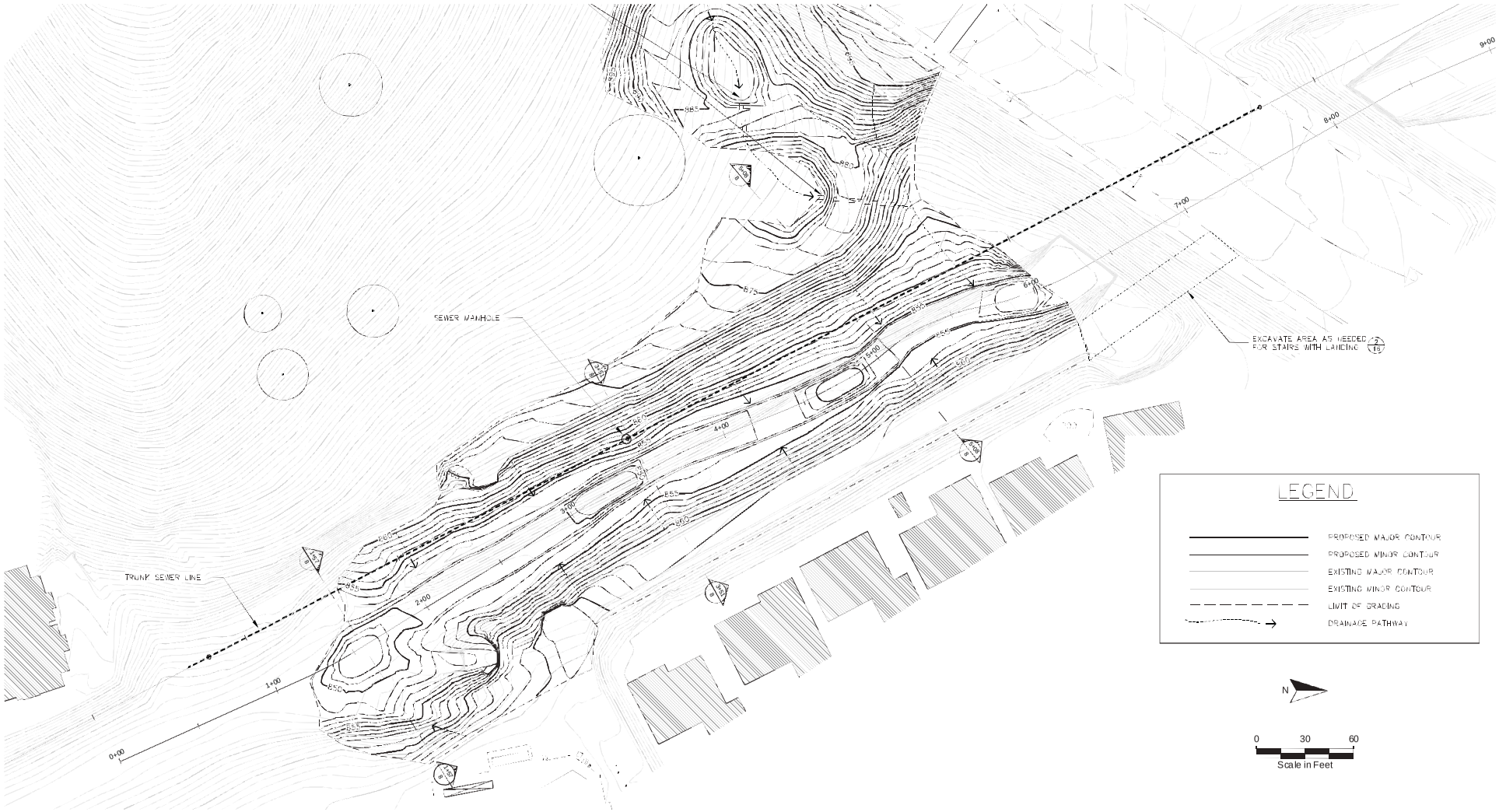
Sewer Line Protection. The existing trunk sewer line would not be realigned as part of the proposed project. Instead, the sewer line would be protected from scour with grouted riprap rock placed adjacent and on top of the line at locations where the creek channel is within 10 to 15 feet of the sewer line. See **Figure 8,** *Sewer Line Protection Plan*, for details. The proposed scour protection measures have been developed as a result of extensive coordination with the Las Virgenes Municipal Water District (LVMWD), which has reviewed the proposed design. In addition, proposed

access routes to the existing sewer line for maintenance activities have been developed in consultation with LVMWD.

Flood Control. The proposed project would result in an increase in frictional resistance in the channel due to the restored natural bottom and vegetation, increasing incrementally over time as the vegetative planting matures. The increased frictional resistance of the channel could impact the velocity of water moving through the channel and change flooding depths. Predicted water surface elevations for the proposed project show that the channel revegetation could cause shallow flooding of the bank top trail and lower portion of the retaining wall on the eastern side of the channel. The resulting minor flooding at the base of this slope is on private property (although predicted water surface elevations are well below houses and other structures on these properties). To prevent minor flooding of private property during the 100-year design storm, a four-foot high retaining wall would be constructed adjacent to, but outside of, the private parcels on the western side of the project, as shown in **Figure 4**. In addition, the proposed retaining wall would allow for a reduction in the gradient of the slope above it resulting in increased re-vegetation success on the hillside. The wall itself would be constructed of rough-faced concrete block, shown in the photo above, and would not be visible from the adjacent residences.

Erosion Control. Channel erosion potential would change over time as the planted vegetation matures. Typically, the erosion potential of the channel and banks decreases as the project ages, and mature, stable vegetation is established. Approaches that integrate vegetation and biodegradable products such as fiber blankets, logs, and coir products (as shown in the adjacent photo) would be used. The biodegradable products are used to provide temporary erosion protection and allow vegetation to mature and provide the primary erosion control for a three to five year period, giving re-vegetation plantings time to establish.

To provide short term erosion control but also not construct an entirely riprap-lined channel, the project design combines rock placement with other "softer" erosion control and habitat features. The floodplain terrace would be covered with an erosion control blanket that would be made of biodegradable coir fiber. Typically, the fiber begins to degrade within two to three years but takes up to 10+ years to fully disintegrate. The bank slope would be hydro-seeded with an appropriate woody and grass seed mixture (detailed further below), and a biodegradable erosion control blanket would be installed on top of all exposed slopes. Bank slope planting would be completed by cutting holes within the blanket and installing appropriate tree and shrub species. Anchored logs would be incorporated into the pools and grade control structures to dissipate erosive energy and create habitat complexity. These logs would be anchored using large stone counter weights. In addition, coir bio-blocks would be installed along the channel edge in



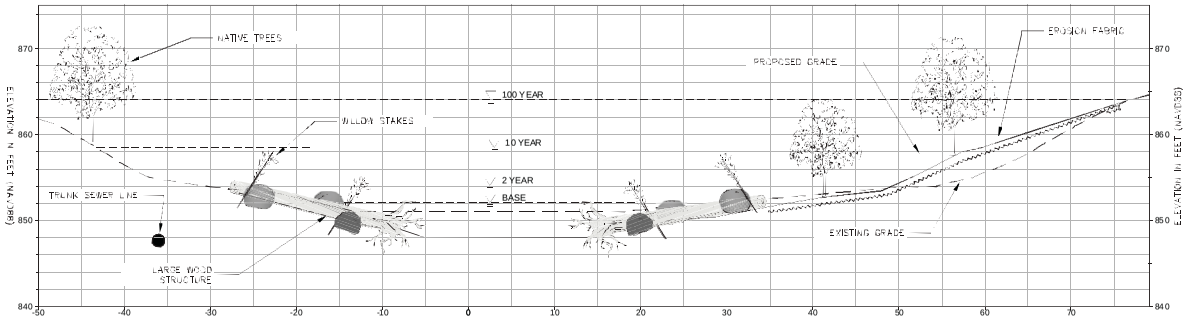
Source: Questa Engineering

Channel Grading

Figure 6

NOTE:
ALL SECTIONS LOOKING UPSTREAM

STA 1+57



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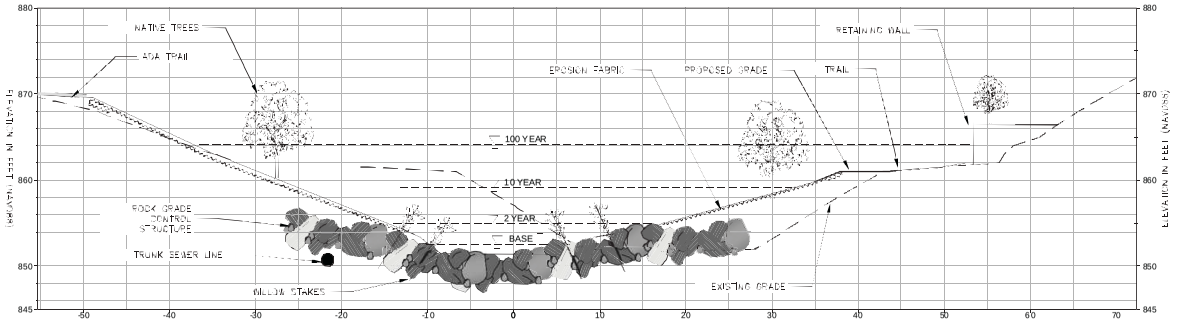

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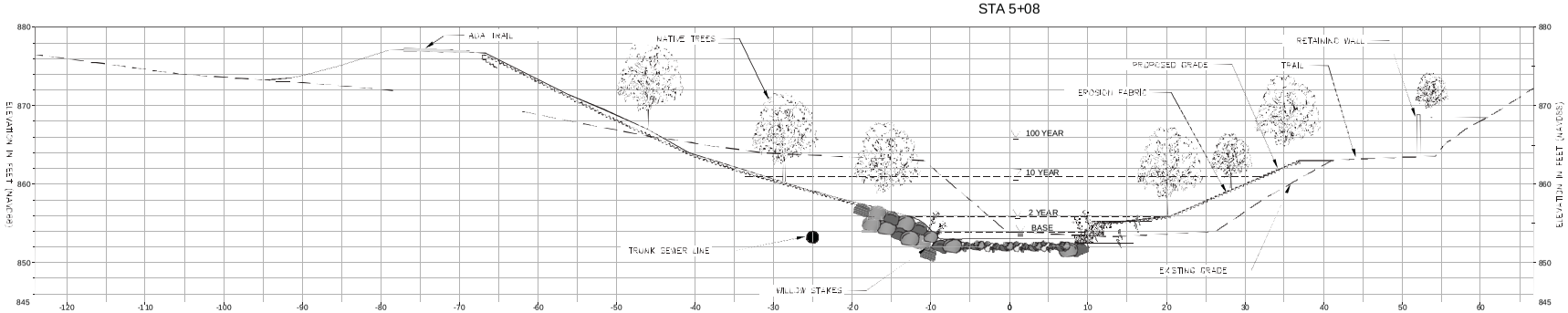
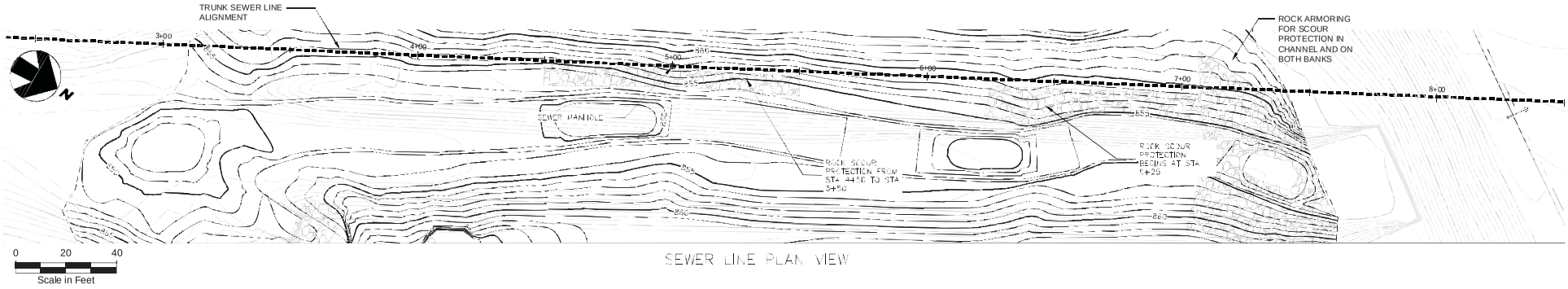


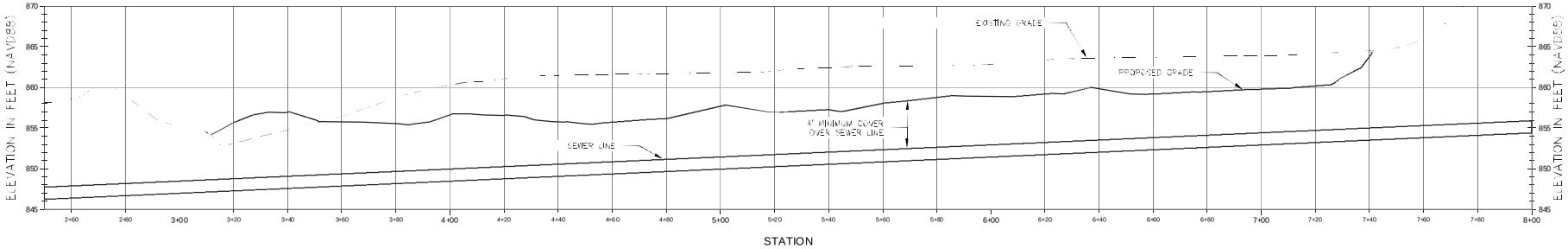
Source: Questa Engineering

Proposed Channel Sections

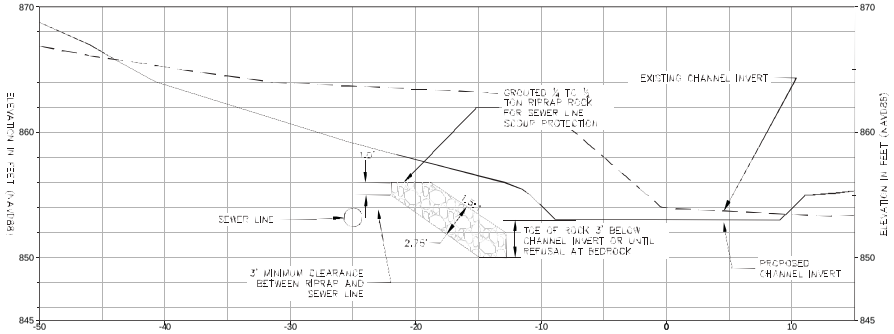
Figure 7



SEWER LINE PLAN VIEW



SEWER LINE PROFILE



NOTES:

CONTRACTOR SHALL VIDEO SEWER MAIN FOLLOWING PROJECT COMPLETION TO INSURE THAT THE LINE WAS NOT DAMAGED DURING CONSTRUCTION.

Source: Questa Engineering

Sewer Line Protection Plan

Figure 8

City of Agoura Hills

association with willow stakes. The purpose of the willow stakes is twofold: to provide root binding in the channel banks to aid in both temporary and permanent bank stabilization; and, as they mature, to provide canopy cover for the channel.

Confluence Restoration. The confluence area at the downstream portion of the project would be treated with many of the same channel stabilization and habitat enhancement techniques utilized throughout the rest of the project. Near the outflow of the storm drain pipe at Kanan Road, un-grouted riprap rock armoring will be installed to dissipate the energy of flows exiting the drain. Farther downstream, a small pool, two rock grade control structures, and large wood habitat features will create a smooth transition into the main channel, as shown in **Figure 4.**

Preliminary Planting Plan. Planting for the project area would be divided into three different planting zones: a) floodplain and lower bank, b) mid-bank slope, and c) uplands, allowing for site-specific native species selection. Plant species proposed in each of these zones are as follows:

- Zone A (Floodplain and Lower Bank)
    - Trees: Freemont cottonwood (*Populus fremontii*) and Arroyo willow (*Salix lasiolepis*)
    - Shrubs, perennials and grasses: Rough sedge (*Carex senta*), Common rush (*Juncus patens*) and San Diego sedge (*Cares spissa*)
- Zone B (Mid-Bank Slope)
    - Trees: Toyon (*Heteromeles arbutifolia*), California Sycamore (*Platanus racemosa*), Freemont cottonwood (*Populus fremontii*) and Arroyo willow (*Salix lasiolepis*)
    - Shrubs, perennials and grasses: California blackberry (*Rubus ursinus*), Mugwort (*Artemesia douglasiana*), Mulefat (*Baccharis consanguinea*) and California rose (*Rosa californica*)
- Zone C (Uplands)
    - Trees: California Sycamore (*Platanus racemosa*), Coast live oak (*Quercus agrifolia*), California black walnut (*Juglans californica*) and California buckeye (*Aesculus californica*)
    - Shrubs, perennials and grasses: Coyote brush (*Baccharis pilularis*), Maroon monkey flower (*Mimulus aurantiacus var rutilius),* Bush lupine (*Lupinus longifolius),* Mulefat (*Baccharis consanguinea*), California coffeeberry (*Rhamnus californica),* Snowberry (*Symphoricarpus mollis),* California poppy (*Eschscholzia californica)* and California sagebrush (*Artemisia californica*)

See **Figure 9a,** *Planting Plan*, for an illustration of the extent of each planting zone. A temporary irrigation system (see **Figure 9b,** *Irrigation Plan*) would need to be installed to ensure adequate irrigation during the vegetation establishment period, which is estimated at around five years.

Public Access. **Figure 4** illustrates the conceptual alignment of the proposed public access facilities. A truss-type pedestrian bridge and trail compliant with the American Disability Act (ADA) is proposed to connect Chumash Park with Kanan Road (see Sheet 9 of preliminary construction drawings in Appendix D). The 80-foot span pedestrian bridge would be installed with a minimum of one foot of freeboard above the 100-year flood elevation with the bottom of the bridge at an elevation of approximately 865 feet. The bridge would be approximately 10 feet wide and would be of steel (trusses) and wood (deck) construction (see Sheet 15 of preliminary construction drawings). The 12-foot wide ADA compliant trail on the west side of the channel would be composed of an eight-foot wide asphalt paved trail and two-foot wide, unpaved shoulders. In addition, a 12-foot wide trail, composed of an eight-foot wide decomposed granite trail and two foot

wide, unpaved shoulders, is proposed, accessing the "confluence area" at the downstream extent of the project site (see Sheet 9 of the preliminary construction drawings). The existing informal trail on the east side of the channel would remain in the same alignment and be improved with decomposed granite material, and would serve as an additional connection to Kanan Road via concrete steps, as shown on **Figure 4** and on Sheet 14 of the preliminary construction drawings.

The total area of construction impact is 91,000 square feet (includes staging and construction access areas). Project construction is expected to take a total of four months, and begin in the latter part of 2015. In addition to any temporary construction or access easements necessary to construct the project, the City would need to obtain a permanent easement for a portion of APN 2048-007-004 that belongs to the Oak Creek Apartments Homeowners Association. The City is also seeking to take over ownership and maintenance of the channel portion from the Los Angeles County Flood Control District.

During demolition and restoration activities diversion of surface flows within the channel would be required. As shown in **Figure 10** and on Sheet 3 of the preliminary construction drawings in Appendix D, a temporary visqueen and gravel-filled sandbag coffer dam would be installed at the downstream end of the box culvert draining under Kanan Road to maintain the dewatered channel. A sump pump would be placed upstream of the coffer dam and connected to a diversion pipe that would be sized to convey typical flows through the channel (maximum 5 cubic feet per second, or cfs). The power source for the sump pump would be located in the northeast corner of the project site, near the base of the slope leading to Kanan Road. Exclusionary fencing would be installed upstream of the sump pump to filter debris and prevent wildlife from entering the work area. The exclusionary fencing would consist of a filter fabric attached to steel or wood posts set a minimum of eight inches into the subsurface.

The diversion pipe would be routed along the eastern bank of the channel (as shown in **Figure 10**). Trenching of the diversion pipe may be required at the point where it would cross the construction entrance immediately west of the existing access point from Medea Valley Drive. The diversion pipe would then parallel the fence along the western edge of Chumash Park before discharging into the channel at the southern end of the project site.

No dewatering of groundwater would occur during either demolition or restoration activities.

PUBLIC AGENCIES WHOSE APPROVAL MAY BE REQUIRED FOR SUBSEQUENT ACTIONS (e.g. permits, financing approval, or participation agreement):

The City of Agoura Hills is the Lead Agency for the proposed project under the California Environmental Quality Act (CEQA). Responsible Agencies include the County of Los Angeles (Flood Control), California Department of Fish and Wildlife, and Los Angeles Regional Water Quality Control Board. Project implementation could require the following approvals:

- City of Agoura Hills, Grading Permit and possible Encroachment Permit
- US Army Corps of Engineers, Section 404 Nationwide Permit
- California Department of Fish and Wildlife, Section 1600 Streambed Alteration Agreement
- Los Angeles Regional Water Quality Control Board, Section 401 Certification and State Waste Discharge Requirements Permit
  -

PLANT LEGEND

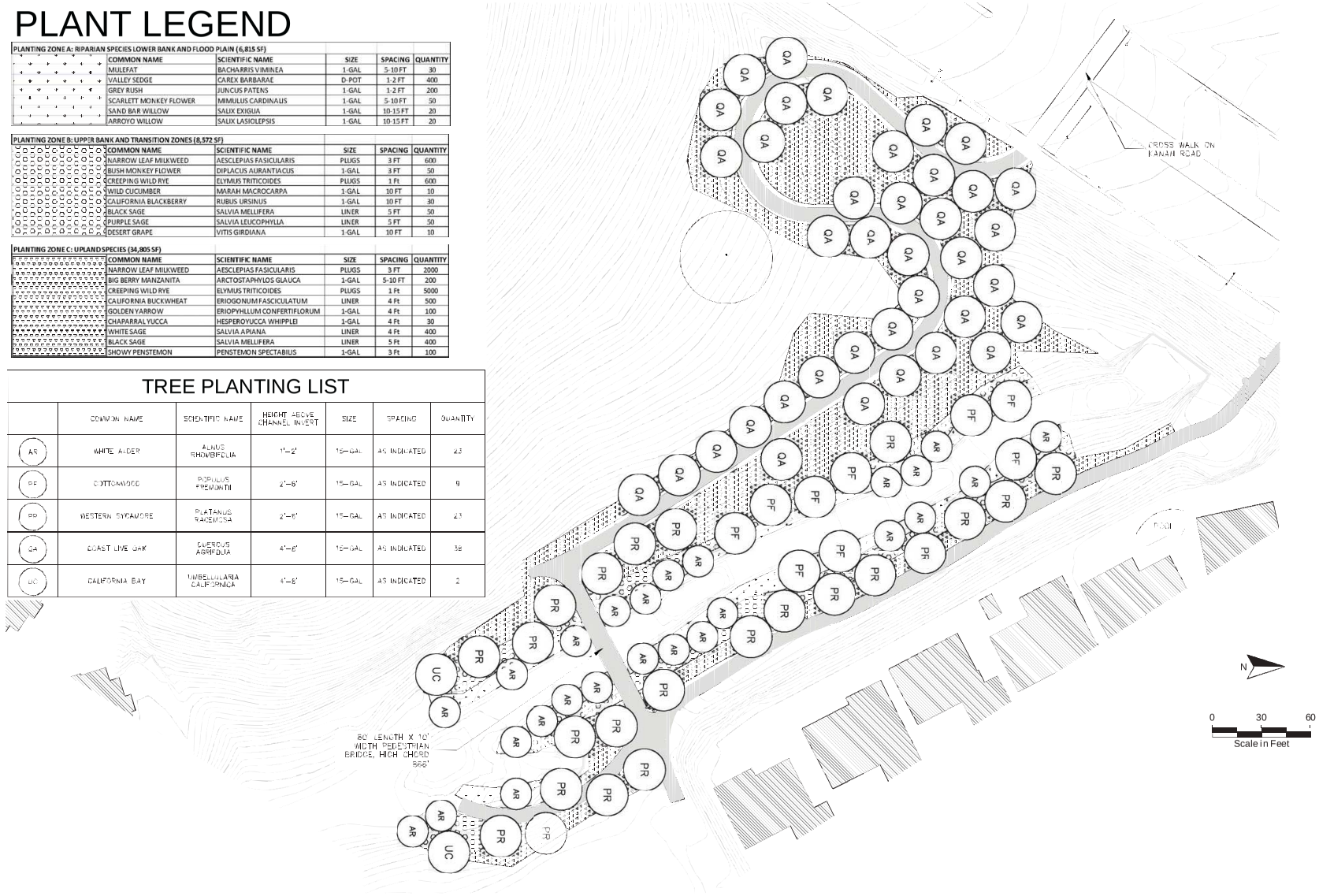
PLANTING ZONE A: RIPARIAN SPECIES LOWER BANK AND FLOOD PLAIN (6,815 SF)					
	COMMON NAME	SCIENTIFIC NAME	SIZE	SPACING	QUANTITY
	MULEFAT	BACHARRIS VIMINEA	1-GAL	5-10 FT	30
	VALLEY SEDGE	CAREX BARBARAE	D-POT	1-2 FT	400
	GREY BUSH	JUNCUS PATENS	1-GAL	1-2 FT	200
	SCARLETT MONKEY FLOWER	MIMULUS CARDINALIS	1-GAL	5-10 FT	50
	SAND BAR WILLOW	SALIX EXIGUA	1-GAL	10-15 FT	20
	ARROYO WILLOW	SALIX LASIOLEPSIS	1-GAL	10-15 FT	20

PLANTING ZONE B: UPPER BANK AND TRANSITION ZONES (8,572 SF)					
	COMMON NAME	SCIENTIFIC NAME	SIZE	SPACING	QUANTITY
	NARROW LEAF MILKWEED	AESCLEPIAS FASICULARIS	PLUGS	3 FT	600
	BUSH MONKEY FLOWER	DIPLACUS AURANTIACUS	1-GAL	3 FT	50
	CREEPING WILD RYE	ELYMUS TRITICOIDES	PLUGS	1 Ft	600
	WILD CUCUMBER	MARAH MACROCARPA	1-GAL	10 FT	10
	CALIFORNIA BLACKBERRY	RUBUS URSINUS	1-GAL	10 FT	30
	BLACK SAGE	SALVIA MELLIFERA	LINER	5 FT	50
	PURPLE SAGE	SALVIA LEUCOPHYLLA	LINER	5 FT	50
	DESERT GRAPE	VITIS GIRDIANA	1-GAL	10 FT	10

PLANTING ZONE C: UPLAND SPECIES (34,805 SF)					
	COMMON NAME	SCIENTIFIC NAME	SIZE	SPACING	QUANTITY
	NARROW LEAF MILKWEED	AESCLEPIAS FASICULARIS	PLUGS	3 FT	2000
	BIG BERRY MANZANITA	ARCTOSTAPHYLOS GLAUCA	1-GAL	5-10 FT	200
	CREEPING WILD RYE	ELYMUS TRITICOIDES	PLUGS	1 Ft	5000
	CALIFORNIA BUCKWHEAT	ERIOGONUM FASCICULATUM	LINER	4 Ft	500
	GOLDEN YARROW	ERIOPYHLLUM CONFERTIFLORUM	1-GAL	4 Ft	100
	CHAPARRAL YUCCA	HESPEROYUCCA WHIPPLEI	1-GAL	4 Ft	30
	WHITE SAGE	SALVIA APIANA	LINER	4 Ft	400
	BLACK SAGE	SALVIA MELLIFERA	LINER	5 Ft	400
	SHOWY PENSTEMON	PENSTEMON SPECTABIUS	1-GAL	3 Ft	100

TREE PLANTING LIST

	COMMON NAME	SCIENTIFIC NAME	HEIGHT ABOVE CHANNEL INVERT	SIZE	SPACING	QUANTITY
AR	WHITE ALDER	ALNUS RHOMBIFOLIA	1'–2'	15–GAL	AS INDICATED	23
PF	COTTONWOOD	POPULUS FREMONTII	2'–6'	15–GAL	AS INDICATED	9
PR	WESTERN SYCAMORE	PLATANUS RACEMOSA	2'–6'	15–GAL	AS INDICATED	23
QA	COAST LIVE OAK	QUERCUS AGRIFOLIA	4'–8'	15–GAL	AS INDICATED	38
UC	CALIFORNIA BAY	UMBELLULARIA CALIFORNICA	4'–8'	15–GAL	AS INDICATED	2



Source: Questa Engineering

Planting Plan

Figure 9a

STANDARD SYMBOL	DESCRIPTION	MANUFACTURER	MODEL # (if applicable)	COMMENTS	DETAIL (see sheet 10)
	Irrigation Trench - Mainline	Sch. 40 PVC for 2" & less		24" below fin. grade	1
	Irrigation Trench - Lateral line	Sch. 40 PVC for line 1" & smaller		18" below fin. grade	1
	Sleeves	Class 315 PVC		24"/18" below fin. grade	1
	Quick-Coupling Valve w/ Swing Joint (in box)	Hunter	HQ5LRC w/ HSJ-1		4
	Quick-Coupling Valve Box	Carson	910 Lockable	10" Round box w/ lid	4
	Dripline Tubing W/ Built in Emitters	Hunter	PLD-04 - 18 - 1K	Extend from lateral PVC	--
	Dripline Tubing	Hunter	PLD-BLNK	Extend from lateral PVC and connect to emitter*	2
	Back Flow Preventor	--	--		2
	Gate Valve (in box)	Nibco	T-113		1
	Gate Valve Box	Carson	910 Lockable		3
	Remote Control Valve (in box)	Hunter	ICZ-101 w/ Node 100 Controller		1
	Remote Control Valve Box	Rainbird	Valve box with cover : Rainbird VB-STD		1

*Emitters not shown on plan

1 — STATION
-- — GALLONS/MIN

POC — POINT OF CONNECTION

IRRIGATION NOTES:

1. These irrigation drawings are diagrammatic and indicate the work to be installed. All piping, valves, and other irrigation components may be shown within paved areas for graphic clarity only and are to be installed within planting areas. Due to the scale of the drawings, it is not possible to indicate all offsets, fittings, sleeves, conduit, and other items which may be required. In the event of field discrepancy with contract documents, contact Engineer install in accordance with Specifications. Notify and coordinate irrigation contract work with applicable contractors for the location and installation of pipe, conduit or sleeves through or under walls, paving and structures before construction. In the event these notifications are not performed, the contractor assumes full responsibility for required revisions.
2. Irrigation pipe and wire crossing beneath hardscape surfaces shall be contained within sleeving. Sleeving size shall be a minimum of two times the aggregate diameter of all pipes contained within sleeve.
3. Contractor shall be responsible for minor changes in the irrigation layout due to obstructions not shown on the irrigation drawings such as utilities, water lines, signs, electrical enclosures, etc.
4. The intent of this irrigation system is to provide the minimum amount of water required to sustain good plant health.
5. It is the responsibility of the contractor to program the irrigation controller(s) to provide the minimum amount of water needed to sustain good plant health. This includes making adjustments to the program for seasonal weather changes, plant material, water requirements and climate.
6. Install controller per manufacturer's recommendations including wire and wire connections.
7. Irrigation control wires: solid copper with UL approval for direct burial in ground.
8. Do not trench within the dripline of trees unless approved by the City. Where it is necessary to excavate adjacent to existing trees, use caution to avoid injury to trees and tree roots. Excavate by hand, in areas where two (2) inch and larger plant roots occur.
9. Remote control valve box locations, as shown, are diagrammatic. Install in planting areas. Contractor to verify and locate point of connection to existing water main in field. Install per manufacturer's instructions in valve box. Adjust to supply sufficient irrigation for optimal plant growth.
10. Flush and adjust system for optimum performance and optimum operating pressure for each control zone.
11. Locate bubblers/emitters on uphill side of plant where applicable.
12. System is designed for operating water pressure: 40 PSI. The contractor shall verify water pressure prior to construction. Report any difference between the water pressure indicated on the drawings and the actual pressure reading at the irrigation point of connection to the Engineer.
13. Pipe sizing shown on the drawings is typical. As changes in layout occur during construction the size may need to be adjusted accordingly.
14. Unsized aerial line piping located downstream of 1" piping shall be 3/4" typical.
15. Do not wilfully install the irrigation system when it is obvious in the field that wind conditions, obstructions, grade differences, or differences in the area's dimensions exist that might not have been considered in the design. Bring such differences to the attention of the engineer. In the event that this notification is not performed, contractor shall assume full responsibility for all necessary revisions.
16. Install check valves on lateral lines as needed to prevent low head drainage.

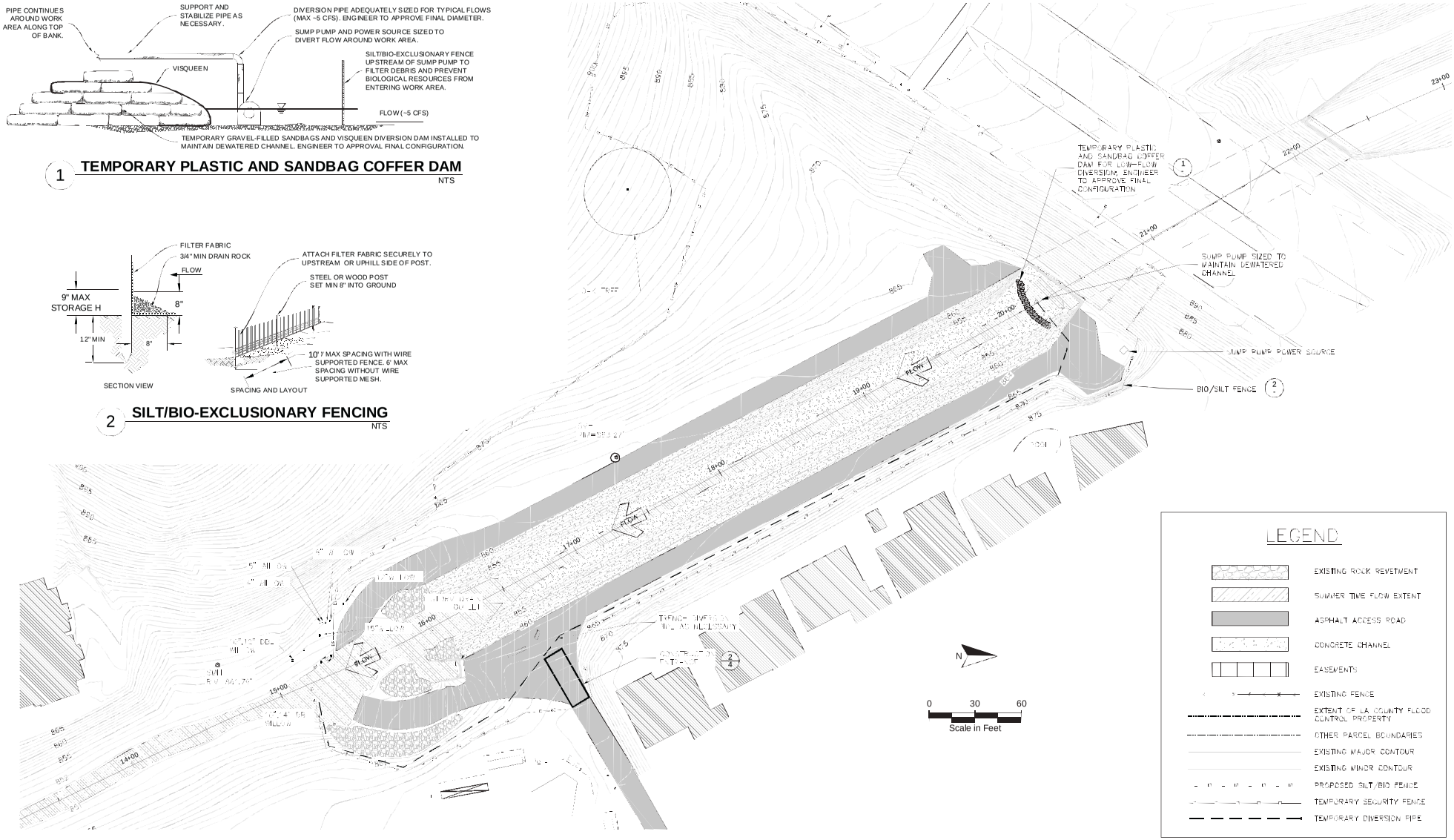
Source: Questa Engineering

Irrigation Plan

Figure 9b

1 **TEMPORARY PLASTIC AND SANDBAG COFFER DAM**
NTS

2 **SILT/BIO-EXCLUSIONARY FENCING**
NTS



Source: Questa Engineering

Diversion Plan and Erosion BMPs

Figure 10

In addition, it is expected that as part of the proposed project the Los Angeles County Flood Control District would transfer ownership of the reach of Medea Creek encompassed by the project to the City of Agoura Hills. If this is ultimately the case, no permit from the Flood Control District would be required. However, if the Flood Control District retains ownership of the site, then a Flood Permit Application would be required.

ENVIRONMENTAL FACTORS AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that will require further discussion in an EIR, or could be reduced to a less-than-significant level through incorporation of mitigation.

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

DETERMINATION

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 would be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there would not be a significant effect in this case because revisions in the project have been made by or agreed to by the applicant. A MITIGATED NEGATIVE DECLARATION would 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 "potentially significant unless mitigated" on the environment, but at least one effect 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 pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Allison Cook
Principal Planner/Environmental Analyst
City of Agoura Hills

1.13.15
Date

EVALUATION OF ENVIRONMENTAL IMPACTS

I. AESTHETICS – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

DISCUSSION:

The project site is located within the City of Agoura Hills between Canwood Street and Thousand Oaks Boulevard on the south side of Kanan Road. The City is located in the eastern Conejo Valley between the Simi Hills and Santa Monica Mountains in western Los Angeles County. The project site is located between Kanan Road and Chumash Park, and includes an approximately 450-foot reach of Medea Creek channel and its associated access roads and right-of-way, as well as a portion of the open space parcel located just west of the channel. This channel, which collects flows from a steep box culvert draining under Kanan Road, conveys flows to a naturally vegetated segment of the creek approximately 450 feet south of Kanan Road, consisting of riparian vegetation and pool habitat. Currently, there is an informal trail along the edge of existing fence lines, along the east side of the channel, which connects Chumash Park to Kanan Road. This trail is unimproved, consisting of dirt surfacing with steep gradients. The purpose of the project is to naturalize a portion of the creek, and create improved pedestrian access in its vicinity.

a, c. The City of Agoura Hills General Plan Natural Resources Chapter, Visual Resources Section, identifies certain hillsides and road segments as scenic resources. Situated within the Santa Monica Mountains, the City of Agoura Hills has many hillsides within its jurisdiction; however, the proposed project would not affect any of the six primary ridgelines identified as scenic resources in the City's General Plan. The closest primary ridgeline is located in the preserved open space area north of Agoura High School, about one-half mile to the east, and the elevation of the project site would not obstruct any views to, or from, this ridgeline.

The General Plan Natural Resources Chapter, Visual Resources Section, also identifies four road segments that provide valuable scenic resources in the community. Only one of these is located

within the vicinity of the project site: Thousand Oaks Boulevard from westerly City limits to easterly City limits. This roadway runs east/west though the heart of the residential sections of the community. It provides vistas from key high locations near Strawberry Hill and Reyes Adobe Road. From these high points, there are views of the developed areas of the City with the backdrop of mountains and foothills. The easternmost portion of Thousand Oaks Boulevard terminates near the project site. However, this roadway is not immediately adjacent to the project site, and views looking south from this roadway towards the project site are obscured by existing residential and commercial buildings.

The proposed project would not create any new structures that would obstruct views. In fact, the proposed project, which involves removal of the approximately 425 feet of concrete trapezoidal channel and restoration of a natural channel characterized by native vegetation, boulders and log structures, and a steel truss foot bridge, would result in an improvement in the visual character of the site by enhancing the natural environment. As such, it could be considered a beneficial aesthetic impact to the surrounding area. The improvements would be consistent with the portion of the creek just south of the project area, which is partially naturalized and contains riparian vegetation. The proposed four-foot high retaining walls along the channel's east side would be constructed of rough faced concrete blocks and of a sufficiently low height (four feet) so as not to block views to the south of the City and the Santa Monica Mountains backdrop. In addition, the retaining wall would be located at the base of the slope along the property line of the adjacent residences. The retaining wall would not be visible from the adjacent residences. No change to the existing fencing located at the top of the slope and enclosing the rear yards of the properties would occur as a result of the proposed project.

Based on the above discussion, the proposed project would not have a substantial adverse effect on scenic vistas and would not substantially degrade the existing visual character or quality of the site and its surroundings. Therefore, impacts would be **less than significant.**

b. The project site is located approximately 1,000 feet north of U.S. Highway 101 (U.S. 101). U.S. 101 is eligible for designation as a state scenic highway, but has not been designated as such. In any case, there are no scenic trees, rock outcroppings or historic buildings in the vicinity that could be affected by the project, and due to the low topography of the project site and lack of structures proposed that would be substantial in height, the proposed project would not be visible from U.S. 101 (DOT, 2011). Therefore, **no impact** would occur**.**

d. No lighting is proposed as part of the project. In addition, no structures are proposed that would utilize building materials that would reflect glare. Therefore, the proposed project would not introduce new sources of light or glare that would adversely affect day or nighttime views in the area. **No impact** would occur**.**

MITIGATION MEASURES:

As there would be no adverse impacts to aesthetics, no mitigation measures are required.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) 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 that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

DISCUSSION:

The following discussion and analysis of emissions associated with the proposed project are based on outputs from the California Emissions Estimator Model (CalEEMod) (see Appendix A for air quality modeling assumptions and results).

The project site is within the South Coast Air Basin (the Basin), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). As the local air quality management agency, the SCAQMD is required to monitor air pollutant levels to ensure that state and federal air quality standards are met and, if they are not met, to develop strategies to meet the standards.

Depending on whether or not the standards are met or exceeded, the Basin is classified as being in "attainment" or "nonattainment." The part of the Basin within which the project site is located is in nonattainment for both the federal and state standards for ozone, PM_{10}, and $PM_{2.5}$, as well as the state standard for nitrogen dioxide (California Air Resources Board, Area Designations Maps/State and National, May 2012). Thus, the Basin currently exceeds several state and federal ambient air quality standards and is required to implement strategies to reduce pollutant levels to recognized

acceptable standards. This non-attainment status is a result of several factors, the primary ones being the naturally adverse meteorological conditions that limit the dispersion and diffusion of pollutants, the limited capacity of the local airshed to eliminate pollutants from the air, and the number, type, and density of emission sources within the Basin. The health effects associated with criteria pollutants are described in Table 1.

Table 1
Health Effects Associated with Criteria Pollutants

Pollutant	Adverse Effects
Ozone	(1) Short-term exposures: (a) pulmonary function decrements and localized lung edema in humans and animals and (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage.
Carbon monoxide (CO)	(1) Aggravation of angina pectoris and other aspects of coronary heart disease; (2) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (3) impairment of central nervous system functions; and (4) possible increased risk to fetuses.
Nitrogen dioxide (NO_2)	(1) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (2) risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (3) contribution to atmospheric discoloration.
Sulfur dioxide (SO_2)	(1) Bronchoconstriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness during exercise or physical activity in persons with asthma.
Suspended particulate matter (PM_{10})	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma).[a]
Suspended particulate matter ($PM_{2.5}$)	(1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma.[a]

Source: EPA 2008c.
[a] More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following documents: Office of Environmental Health Hazard Assessment, Particulate Matter Health Effects and Standard Recommendations, www.oehha.ca.gov/air/toxic_contaminants/PM10notice.html#may, May 9, 2002; and EPA, Air Quality Criteria for Particulate Matter, October 2004.

The SCAQMD has adopted an Air Quality Management Plan (AQMP) that provides a strategy for the attainment of state and federal air quality standards. The SCAQMD has adopted the following thresholds for temporary construction-related pollutant emissions:

- *75 pounds per day of reactive organic compounds (ROG)*
- *100 pounds per day nitrogen oxides (NO_x)*
- *550 pounds per day carbon monoxide (CO)*
- *150 pounds per day of sulfur oxides (SO_x)*
- *150 pounds per day of particulate matter less than 10 microns in diameter (PM_{10})*
- *55 pounds per day of particulate matter less than 2.5 microns in diameter ($PM_{2.5}$)*

The SCAQMD also has established the following significance thresholds for project operations within the South Coast Air Basin:

- *55 pounds per day of ROG*
- *55 pounds per day of NO_x*
- *550 pounds per day of CO*
- *150 pounds per day of SO_x*
- *150 pounds per day of PM_{10}*
- *55 pounds per day of $PM_{2.5}$*

a. Vehicle use, energy consumption, and associated air pollutant emissions are directly related to population growth. A project may be inconsistent with the AQMP if it would generate population, housing or employment growth exceeding the forecasts used in the development of the AQMP. The Southern California Association of Governments (SCAG) projects that the population of Agoura Hills will be 21,400 by 2035 (SCAG, 2012), an increase of 743 over the current City population of 20,657 (United States Census Bureau, 2012).

The proposed project involves removal of approximately 425 feet of concrete trapezoidal channel, restoration of a natural channel characterized by native vegetation, boulders and log structures, a footbridge crossing, and pedestrian trails providing access from Chumash Park and Kanan Road. During the pre-construction and construction phases, the number of workers onsite would temporarily increase. Although these workers would be on-site temporarily, it is not expected that they would permanently relocate to the area and so would not result in an increase in the population of the area. Therefore, the proposed project would not directly or indirectly increase the population or result in a change in land use that would result in air contaminant emissions compared to current conditions. Therefore, the proposed project would not contribute to population growth in the area and **no impact** would occur.

b-d. Emissions generated by the proposed project would include temporary construction emissions and long-term operational emissions.

<u>Construction Emissions</u>

Project construction would generate temporary air pollutant emissions associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction vehicles, in addition to ROG that would be released during the drying phase upon application of architectural coatings used for weatherproofing on some exterior portions of the pedestrian bridge and along the surface of the pedestrian bridge crossing (anticipated to be made of wood or similar material). Construction

would generally consist of demolition, site preparation, and application of architectural coatings for weatherproofing.

The site preparation phase would involve the greatest amount of heavy equipment and the greatest generation of fugitive dust. For the purposes of modeling, it was assumed that the project would comply with SCAQMD Rule 403, which identifies measures to reduce fugitive dust and is required to be implemented at all construction sites located within the South Coast Air Basin. Therefore, the following conditions, which would be required to reduce fugitive dust in compliance with SCAQMD Rule 403, were included in the CalEEMod model for the site preparation and grading phases of construction.

1. **Minimization of Disturbance.** Construction contractors should minimize the area disturbed by clearing, grading, earth moving, or excavation operations to prevent excessive amounts of dust.

2. **Soil Treatment.** Construction contractors should treat all graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways to minimize fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate. Watering shall be done as often as necessary, and at least twice daily, preferably in the late morning and after work is done for the day.

3. **Soil Stabilization.** Construction contractors should monitor all graded and/or excavated inactive areas of the construction site at least weekly for dust stabilization. Soil stabilization methods, such as water and roll compaction, and environmentally safe dust control materials, shall be applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until landscape growth is evident, or periodically treated with environmentally safe dust suppressants, to prevent excessive fugitive dust.

4. **No Grading During High Winds.** Construction contractors should stop all clearing, grading, earth moving, and excavation operations during periods of high winds (20 miles per hour or greater, as measured continuously over a one-hour period).

5. **Street Sweeping.** Construction contractors should sweep all on-site driveways and adjacent streets and roads at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.

Table 2 summarizes the estimated maximum daily emissions of pollutants during construction of the proposed project. As shown, construction emissions would not exceed thresholds related to ROG, NO_x, CO and SO_x. With adherence to the conditions listed above, as required by SCAQMD Rule 403, maximum daily emissions of fugitive dust (PM_{10} and $PM_{2.5}$) would not exceed SCAQMD thresholds. Therefore, impacts would be **less than significant.**

Table 2
Estimated Construction Maximum Daily Air Pollutant Emissions

Year	Maximum Daily Emissions (lbs/day)				
	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
2014	12.05	59.45	35.06	8.88	5.76
Maximum Emissions [a]	12.05	59.45	35.06	8.88	5.76
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**

[a] *All calculations were made using CalEEMod. See Appendix A for calculations. Calculations assume adherence to the conditions listed previously that are required by SCAQMD Rule 403 to reduce fugitive dust.*

Operational Emissions

Operational emissions from energy use (electricity and natural gas) for the project would be negligible, as the project would not include any buildings that utilize lighting, HVAC or other appliances that use energy. Emissions associated with area sources, including landscape maintenance and architectural coating (weatherproofing) were calculated in the CalEEMod model and utilize standard emission rates from CARB, USEPA, and district supplied emission factor values (CalEEMod User Guide, 2011). Emissions from waste generation and water/wastewater would also be negligible as the project would not include any buildings or structures that would be occupied by people.

Air quality impacts are analyzed relative to those persons with the greatest sensitivity to air pollution exposure. Such persons are called "sensitive receptors." Sensitive population groups include young children, the elderly and the acutely and chronically ill (especially those with cardio-respiratory disease). Residential areas are considered to be sensitive to air pollution exposure because they may be occupied for extended periods, and residents may be outdoors when exposure is highest. Sensitive receptors in proximity of the site included the adjacent single-family residences at the eastern boundary of the site and the multi-family residences located approximately 250 feet south of the site.

As described in Section XVI, TRANSPORTATION, operation of the proposed project would not generate new or additional service population, but instead enhance the existing land uses and trails. Therefore, operation of the proposed project would not generate new traffic trips to the site or their associated air emissions, and there would be **no impact**. Operational emissions generated by the proposed project are presented in Table 3.

Table 3
Estimated Project Operational Emissions

Sources	Estimated Emissions (lbs/day)				
	ROG	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Area	0.03	0	<.01	0	0
Energy	0	0	0	0	0
Mobile	0	0	0	0	0
Total Emissions (lbs/day)	**0.03**	**0**	**<0.01**	**0**	**0**
SCAQMD Thresholds	55	55	550	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**

See Appendix A for CalEEMod output.

e. The proposed project would involve rehabilitation of a flood control channel and creation of a trail system to connect the site to Kanan Road. This type of use would not generate objectionable odors that would affect a substantial number of people. Park uses, which would be similar in nature to the proposed project, are not included on Figure 5-5, *Land Uses Associated with Odor Complaints,* of the 1993 SCAQMD CEQA Air Quality Handbook. Therefore, the proposed project would not generate objectionable odors affecting a substantial number of people and there would be **no impact.**

MITIGATION MEASURES:

As no significant impacts to air quality would occur, no mitigation measures are required.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. 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?	☐	☒	☐	☐
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 U.S. Fish and Wildlife Service?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
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?	☐	☐	☐	☒

DISCUSSION:

Medea Creek flows under Kanan Road via a concrete-lined channel that continues south from the road for approximately 450 feet until it transitions to a natural bottom channel covered by a dense native riparian vegetated canopy. A paved asphalt flood control access road is located on both western and eastern banks. Adjacent to the east access road is a fence that delineates private property, with an informal path located immediately west of this fence on the private property at the toe of a slope. Additional fencing is located at the top of this slope that separates the slope from adjoining residential backyards. This slope is maintained, with much of it barren or otherwise dominated by weedy, ruderal species, primarily storksbill (*Erodium cicutarium*) and ripgut brome (*Bromus diandrus*). Several landscape trees are also located on this slope, including myoporum (*Myoporum laetum*), pepper tree (*Schinus molle*), palm trees (*Phoenix* sp.), and oleander (*Nerium oleander*).

The parcel (APN 2048-007-004) on the western side of the channel is a hillside with native trees including valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), and California sycamore (*Platanus racemosa*). The remainder of the parcel is dominated by several alliances of coastal sage scrub habitat, including *Eriogonum fasciculatum* Shrubland Alliance (California buckwheat scrub), *Opuntia littoralis* Shrubland Alliance (coast prickly pear scrub), *Salvia mellifera* Shrubland Alliance (black sage scrub), *Baccharis pilularis* Shrubland Alliance (coyote brush scrub), and interspersed with herbaceous California semi-natural stands.

Biological surveys for the project site were conducted on June 18, 2013, and July 1, 2013 (see Appendix B for a summary of results from these surveys). Wildlife activity during the site visit was very low. California ground squirrel (*Otospermophilus beecheyi*) was observed on the hillside. Approximately six house finches (*Haemorhous mexicanus*) were observed perched on the chain link fence on the west side of the channel. Three northern mockingbirds (*Mimus polyglottos*) were observed foraging in the coyote brush on the hillside. Western gulls (*Larus occidentalis*) were observed flying overhead. One red-tailed hawk (*Buteo jamaicensis*) was observed perched on top of a coast live oak on the hillside. Two killdeer (*Charadrius vociferous*) and two black phoebe (*Sayornis nigricans*) were observed in the concrete-lined portion of the channel. One downy woodpecker (*Picoides pubescens*) was observed foraging in a sycamore tree (*Platanus occidentalis*).

a. Special status species as defined herein are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the United States Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (FESA); those listed or proposed for listing as rare, threatened, or endangered by the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA); animals designated as "Species of Special Concern," or "Fully Protected" by the CDFW; and those species on the *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW July 2014) that are on the California Rare Plant Rank (CRPR) Lists 1 and 2. The California Natural Diversity Database (CNDDB) has records for 12 special status plant species and 12 special status wildlife species within the *Thousand Oaks, California,* U. S. Geographical Survey topographic quadrangle that contains the project site. In addition, the CNDDB has records for 4 other species that have potential to occur within the surrounding area. Sensitive plant and wildlife species typically have very specific habitat requirements and the majority of these species are not expected to occur on the project site or within the surrounding area, as indicated in Table 4.

Table 4
Special Status Species in the Project Vicinity

Species	Status* Fed/CA/CRPR[1]	Habitat Requirements	Project Site Suitability/Observations
PLANTS			
Braunton's milkvetch *Astragalus brauntonii*	FE/--/1B.1	Openings in chaparral and coastal sage scrub with calcareous soils	Not present, no suitable calcareous soils
Malibu baccharis *Baccharis malibuensis*	--/--/1B.1	Coastal scrub, chaparral, or cismontane woodland on Conejo volcanic substrates	Not present; outside of known range; plant would have been observable during time of biological survey
Round-leaved filaree *California macrophylla*	--/--/1B.1	Cismontane woodland, valley and foothill grassland on clay soils	No suitable clay soils present.
Slender mariposa-lily *Calochortus clavatus var. gracilis*	--/--/1B.2	Chaparral, coastal scrub in shaded foothill canyons; often on grassy slopes within other habitat	Not expected; project site too exposed and plant more typically found in foothills of the San Gabriel Mts.
San Fernando Valley spineflower *Chorizanthe parryi var. fernandina*	FC/SE/1B.1	Dry coastal scrub and grasslands in ecotonal areas on marine derived soils	Not present, outside of known range and no suitable habitat
Santa Susana tarplant *Deinandra minthornii*	--/R/1B.2	In open scrub in rocky areas dominated by massive sandstone outcroppings and one locale on Conejo volcanics	Not present, no suitable habitat; plant would have been observable during time of biological survey
Agoura Hills dudleya *Dudleya cymosa ssp. agourensis*	FT/--/1B.2	Chaparral, cismontane woodland on rocky, volcanic breccia soils	Not present, no suitable habitat; plant would have been observable during time of biological survey
Marscent dudleya *Dudleya cymosa ssp marcescens*	FT/R/1B.2	On sheer rock surfaces and rocky volcanic cliffs	Not present, no suitable habitat; plant would have been observable during time of biological survey
White-veined monardella *Monardella hypoleuca ssp. hypoleuca*	--/--/1B.3	Chaparral, cismontane woodland on acidic and rocky soils	Not present, conspicuous plant would have been observable during time of biological survey
Chaparral nolina *Nolina cismontana*	--/--/1B.2	Chaparral, coastal sage scrub on sandstone/gabbro soils	Not present, plant would have been observable during time of biological survey
California orcutt grass *Orcuttia californica*	FE/SE/1B.1	Vernal pools	No suitable habitat.
Lyon's pentachaeta *Pentachaeta lyoni*	FE/SE/1B.1	Pocket grasslands that are ecotonal with shrublands and on Conejo volcanic soils	Not present; plant would have been observable during time of biological survey

Table 4
Special Status Species in the Project Vicinity

Species	Status* Fed/CA/CRPR[1]	Habitat Requirements	Project Site Suitability/Observations
ANIMALS			
silvery legless lizard *Anniella pulchra*	--/SSC	Sandy or loamy soils under sparse vegetation; deep oak duff	Soils not appropriate for this fossorial animal.
pallid bat *Antrozous pallidus*	--/SSC	Desert, grassland, shrubland, or native woodland habitat typically in arid and semi-arid areas with sparse vegetation.	Unlikely – No suitable rocky areas for roosting near site. Could occasionally forage at site from more suitable habitat in the Simi Hills and Santa Monica Mts.
burrowing owl *Athene cunicularia*	--/SSC	Open dry grasslands, scattered shrublands, desert scrub	None; area too highly disturbed by adjacent residential uses; no suitable burrows observed. No longer known to breed in area.
western pond turtle *Emys marmorata*	--/SSC	Slow moving, perennial water with basking sites such as partially submerged logs, vegetation mats, or open mud banks.	No suitable aquatic habitat present. Very low possibility of presence during population movement activities (migration and dispersal). Nearest known occurrence is south of Hwy 101.
spotted bat *Euderma maculatum*	--/SSC	Many habitats from arid desert to mixed conifer forests. Requires cliffs or caves for roosting and open water for foraging.	Unlikely – No suitable rocky areas for roosting near site. Could occasionally forage at site from more suitable habitat in the Santa Monica Mts.
western mastiff bat *Eumops perotis californicus*	--/SSC	Open, semi-arid to arid habitats including grasslands, scrublands, and conifer and deciduous woodlands	Can roost in tunnels and trees, but no bat activity seen under Kanan Road bridge. Could occasionally forage at site from more suitable habitat in the Santa Monica Mts.
arroyo chub *Gilia orcutti*	--/SSC	Native to streams from Malibu Creek to San Luis Rey River. Needs slow water streams with mud or sand bottoms.	No suitable habitat within project site. Low potential for presence downstream, but presence of exotic competitor/predatory fish decreases potential for occurrence.
western red bat *Lasiurus blossevillii*	--/SSC	Roosts in trees with dense canopy coverage but open below with nearby open areas for foraging.	No suitable habitat in area; riparian woodland downstream of site has too dense shrub understory.
coast horned lizard *Phrynosoma blainvillii*	--/SSC	Wide variety of lowland habitats with open sunny areas, scattered low bushes, loose soils, and abundant invertebrate food, particularly native carpenter ants	Unlikely; high disturbance associated with nearby residences (particularly cat predators); no native ant hills observed during site visits.

Table 4
Special Status Species in the Project Vicinity

Species	Status* Fed/CA/CRPR[1]	Habitat Requirements	Project Site Suitability/Observations
coastal California gnatcatcher *Polioptila californica californica*	FT/SSC	Obligate resident of coastal sage scrub, generally with greater than 50% shrub cover with a height greater than 3 feet.	None; shrub density and patch size inadequate to maintain presence. Permanent resident not observed during biological site visits.
Least Bell's vireos vireo *Vireo bellii pusillus*	FE/SE	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	No suitable riparian habitat present. Very low possibility of presence during population movement activities (nesting or foraging). Nearest known occurrence is approximately 7 miles northwest along the Arroyo Simi.
southwestern willow flycatcher *Empidonax trallii extimus*	FE / SE	For nesting, requires dense riparian habitats (cottonwood/willow and tamarisk vegetation) with microclimatic conditions dictated by the local surroundings. Saturated soils, standing water, or nearby streams, pools, or cienegas are a component of nesting habitat that also influences the microclimate and density vegetation component.	No suitable riparian habitat present. Very low possibility of presence during population movement activities (nesting or foraging). Nearest known occurrence is approximately 20 miles northwest along the Santa Clara River.
Western spadefoot *Spea hammondii*	--/SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	No suitable habitat (e.g. washes, grassland, floodplains, alluvial fans, playas, vernal pools) present. Very low possibility of presence during population movement activities. No known occurrences within 10 miles of the survey area.
arroyo toad *Anaxyrus californicus*	FE / SSC	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.	No suitable alluvial habitat present. Very low possibility of presence during population movement activities. Nearest known occurrence is approximately 9 miles northeast along Chatsworth Creek.
CA red-legged frog *Rana draytonii*	FT/SSC	Lowland and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	No suitable aquatic habitat present for occupation. Very low possibility of presence during population movement activities (migration and dispersal).

Table 4
Special Status Species in the Project Vicinity

Species	Status* Fed/CA/CRPR[1]	Habitat Requirements	Project Site Suitability/Observations
two-striped garter snake *Thamnophis hammondii*	--/SSC	Perennial and intermittent streams, stockponds and other artificially created aquatic habitats form sea level to over 2,100 meters (7,000 feet).	No suitable aquatic habitat present. Very low possibility of presence during population movement activities (migration and dispersal).

FE ..... Federal Endangered
FT ..... Federal Threatened
FC ..... Federal Candidate Species
FSC ..... Federal Species of Concern
SFP..... California Fully Protected Species
SE ..... California Endangered
ST ..... California Threatened
SR ..... California Rare
SSC ..... California Species of Special Concern
WL..... Watch List
FP ..... Fully Protected, CDFW

California Rare Plant Ranks (CRPR)

1A. Presumed extirpated in California and either rare or extinct elsewhere
1B. Rare or Endangered in California and elsewhere
2A. Presumed extirpated in California, but more common elsewhere
2B. Rare or Endangered in California, but more common elsewhere
3. Plants for which we need more information - Review list
4. Plants of limited distribution - Watch list

Threat Ranks:

The California Rare Plant Ranks (CRPR) use a decimal-style threat rank. The threat rank is an extension added onto the CRPR and designates the level of threats by a 1 to 3 ranking with 1 being the most threatened and 3 being the least threatened. So most CRPRs read as 1B.1, 1B.2, 1B.3, etc. Note that some Rank 3 plants do not have a threat code extension due to difficulty in ascertaining threats for these species. Rank 1A and 2A plants also do not have threat code extensions since there are no known extant populations of the plants in California.

Threat Code extensions and their meanings:

.1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 – Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat)
.3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

The following discusses those species with potential to occur on the project site.

Sensitive Plant Species. The project site within the open space hillside contains suitable soil to sustain Lyon's pentachaeta (*Pentachaeta lyonii*), which is a federal and state endangered species; however, the species was not observed within areas of the project site that would be modified or otherwise disturbed by implementation of the project. Although definitive surveys to confirm the presence or absence of rare plant species were not performed, Lyon's pentachaeta was observed at two reference sites less than a mile from the project site south of Agoura Road during observations on June 18, 2013, and therefore would have been expected to be blooming during the onsite survey if the species was present. Other plants that potentially could have been present, such as Malibu baccharis, Santa Susana tarplant, white-veined monardella, Agoura Hills dudleya, Marscent dudleya, and chaparral nolina are conspicuous plants that would have been readily observable at the time that biological surveys were conducted at the site. Since these were not observed, they were determined to not be present.

Therefore, **no impacts** to sensitive plant species are expected to occur as a result of implementation of the proposed project.

Sensitive Wildlife Species. The CNDDB contains several records for sensitive wildlife species within the vicinity of the project site; however, the project site is channelized and not suitable for most species of wildlife. The naturalized section of Medea Creek south of the project site contains marginally suitable habitat for western pond turtle (*Emys marmorata*), a CDFW species of special concern. This species typically prefers larger areas of suitable habitat with basking sites, sandy banks, and nearby upland soils suitable for egg laying. This species was not observed at the site, nor has it been previously recorded immediately downstream of the site in Medea Creek, and given the easy access to the creek from the adjacent park, its presence is considered unlikely. The project site itself lacks any suitable habitat; nonetheless, a transient individual moving between suitable habitat locations could potentially be present during the construction period. The potential loss of an individual turtle would not be enough to reduce the population or to affect population sustainability, and impacts would be considered less than significant. It is noted that one of the standard conditions for a Streambed Alteration Agreement, if the CDFW determines that one is needed, would include a pre-construction survey for possible special status species, which would reduce the potential for possible harm to transient individuals.

Multiple bat species have the potential to be present in the project vicinity foraging on insects, but the site does not contain suitable roosting habitat. In particular, the culvert under Kanan Road was checked during the course of the June 2013 site visit, and no suitable bat habitat or sign of bats was observed. It is possible that the special status pallid, spotted, and western mastiff bats could occasionally forage in the open hillside and over the channel, but none are likely to maintain a regular presence at the site. The hoary bat (not a special status species) would have the potential to roost within the riparian woodland south of the project site. The hoary bat is highly migratory, capable of moving very long distances, and known to move from roost to roost on a daily basis. It may be present in this area during migration, and the sycamore trees downstream could serve as occasional roost sites for hoary bats, but its potential presence is considered low as more suitable habitat occurs approximately 3 miles south of the project site in the vicinity of Malibou Lake. Given that hoary bats are known to occur within five miles of the project site, and the species is capable of moving long distances between roosts, there is potential for the species to occur in habitat adjacent to the project site, and Mitigation Measure BIO-1 would be required.

For the above reasons, project impacts to sensitive wildlife are considered to be **less than significant with mitigation incorporated.** After completion of the proposed project, it is anticipated that a net beneficial effect would occur by creating suitable habitat for sensitive wildlife species.

Nesting Birds. The California Fish and Game Code (CFGC) Section 3503 and the Migratory Bird Treaty Act (MBTA) protect native birds and their nests. No nests or breeding/nesting behaviors such as courtship displays, copulation, vegetation or food carries, presence of fledglings, or territorial displays (e.g. singing or aggression) were observed during the field survey. No evidence of raptor nesting was observed during the site visits; however, one red-tailed hawk was observed perched on top of a coast live oak. Suitable nesting habitat occurs within and directly adjacent to the project site. If construction activities would occur during the avian nesting season (February 1 through September 1), the project has the potential to affect nesting birds. Mitigation Measure BIO-2 would address such impacts. This impact would be **less than significant with mitigation incorporated.**

b. No sensitive plant communities were observed within the proposed construction zone. *Quercus agrifolia* Woodland Alliance (coast live oak woodland) is present on the north facing slopes of the open space parcel to the west of the channel, but the oak trees associated with this alliance are outside of the construction zone. Approximately one acre (45,000 square feet) of coastal sage scrub dominated by coyote brush would be removed on the west side of the project during construction of the ADA-compliant trail and its associated grading activities. The City encourages the protection of high value (to be determined by a biologist) coastal sage scrub habitat and provides for replacement of such habitat that is disturbed. However, the coastal sage scrub habitat present is limited in extent and relatively disturbed, and would not be considered "high value." After grading, this area would be revegetated with native upland species (except for the paved trail), such as narrow leaf milkweed, big berry manzanita, creeping wild rye, California buckwheat, gold yarrow, chapparal yucca, white sage, black sage and showy penstemon (See **Figure 9a**). The project would result in a net gain in the total amount of upland vegetated area as the upper banks of the channel, now currently covered by concrete and asphalt, will also be revegetated with upland species. This temporary loss of native coastal sage scrub vegetation is not considered a significant impact.

Native riparian vegetation is present to the immediate south of the project boundary, within the naturalized portion of Medea Creek, and includes arroyo willow (*Salix lasiolepis*), California sycamore and black cottonwood (*Populus trichocarpa*). Eleven specific willows, including arroyo willow (*Salix lasiolepis*), have been mapped at the southern edge of the project construction zone (see Existing Conditions – Plan View, Sheet 2 of the construction drawings). The project is designed to avoid all but one of these willows (a 12-inch diameter specimen) and proposes to use construction barrier fencing to reduce the potential for grading equipment to accidently damage the other willows and riparian habitat beyond (Sheet 3 of preliminary construction drawings). Construction barrier fencing installation would be overseen by a biologist acceptable to the City's Environmental Analyst prior to the commencement of construction activities. The loss of a single willow is not considered significant and would be offset by the creation of riparian habitat within the removed channel area.

No loss of water to the downstream riparian areas would occur during construction. The project is proposed to be constructed during the low flow period, with a temporary plastic and sandbag coffer dam placed just south of the Kanan Road box culvert. A sump pump will be used to dewater the concrete channel and discharge the flow at the south end of the construction zone (see Dewatering and Erosion BMPs, Sheet 3 of the construction drawings).

In addition, the natural areas (and the project work limits in general) beyond the project work area would be fenced with silt/biological fencing per Sheet 3 of the preliminary construction drawings. The fencing would prevent incidental access by workers and equipment into the natural areas.

For the above noted reasons, net project impacts to sensitive natural communities, including riparian habitat, would be **less than significant.**

c. Even though this reach of Medea Creek is a concrete channel, it is nonetheless potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), Los Angeles Regional Water Quality Control Board (RWQCB), and CDFW as stated in the Biological Constraints Analysis (Rincon Consultants, July 2013; see Appendix C). Approximately 9,700 square feet of concrete channel bottom may be subject to permitting under Section 404 of the Clean Water Act as "waters of the United States," and would also require a Clean Water Act Section 401 certification from the Los Angeles RWQCB. It is expected that the USACE would issue a Nationwide Permit No. 27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities) for this project. The RWQCB

would also need to issue permission under the State Porter-Cologne Act in the form of Waste Discharge Requirements (done simultaneously with the Section 401 certification). As the proposed project is limited to the concrete portions of the channel, none of the area is considered "wetlands". As part of construction, some minimal encroachment may occur in the natural channel (which does contain wetland) at the edge of the construction zone, but this encroachment is anticipated to be less than five feet (maximum total of 100 square feet for the 20 foot channel width). This minimal encroachment would not be considered a significant effect, especially since the purpose of the project is to create and improve wetlands habitat. . . . As such, impacts to federally protected wetlands would be **less than significant.**

d. The City of Agoura Hills General Plan Update 2035 (2010) designates only the Liberty Canyon area (located about 1.5 miles to the east) as a wildlife corridor. The project site and adjacent lands do not serve as an important movement corridor because of the extensive suburban development located around the project area and the fact that the corridor does not provide a connection between regionally significant habitat areas.

The existing flood control channel serves as an impediment to local fish passage and for animals with limited dispersal ability or that require cover to move across the landscape. The proposed project would remove only about 425 feet of the existing concrete channel, which extends further north for approximately 0.5 miles. Therefore, it would not remove this current impediment to wildlife movement, but it would slightly decrease its extent. Nonetheless, the drainage channel serves as a conduit for more mobile species (such as fox, coyote, or deer) to move through the suburban landscape and connect the natural downstream habitats of Medea Creek with the upstream habitats. Because only the most mobile of wildlife can currently cross through the site using the channel, construction activity within the channel is not expected to substantially alter their movement behavior during the construction period.

Nursery habitat for fish does not occur within the project site. Downstream perennial portions of Medea Creek have some limited potential for native fish nursery habitat, though the area largely contains non-native fish. The proposed project would divert all low flow water around the project site to further downstream and so would not result in any decrease in water available to potential downstream nursery areas.

Restoration of Medea Creek would result in some beneficial impacts to wildlife movement by replacement of a portion of the concrete channel with native riparian habitat. As such, the project would cause **no impact** to wildlife movement.

e. The City of Agoura Hills Oak Tree Ordinance (Municipal Code, Sections 9657--9657.5) provides for protection and replacement of oak trees that are disturbed by development. The section applies to the removal, cutting, pruning, or encroachment into the root protection zone of an oak species. To qualify, oak trees must have a trunk diameter greater than two inches at 3.5 feet above grade.

Seven oak trees have been planted along the southern shoulder of Kanan Road, in addition to a California sycamore. None of these trees is proposed to be removed or adversely affected by the project, given that they are within the sidewalk portion of the Kanan Road ROW.

The location of five coast live oak trees and their canopy width on the hillside west of the channel have been mapped (see Existing Conditions – Plan View, Sheet 2 of the preliminary construction drawings) and the project was designed to avoid intruding into the protected zone/canopy cover of these oaks. Because no oak trees would be removed by the project, nor encroached upon, the

project would not require an oak tree permit and **no impact** to oak trees would occur**.** To further ensure no adverse impacts to oak trees, Mitigation Measure BIO-3 is recommended.

f. No adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan is located in or adjacent to the City (City of Agoura Hills General Plan, March 2010). Therefore, **no impact** would occur.

MITIGATION MEASURES:

Upon implementation of the following required measures, biological impacts would be mitigated to a level of less than significant.

BIO 1 **Roosting Bats:** Prior to removal of trees on site, a focused bat survey shall be conducted of trees planned for removal by a City approved bat biologist. Bat species should be determined to be absent or excluded from roost locations prior to tree removal. If exclusion is necessary, it shall be done by the City approved biologist during the non-breeding season (October 1 to March 31) and using CDFW-recommended methods. During the maternity season (April 1 to September 30), prior to tree removal a City approved biologist shall determine if an active maternity roost is present. If an active maternity roost is present in a tree planned for removal, the tree shall not be removed until the roost is vacated and juveniles have fledged, as determined by the City approved biologist. If an active maternity roost is identified in a tree planned for removal, or if a roost of non-breeding bats is identified, then replacement roosting habitat, such as bat boxes, shall be provided within the project site at a location to be determined by a City approved biologist. The replacement roosting habitat to be provided shall be species appropriate. Any replacement roosting habitat shall be established prior to removal of roosting habitat.

BIO 2 **Nesting Birds:** To the extent feasible, the City of Agoura Hills shall not remove or otherwise disturb vegetation, prepare the site, or conduct any other construction related activities within the work areas to avoid impacts to breeding and/or nesting birds from February 1 through September 1, the recognized breeding, nesting and fledging season for raptor and bird species. If such activities in the work areas during the breeding and nesting season cannot be avoided, then prior to any ground or vegetation disturbing activities, the City shall have a qualified biologist/ornithologist acceptable to the City Environmental Analyst conduct a survey of all breeding and nesting habitats within the work areas and vicinity within one (1) week of construction or vegetation clearing activities. The extent of the survey buffer area surrounding the site shall be established by the biologist to ensure that direct and indirect effects to nesting/breeding birds are avoided. A report discussing the results of the bird survey shall be submitted for review by the City Environmental Analyst prior to any vegetation removal, site preparation or construction activity. If active nests are found within the survey area, activities within a 300-foot radius (500 feet for raptors) shall not be allowed until an appropriate buffer can be established. Limits of construction to avoid a nest site shall be established in the field with flagging and stakes or construction fencing. Activities within the buffer area shall be postponed or halted at the discretion of a biological monitor until the nest is vacated and juveniles have fledged, and there is no evidence of a second attempt at nesting. If a state or federally listed species is

found, the CDFW, and the USFWS, when applicable, shall be notified within 24 hours of the sighting, and construction work shall not occur until concurrence has been received that operations may proceed. The biologist shall record the results of the recommended protective measures described above to document compliance with applicable state and federal laws pertaining to the protection of native birds, and provide the documentation to the City's Environmental Analyst.

BIO 3 **Oak Protective Measures:** For the five (5) native oak trees on the western side of the channel, close to the proposed ADA trail, the following preservation measures shall be complied with and prominently listed on the construction and grading plans:

a. Prior to the start of any mobilization or construction activities on the site, the oak trees shall be fenced at the edge of the protected zone in strict accordance with Article IX, Appendix A, Section V.C.1.1 of the City of Agoura Hills Oak Tree Preservation and Protection Guidelines. The City Oak Tree Consultant shall approve the fencing location subsequent to installation and prior to the start of any mobilization or work on the site.

b. No work is permitted within the fenced area. The fencing shall remain in place until permission to remove it is granted by the City Oak Tree Consultant.

c. No vehicles, equipment, materials, spoil or other items shall be used or placed within the protected zone of any oak tree at any time, except as specifically required to complete the approved work.

d. No pruning of live wood shall be permitted unless specifically authorized by the City Oak Tree Consultant. Any pruning operations shall be consistent with ANSI A300 Standards – Part 1 Pruning and the most recent edition of the International Society of Arboriculture Best Management Practices for Tree Pruning.

e. No herbicides shall be used within one hundred feet (100') of the dripline of any oak tree unless the program is first reviewed and endorsed by the City Oak Tree Consultant.

VI. CULTURAL RESOURCES – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐
e) Result in physical disruption of an identified sacred place or other ethnographically documented location of significance to native Californians?	☐	☒	☐	☐

DISCUSSION:

The following discussion is based on the Medea Creek Restoration Project Cultural Resources Study prepared by Rincon Consultants, Inc., dated January 7, 2014. The Cultural Resources Study involved:

- Review of information contained in the California Historical Resources Information System (CHRIS) at the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton to identify all previously conducted cultural resources work, as well as to identify previously recorded cultural resources within a 0.5-mile radius of the project APE;
- Review of information contained in the Native American Heritage Commission (NAHC) Sacred Lands File (SLF)
- Request for information from Native American groups and individuals regarding the project area; and
- Intensive pedestrian survey of the proposed project's Area of Potential Effect (APE).

a. The project site is currently developed with water conveyance infrastructure, open space, and vegetation. The project site is not known to have been previously developed, and there are no historical resources present. Therefore, **no impact** would occur.

b, d, e. A cultural resources records search for the entire project area and a 0.5-mile radius around it was conducted at the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton. The records search identified 44 previous studies within a 0.5-mile radius of the site, of which 16 included all or part of the project Area of Potential Effect (APE). Eight of the 16 studies included pedestrian surveys.

The results of the records search and Native American scoping identified one previously recorded cultural resource located partially within the project APE. Prehistoric archaeological site P-19-000243 (CA-LAN-243), also known as the Medea Creek Village Site and the Medea Creek Cemetery, was first recorded by R. Crabtree et al. in 1963. The site is recorded as extending into the northern corner of the APE. In 1966, a road cut by the Metropolitan Development Corporation and excavation by amateur archaeologist Dwain R. Write exposed an estimated 22 Native American burials. The cemetery was completely excavated by UCLA Archaeological Survey in 1966. The village site was excavated in 1969 by UCLA Archaeological Survey. The cemetery contained approximately 400 human burials and the occupation area included numerous artifacts, such as mortars, clam shell disc beads, and lithic artifacts. According to the site record, the remaining portions of the Medea Creek Village Site were destroyed in 1969 by housing construction.

In addition, a Rincon archaeologist conducted an intensive pedestrian survey of the APE on November 15, 2013. The survey consisted of walking over the APE in transects oriented east to west and spaced no greater than ten meters apart. The survey examined all areas of exposed ground surface for prehistoric artifacts (e.g., chipped stone tools and production debris, stone milling tools, ceramics), historic debris (e.g., metal, glass, ceramics), or soil discoloration that might indicate the presence of a cultural midden. The results of the field survey identified two prehistoric isolates within the APE which are recommended not eligible for listing in the National Register of Historic Places.

The recorded location of CA-LAN-243 extends into the northern portion of the APE. Due to the presence of this site partially within the APE, the sensitivity of the APE for archaeological resources substantially increases. Even though this site has been substantially altered by modern development, subsurface archaeological deposits associated with this site may still be encountered within the APE. Therefore, impacts **would be less than significant with mitigation incorporated.**

c. The project area is underlain by four mapped geologic units (Dibblee and Ehrenspeck 1993): Quaternary aged surficial sediments consisting of alluvial gravel, sand and clay (Qa) and gravel and sand of major stream channels (Qg), Miocene aged Conejo volcanic extrusive rocks (Tcva), and Miocene aged marine upper Topanga Formation (Ttuc). To the north are mapped exposures of Miocene marine deposits of the Monterey Formation and this formation may underlie units mapped at the surface within the project area. Fossil specimens from the Topanga and Monterey Formation have been recovered from Las Virgenes Canyon, East Las Virgenes Canyon, and near Mulholland Highway and Old Topanga Road. Excavations within the alluvium deposits are unlikely to yield scientifically significant paleontological resources; however, excavations that disturb the Topanga Formation, or extend into the Monterey Formation, that may be underlying the Quaternary alluvial units may yield significant fossil specimens. The Topanga Formation is considered to have high paleontological sensitivity. The quaternary surficial deposits and Conejo volcanic units are considered to have low paleontological sensitivity. A program of construction monitoring, as listed below (MM CR-1), would be required to ensure there are no significant impacts to paleontological resources within the Topanga Formation. Therefore, impacts **would be less than significant with mitigation incorporated.**

MITIGATION MEASURES:

The following measures are required to reduce potential impacts to cultural resources to a less than significant level.

CR 1 **Archaeological/Paleontological Monitoring:** Archaeological/Paleontological monitoring of all project related ground disturbing activities of sediments that appear to be in a primary context shall be conducted by a qualified archaeologist and/or paleontologist approved by the City Environmental Analyst. Archaeological monitoring is required until excavation is complete or until a soil change to a culturally sterile formation is achieved. Paleontological monitoring is required until excavation is complete or until ground disturbance is no longer occurring within the Topanga or Monterey Formations. Determination of these conditions shall be at the discretion of a qualified archaeologist and/or paleontologist. Archaeological monitoring shall be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983). Paleontological monitoring shall be performed by a paleontologist meeting the Society of Vertebrate Paleontology's Paleontological Resource Monitor (SVP 2010). A cross-trained monitor meeting both of these requirements may also be used. The qualified archaeologist/paleontologist may reduce or stop monitoring dependent upon observed conditions. If archaeological/paleontological resources are encountered during ground-disturbing activities, the City Environmental Analyst shall be notified immediately, and work shall stop within a 100-foot radius until a qualified archaeologist or paleontologist (as applicable) has assessed the nature, extent, and potential significance of any remains under CEQA. In the event such resources are determined to be significant, appropriate actions to mitigate impacts shall be implemented. Depending on the nature of the find, mitigation could involve avoidance, documentation, or other appropriate actions to be determined by a qualified archaeologist/paleontologist consistent with CEQA (PRC Section 21083.2), in consultation with the City's Environmental Analyst.

CR 2 **Unanticipated Discovery of Human Remains:** The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the City's Environmental Analyst and the Los Angeles County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native America Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification who will then help determine what course of action should be taken in dealing with the remains.

V. GEOLOGY AND SOILS – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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 waste water?	☐	☐	☐	☒

DISCUSSION:

The following information and assessment is primarily sourced from the Questa Geotechnical Investigation Report (2014), prepared in support of the preliminary design of the proposed project. That report is included as Appendix C of this document.

a. No faults traverse the project site (Questa, 2014). The nearest active fault traces in relation to the project site are the Malibu Coast fault located approximately seven miles to the south and the Simi-Santa Rosa fault located approximately seven miles to the north. These faults each have an Alquist-Priolo Earthquake Fault Zone Boundary and are the nearest regulated active faults to the project site. Other nearby active faults include the San Andreas fault located 45 miles northeast, the Anacapa-Dume fault located 12 miles south, the Santa Monica fault located 13 miles southeast, and the Northridge fault located 13 miles northeast. In addition, the Thousand Oaks area contains segments of the potentially active Sycamore Canyon-Boney Mountain fault zone, which lies no closer than five miles from the City of Agoura Hills. The faults most likely to produce earthquakes in the geographic region are the San Andreas, San Jacinto, Elsinore-Whittier and the Newport-Inglewood faults.

i) The project site is not located within an Alquist-Priolo Earthquake Fault Zone or other mapped fault trace. Therefore, the risk of surface rupture at the site is low and the proposed project would not expose structures or people at the site to potential substantial adverse effects, including the risk of loss, injury, or death relating to rupture of a known fault. Therefore, **no impact** would occur**.**

ii) As discussed above, several active and/or potentially active faults in the surrounding region could produce ground shaking at the site. No permanent structures are proposed to be constructed at the site, with the exception of the pedestrian bridge crossing. Earthquakes along any of the faults in the region could potentially damage the bridge structure and pose risks to human health and safety. Design and construction of the bridge would be required to comply with applicable City of Agoura Hills and California Building Code (CBC) requirements. CBC standards require that structures are built to resist forces generated by ground shaking during an earthquake. With mandatory compliance with CBC standards, impacts from ground shaking would be **less than significant.**

iii) The liquefaction potential of the Agoura Hills area has been examined and is summarized in the Seismic Hazard Zone Report for Thousand Oaks (California Division of Mines and Geology [CDMG], 2000). According to CDMG maps, the risk from liquefaction at the project site is very low. However, the subsurface drilling investigation conducted as part of the geotechnical investigation of the site revealed loose to medium dense sandy soils present in two of the boreholes completed. Based on the results of the subsurface investigation, sand, silty sand and clayey sand deposits found in boreholes BH-1 at a depth of 2.75 feet to 5.75 feet BGS have a high potential for liquefaction or dynamic densification. Clayey sand deposits in BH-2 at a depth of 14.75 to 18.75 feet BGS have a low to moderate potential for liquefaction. These sediments may undergo ground shaking induced liquefaction during a major earthquake event. However, the potentially liquefiable soils in BH-1 at the proposed stairs' bottom landing location are located above the existing groundwater table, which would preclude liquefaction from occurring. No groundwater was found in BH-1 to the total depth at 18 feet BGS. In the dry state, these sands would still be subject to the effects of dynamic densification during earthquake-induced ground shaking. Potentially liquefiable soils in BH-2 are located below the groundwater table and have a moderate potential for liquefaction during earthquake-induced ground shaking. Liquefaction settlement analysis indicates that liquefaction induced settlements as much as two inches could occur at the eastern abutment of the pedestrian

bridge with no lateral displacement. The Mitigation Measure GEO-1 listed below would be required to address the potential for liquefaction to occur as a result of seismic-related ground failure, and impacts would be **less than significant with mitigation incorporated.**

iv) The Geologic Map (United State Geological Survey [USGS], 1993) for the project vicinity shows the area primarily as gravel and sand of major stream channels and some additional areas of alluvial gravel, sand and clay of valley areas along the slopes of the project vicinity**.** The Relative Slope Stability map of the project area (CDMG, 1983) indicates that the channel is located in an area underlain by geologically competent formations having few or no perceptible landslides, and no landslides are shown on the Landslide map of the area (CDMG, 1983). The area has been mapped in accordance with the Seismic Hazard Mapping Act for risk of earthquake-induced landsliding. No areas of the site have been identified as areas at risk of earthquake-induced landsliding according to the Seismic Hazards Zone Map for the Thousand Oaks Quadrangle (CDMG, 2000). Therefore, **no impact** would occur.

b. The proposed project would involve removal of the existing concrete-lined flood channel and establishment of a native riparian corridor with provision of pedestrian connectivity from Chumash Park to Kanan Road. Implementation of the proposed project would not result in a long-term increase in soil erosion or loss of topsoil. One of the primary goals of the project is to achieve a stable channel morphology. In order to provide short term erosion control but also not construct an entirely riprap-lined channel, the project design combines rock placement with other "softer" erosion control and habitat features. The floodplain terrace would be covered with an erosion control blanket that would be made of biodegradable coir fiber. The bank slope would be hydroseeded with an appropriate woody and grass seed mixture, and a biodegradable erosion control blanket would be installed on top of all exposed slopes. Bank slope planting would be completed by cutting holes within the blanket and installing appropriate tree and shrub species. Anchored logs would be incorporated into the pools and grade control structures to dissipate erosive energy and create habitat complexity. These logs would be anchored using large stone counter weights. In addition, coir bio-blocks would be installed along the channel edge in association with willow stakes.

Effective erosion control during the initial phases of the project construction and establishment is mandatory. Because the proposed project would involve disturbance of more than one acre, a National Pollutant Discharge Elimination System (NPDES) permit would be required. A Storm Water Pollution Prevention Plan (SWPPP) would also be required to address erosion and discharge impacts associated with the proposed on-site grading. Implementation of the required SWPPP for the construction phase of the project would reduce the potential for erosion and loss of topsoil to occur. Implementation of the SWPPP, as required by the NPDES, would result in **less than significant** impacts to erosion**.**

c. Subsidence is the sudden sinking or gradual downward settling of the earth's surface with little or no horizontal movement. Subsidence is generally related to over pumping of groundwater or petroleum reserves from deep underground reservoirs. Subsidence is not related to any surface activity. The Final Environmental Impact Report for the City of Agoura Hills General Plan 2035 (2010) found that as a result of the generally limited groundwater resources contained in the relatively shallow alluvial basin, and the low probability of significant future oil production, the likelihood of significant subsidence occurring in the City is minimal.

Lateral spread or flow are terms referring to landslides that commonly form on gentle slopes and that have rapid fluid-like flow movement, like water. Calculations of lateral displacement for soils

found in BH-2 included in the Geotechnical Investigation Report (Questa, 2014) for the proposed project indicate that no lateral displacement would occur during liquefaction settlement at the eastern bridge abutment.

Landslides are ground failures in which a large section of a slope detaches and slides downhill. As discussed under item a(iv), the Relative Slope Stability map of the project area (CDMG, 1983) indicates that the channel is located in an area underlain by geologically competent formations having few or no perceptible landslides, and no landslides are shown on the Landslide map of the area (CDMG, 1983). The proposed project would not cause the geologic units at the site to become unstable; therefore, the risk of landslides would not increase as a result of the proposed project.

Based on the above, impacts related to subsidence, lateral spreading and landslides would be **less than significant.**

d. Soils that expand when exposed to water are considered expansive soils. The City's General Plan indicates that ungraded native soils in the lowland portions of the City exhibit the highest potential for shrinkage and swelling, and would have to be removed or extensively modified before development could occur. The evaluation of soils at the project site including in the Geotechnical Investigation Report (Questa, 2014) did not indicate the presence of expansive soils; therefore, **no impact** would occur.

e. The proposed project would not create any new land uses that require septic tanks or other alternative forms of wastewater disposal. Therefore, **no impact** would occur.

MITIGATION MEASURES:

The following measure is required to reduce geology and soils impacts to a level of less than significant:

GEO 1 Geotechnical Report Recommendations. Compliance with the recommendations included in the Geotechnical Investigation Report (2014) undertaken at the site shall be required. These recommendations include design requirements for the pedestrian bridge footings, stair foundations and seismic design criteria. The City of Agoura Hills Public Works Department shall review and approve all final plans for the proposed project to confirm compliance with these and any other geotechnical design requirements.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

DISCUSSION:

Greenhouse gases (GHGs) are emitted by both natural processes and human activities. Of these gases, carbon dioxide (CO_2) and methane (CH_4) are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills.

Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and sulfur hexafluoride (SF_6). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale, generally 100 years. Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO_2E), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a GWP of one. By contrast, CH_4 has a GWP of 21, meaning its global warming effect is 21 times greater than CO_2 on a molecule per molecule basis.

As noted in this document in Section II. AIR QUALITY, the City of Agoura Hills is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Although not formally adopted, the SCAQMD recommends a quantitative threshold for all land use types of 3,000 metric tons of CO_2E/year.

The vast majority of individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence on climate change; therefore, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. For the purposes of this analysis, the SCAQMD recommended significance threshold of 3,000 metric tons of CO_2E/year for all land use types is used to determine if the project would result in a cumulatively considerable impact on GHG.

The analysis used to determine whether cumulatively considerable significant impacts would occur is based on the methodologies recommended by the California Air Pollution Control Officers

Association [CAPCOA] (January 2008) *CEQA and Climate Change* white paper. The analysis focuses on CO_2, N_2O, and CH_4 as these are the GHG emissions that onsite development would generate in the largest quantities. Fluorinated gases, such as HFCs, PFCs, and SF_6, were also considered. However, because the proposed project would only involve the rehabilitation of a riparian area, the quantity of fluorinated gases would not be significant since fluorinated gases are primarily associated with industrial processes. Calculations were based on the methodologies discussed in the CAPCOA white paper (January 2008) and included the use of the California Climate Action Registry General Reporting Protocol (January 2009). With regards to emissions from construction activity, SCAQMD (2011) has suggested amortizing construction-related emissions over a 30-year period in conjunction with the proposed project's annual operational emissions to account for emissions from the construction phase. That methodology has been employed in this analysis.

a. Potential GHG emissions from the proposed project include construction-related emissions, direct emissions from operation and indirect emissions from operation. Construction of the proposed project would generate GHG emissions primarily due to the operation of construction equipment and truck trips. For this analysis, it was assumed that construction would commence in July 2015 and would be completed in December 2015. Emissions associated with the construction period were estimated using the California Emissions Estimator Model (CalEEMod), based on the projected maximum amount of equipment that would be used onsite at one time. Complete CalEEMod results and assumptions can be viewed in Appendix A.

Based on CalEEMod results, construction activity for the proposed project would generate an estimated 304 metric tons of carbon dioxide equivalent (CO_2e) (as shown in Table 5). Amortized over a 30-year period (the assumed life of the project), construction of the proposed project would generate about ten metric tons of CO_2e per year.

Table 5
Estimated Construction Emissions of Greenhouse Gases

Year	Annual Emissions (Carbon Dioxide Equivalent (CO_2e))
2015	304.38 metric tons
Total	**304.38 metric tons**
Amortized over 30 years	**10.15 metric tons per year**

See Appendix A for CalEEMod Results.

Direct operational emissions from energy use for the project would be negligible. The proposed project would not include any buildings, including those occupied by people. Therefore, no lighting, HVAC or other appliances that use energy (electricity and natural gas use) would be utilized at the site during operation. For the same reason, no solid waste, water or wastewater would be utilized/generated at the site on an ongoing basis. The pedestrian bridge, which is a type of structure, would not utilize any of the above-noted resources, and so would not contribute to GHGs.

Emissions associated with area sources, including landscape maintenance and architectural coating (weatherproofing), would also be negligible. These types of emissions were calculated in the CalEEMod model and utilize standard emission rates from CARB, USEPA, and district supplied emission factor values (CalEEMod User Guide, 2011). Although there would be some emissions associated with

occasional landscaping and architectural coating to weatherproof the bridge throughout the life of the project, the GHG emissions associated with these activities would be less than 0.0007 metric tons CO_2e per year).

Finally, as described above in Section II. AIR QUALITY, and below in Section XVI. TRANSPORTATION/ TRAFFIC, operation of the proposed project would not generate new or additional service population, but instead enhance the existing land uses and trails. Therefore, operation of the proposed project would not generate new traffic trips to the site and thus there would be no indirect GHG mobile emissions associated with the proposed project.

Therefore, total emissions associated with the project would be approximately 10 metric tons CO_2e per year. This increase in GHG emissions would not exceed SCAQMD's proposed quantitative threshold for mixed land use types of 3,000 MT CO_2E/year (SCAQMD, "Proposed Tier 3 Quantitative Thresholds – Option 1", September 2010). Thus, impacts would not be cumulatively considerable and would be **less than significant.**

b. Senate Bill 375, signed in August 2008, requires the inclusion of sustainable communities strategies (SCS) in regional transportation plans (RTPs) for the purpose of reducing GHG emissions. In April 2012, the Southern California Association of Government (SCAG) adopted the *2012-2035 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS). SCAG's RTP/SCS includes a commitment to reduce emissions from transportation sources by promoting compact and infill development in order to comply with SB 375. A goal of the SCS is to "promote the development of better places to live and work through measures that encourage more compact development, varied housing options, bike and pedestrian improvements, and efficient transportation infrastructure." The proposed project would enhance an existing informal trail and provide new walking paths and connectivity between an existing park and Kanan Road. Therefore, it would be consistent with this goal. Another goal of the SCS is to "create more compact neighborhoods and place everyday destinations closer to homes and closer to one another." The proposed project would essentially offer an extension of the recreational area provided by Chumash Park adjacent to residences, thereby meeting this SCS goal.

In June 2005, the Governor issued Executive Order (EO) S-3-05, setting a GHG emission reduction target of 1990 levels by 2020. Similarly, Assembly Bill 32, the "California Global Warming Solutions Act of 2006," requires achievement of a statewide GHG emissions limit equivalent to 1990 emissions by 2020 (essentially a 25% reduction below 2005 emission levels). Both the California Environmental Protection Agency (CalEPA) and California Attorney General have published documents identifying methods and strategies to reduce GHG emissions at the state and local levels in response to these targets (CalEPA 2006; Office of the California Attorney General 2008). Tables 6 and 7 illustrate that the proposed project would be consistent with the GHG reduction strategies set forth by both CalEPA and the California Attorney General's Office. Table 8 illustrates the project's consistency with applicable GHG emission reduction policies included in the City of Agoura Hills General Plan 2035 Natural Resources Element.

Table 6
Project Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	*Project Consistency*
Department of Forestry	
Urban Forestry A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	**Consistent** Landscaping for the proposed project would result in additional planted trees throughout the project site.
Department of Water Resources	
Water Use Efficiency Approximately 19% of all electricity, 30% of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions.	**Consistent** The proposed project may serve to increase rainwater infiltration and lower strain on wastewater infrastructure during storm events.
Business, Transportation and Housing	
Smart Land Use and Intelligent Transportation Systems (ITS) Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors.	**Consistent** Extending the available park and recreation resources near existing residential areas may reduce the number of vehicle trips residents take to access outdoor recreation opportunities.

Table 7
Project Consistency with Applicable Attorney General Greenhouse Gas Reduction Measures

Strategy	*Project Consistency*
Water Use Efficiency Require measures that reduce the amount of water sent to the sewer system – see examples in CAT standard above. (Reduction in water volume sent to the sewer system means less water has to be treated and pumped to the end user, thereby saving energy.)	**Consistent** While the re-vegetation plan may include seasonal irrigation of new plants for several years after construction until they become well-established, the project will not use water during normal operation nor create any wastewater.
Land Use Measures, Smart Growth Strategies and Carbon Offsets	
Smart Land Use and Intelligent Transportation Systems Require pedestrian-only streets and plazas within the project site and destinations that may be reached conveniently by public transportation, walking or bicycling.	**Consistent** The project has pedestrian only paths and a footbridge and provides connectivity between the existing Chumash Park and Kanan Road sidewalks.

Table 8
Project Consistency with Applicable City of Agoura Hills Greenhouse Gas Reduction Measures

Strategy	*Project Consistency*
NR-10.1 Climate Change Comply with all state requirements regarding climate change and greenhouse gas reduction and review the progress toward meeting the emission reductions targets.	**Consistent** As demonstrated in Tables 5 and 6, the project would be consistent with state requirements regarding climate change.
NR-10.2 Regional Coordination Ensure that that any plans prepared by the City, including the General Plan, are aligned with, and support any regional plans to help achieve reductions in greenhouse gas emissions.	**Consistent** The proposed project is consistent with the emissions reduction goals included in the SCAG 2012 RTP/SCS, as discussed previously.

As indicated in Tables 6, 7 and 8, the proposed project would be consistent applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs and would be consistent with the objectives of AB 32, SB 97, SB 375, the SCAG RTP/SCS, and the City of Agoura Hills General Plan. Impacts would be **less than significant.**

VII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
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?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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 result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
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?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

VII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:	Potentially Significant Impact	Less Than Significant With 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?	☐	☒	☐	☐

DISCUSSION:

a, b. Ongoing operation of the proposed creek restoration project would not involve the routine transport, use or disposal of hazardous substances. No releases of hazardous materials or substances are expected to occur as a result of the implementation of the proposed project. Construction of the project would involve the use of minor amounts of hazardous materials, such as fuels, other petroleum products and solvents associated with use of heavy machinery at the site. There is a risk that spills of these materials could occur near or in the creek channel. In addition to compliance with local and state laws related to the use and disposal of hazardous materials, Mitigation Measure HAZ 1 would be required to further minimize potential impacts from the use of hazardous materials during construction.

c. The closest school is Agoura High School, located at 28545 West Driver Avenue, approximately 0.5 miles to the northeast of the proposed project site. The project vicinity includes several residences and commercial facilities. Temporary air emissions due to construction activities are addressed in Section III, AIR QUALITY. As stated above, the use of the site as a restored creek with trails would not involve the use, generation, storage, or transport of large quantities of hazardous materials, substances, or waste. Therefore, **no impact** would occur**.**

d. The following databases were checked for known hazardous materials contamination on the project site or in its vicinity:

- California, State of, Department of Toxics Substance Control EnviroStor database
- Geotracker search for leaking underground storage tanks, Spills –Leaks-Investigations-Cleanups (SLIC) and Landfill sites

No landfills or active clean-up sites are located on or near the project site. Therefore, **no impact** would occur**.**

e, f. There are no airports or airstrips located within the project site vicinity. The site is not within an area covered by an airport land use plan. Therefore, **no impact** would occur**.**

g, There are no known emergency evacuation plans or response plans in the vicinity of the project site. Therefore, operation of the proposed project would not interfere with existing emergency evacuation plans, or emergency response plans. Therefore, there would be **no impact.**

h. The City of Agoura Hills Municipal Code classifies the City as a "Very High Fire Hazard Severity Zone" (formerly Fire Zone 4). The City of Agoura Hills Uniform Fire Code, found in Section 8200 of the City of Agoura Hills Municipal Code, includes modifications to the CBC that intend to prevent loss during a wildland fire. The proposed project would not result in the construction of new dwelling units or other facilities that would be occupied by people. In addition, no species proposed for vegetation along the east side of the channel, in proximity to the existing residences, are included on the "Undesirable Plant List" included in the County of Los Angeles Fire Department Fuel Modification Guidelines (July 2011), with the exception of native California buckwheat and several native sage species. These plant types are proposed to be planted as part of the restoration of native habitat at the site. These plants are listed as a Target Species in the Guidelines and should be avoided near structures. All planting included in the proposed project, including California buckwheat and native sages, would be located at least 50 feet from any existing structures and on the opposite side of the proposed paved trail. Therefore, the project would have **no impact** related to exposing people or structures to significant loss due to fire.

MITIGATION MEASURES:

Upon implementation of the following measure, potential impacts with regard to hazards would be less than significant.

HAZ 1 Hazardous Materials Plan: A Hazardous Materials Plan shall be prepared for the proposed project. This plan may be incorporated in the SWPPP for the project. The Hazardous Materials Plan shall be approved by the City Environmental Analyst prior to the issuance of a grading permit, or start of construction, whichever occurs first, and be provided to the project construction team/contractor and printed on the construction plans. The Hazardous Materials Plan shall include the following provisions:

- Measures for containing hazardous materials, such as accidental fuel spills.
- No construction equipment shall be left overnight in the creek channel.
- All refueling and/or maintenance of heavy equipment shall take place at a minimum of 50 feet away from the top of bank of the creek channel.
- All personnel, contractors and subcontractors shall comply with all applicable standards and conditions set forth by the Regional Water Quality Control Board.

VIII. HYDROLOGY AND WATER QUALITY – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
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)?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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 of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
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?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
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?	☐	☐	☐	☒

VIII. HYDROLOGY AND WATER QUALITY – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

DISCUSSION:

a, c, f. Construction of the proposed project would involve grading and earthwork activities within the Medea Creek channel. Disturbed and exposed surfaces would be susceptible to the erosional forces of wind and water and could result in the degradation of water quality in Medea Creek. However, the project design includes measures to minimize erosion and water quality degradation.

Implementation of the proposed project would not result in a long-term increase in erosion and subsequent degradation of water quality. Though the proposed project would incrementally alter the course of the drainage channel by removing the existing concrete-lined channel and introducing a series of pools and riffles interspersed with rock weirs throughout the length of the channel segment, one of the primary goals of the project is to achieve a stable channel morphology. In order to provide short-term erosion control, the project design combines rock placement with other "softer" erosion control and habitat features as described in Section VI, GEOLOGY AND SOILS. The floodplain terrace would be covered with an erosion control blanket that would be made of biodegradable coir fiber. The bank slope would be hydroseeded with an appropriate woody and grass seed mixture, and a biodegradable erosion control blanket would be installed on top of all exposed slopes. Bank slope planting would be completed by cutting holes within the blanket and installing appropriate tree and shrub species. Anchored logs would be incorporated into the pools and grade control structures to dissipate erosive energy and create habitat complexity. These logs would be anchored using large stone counter weights. In addition, coir bio-blocks would be installed along the channel edge in association with willow stakes.

During construction, a Storm Water Pollution Prevention Plan (SWPPP) would be required, as discussed in Section VI, GEOLOGY AND SOILS. The SWPPP would incorporate BMPs and other measures to prevent erosion and degradation to water quality. The City of Agoura Hills requires the SWPPP to be prepared and approved by the Public Works Department prior to issuance of a grading permit or start of construction. In addition, construction would be conducted during the summer low precipitation period to minimize the amount of water diversion required as described in the PROJECT DESCRIPTION. Therefore, impacts would be **less than significant.**

b. The proposed project involves alteration to an existing drainage channel. The proposed project would not increase the demand for water that could substantially deplete existing groundwater supplies or result in a net deficit in aquifer volume or lowering of the local groundwater table. Most of the water flow in the channel during the dry summer months is generated from urban sources. Therefore, the revegetation plan associated with the proposed project would include temporary irrigation of riparian plantings during dry months for a period of up to five years after construction, or until the plantings are well established. However, the irrigation system would be connected to the Las Virgenes Municipal Water District delivery system that provides service to Chumash Park and would not affect local groundwater levels. In addition, the proposed project would decrease impermeable surface area onsite through removal of the concrete lined channel, which would increase groundwater recharge along the project reach. Therefore, impacts would be **less than significant.**

d, h. According to the FEMA Flood Insurance Rate Map (2008) for the project area, the project site is mapped as a Special Flood Hazard Area, which is subject to inundation by the 1 percent annual chance flood.[1] Project implementation would involve removal of the approximately 425 linear feet of concrete trapezoidal channel and construction of a natural channel stabilized with native vegetation, boulders and log structures, in addition to a footbridge. The proposed project would not create or contribute additional runoff to Medea Creek. However, the proposed project would alter the hydraulic properties (e.g. channel geometry, roughness) of the channel potentially resulting in localized flooding during large storm events.

Existing and post-construction hydraulic conditions along the project reach are discussed in the *Design Report for Medea Creek Restoration Project* prepared by Questa (2013). A HEC-RAS hydraulic model was developed to determine existing conditions and provide an analysis of the impact of restoring the channel to a more natural condition. Three scenarios were modeled: existing conditions, proposed conditions – immediately after construction, and proposed conditions – with full vegetation established.

Peak flow volumes during a 100-year design storm event would be 7,200 cubic feet per second (cfs) as predicted in the FEMA Flood Insurance Study (FIS) for Los Angeles County dated September 26, 2008. The existing channel is designed to be very efficient, with high velocities due to low frictional resistance within the concrete lined channel and existing steep slope. As a result, it can convey high flows in a small area. The restoration would alter the efficiency of the channel to convey flow, and so raise flood levels between 2 to 3.5 feet, depending on the location along the channel. Initial modeling conducted for the proposed project indicates that water surface elevations could rise above the existing top of bank elevations on the western and eastern sides. This would cause shallow flooding along the maintenance access road to the east of the channel and along the lower portion of the hill slope on the west.

No new properties would be susceptible to flooding as a result of the proposed project. The pedestrian bridge proposed as part of the project would be installed with a minimum of one foot of freeboard above the 100-year flood elevation with the bottom of the bridge at an elevation of approximately 865 feet. As such, the proposed footbridge would not obstruct flows during 100-year flood events. The existing sewer line located along the western side of the channel would be protected from scour during high flow events by grouted riprap rock placed adjacent and on top of the line at locations where the creek channel is within 10 to 15 feet of the sewer line. The resulting minor flooding at the base of the slope on the eastern side is at the boundary of private and public

[1] *The 1% annual chance flood (100-year flood) is the flood that has a 1% chance of being equaled or exceeded in any given year.*

property. The private houses and other appurtenant structures are located substantially (approximately 15 feet) above the flood elevations.

Any flooding would be of short duration and there would be only a 1% chance in any given year of flooding at or above the formal asphalt and decomposed granite trails located along the eastern and western sides of the proposed project. Any informal trails established along the channel bottom/low floodplain would likely be inundated every one to two years. Periodic maintenance of these trails would be required, but would depend on the severity and frequency of flooding as well as the quality of the trail.

In order to prevent even minor flooding of private property, a low retaining wall along the eastern side of access road has been incorporated into the project design as shown on **Figure 4** (Questa, 2014). Inclusion of this design feature in the proposed project would reduce project-related flooding impacts to a level of **less than significant.**

e. Project implementation would involve removal of approximately 425 linear feet of concrete trapezoidal channel and construction of a natural channel stabilized with native vegetation, boulders and log structures. The proposed project would remove impermeable surface in the project area, facilitating greater percolation of surface water runoff. Therefore, the proposed project would not create or contribute to runoff water or provide substantial additional sources of polluted runoff. Impacts would be **less than significant.**

g. Predicted water surface elevations (867 feet) for the proposed project show that the channel improvements could cause shallow flooding of the lower portion of the hill slope on the eastern side of the channel. The resulting minor flooding at the base of this slope is at the boundary of public and private property (although predicted water surface elevations are well below houses and other structures on the adjacent private properties). To prevent minor flooding of private property during the 100-year design storm, a four-foot high retaining wall would be constructed adjacent to, but outside of, the private parcels on the western side of the project, as shown in **Figure 4.** Given that flooding of private property and structures would not occur, impacts would be **less than significant**. .

i. The proposed project would not result in an increased exposure of people or structures to flood hazards associated with potential failure of a levee or dam, as there are no such facilities in the vicinity of the project site. Therefore, **no impact** would occur.

j. Seismic events can induce oscillations of the surface of an inland body of water that vary in period from a few minutes to several hours. These events can produce seiches, which are standing waves in an enclosed or partially enclosed body of water. As described in the City of Agoura Hills General Plan 2035 Final Program Environmental Impact Report (February 2010), the only large water body within the City is Lake Lindero. Lake Lindero is located approximately 1.75 miles west of the site. However, as noted in the General Plan Final EIR, Lake Lindero is only a few feet deep and does not contain a substantial volume of water. As such, in the unlikely event that a seiche is produced during a seismic event, the minimal depth and volume of water in Lake Lindero means there is no potential for inundation at the site from Lake Lindero.

Tsunamis are large sea waves produced by submarine earthquakes or volcanic eruptions. The project site is not located close to the ocean (22 miles) and is at an elevation sufficiently above sea level (850 feet)to be outside the zone of a tsunami. Therefore, **no impact** as a result of tsunami or seiche would occur**.**

MITIGATION MEASURES:

As there would be no adverse impacts, no mitigation measures are required.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) 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?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

DISCUSSION:

a. Project implementation would involve removal of approximately 425 linear feet of concrete trapezoidal channel and construction of a natural channel stabilized with native vegetation, boulders and log structures, as well as pedestrian trails. The project would provide pedestrian connectivity from Kanan Road through a vacant parcel west of Medea Creek, to Chumash Park east of Medea Creek via a footbridge. Therefore, the proposed project would not physically divide an established community, and may be viewed as helping to connect different parts of the City. Therefore, **no impact** would occur**.**

b. The proposed project would not change the existing land use at the project site. The site would continue to remain an open channel and open space area with pedestrian access. The project would improve these facilities and create a more natural environment, as well as provide greater pedestrian connectivity. Restoration of the creek and construction of a footbridge and trails is consistent with the zoning and General Plan land use designations of the site. The project is consistent with the City General Plan, including the following goals and policies, which stress the importance of providing open space areas and linked pedestrian connections throughout the City, and specifically implements Policies LU-3.5, LU-4.2, LU-4.8, NR-4.11, and Goal M-7:

- **Goal LU-3 City of Open Spaces.** Open space lands that are preserved to maintain the visual quality of the City and provide recreational opportunities, protect the public from safety hazards, and conserve natural resources.

- **Policy LU-3.3 Open Spaces and Greenbelts.** Provide a network of open spaces and greenbelts with pedestrian access where appropriate. (Imp LU-15, CS-21, NR-2)
- **Policy LU-3.5 Creeks and Natural Drainages.** Maintain the form and health of resources and habitat in the City's natural drainages. Explore restoration of those that have been degraded or channelized, such as Medea Creek and Chesebro Creek, as feasible to maintain storm water conveyance and property protection requirements. (Imp NR-7, NR-15, NR-16, NR-17)
- **Goal LU-4 City Form and Structure.** Structure and form of development that respects Agoura Hills' natural setting; maintains distinct and interconnected places for residents to live, shop, work, and play; and is more compact to reduce automobile dependence.
- **Policy LU-4.2 Connected Open Space Network.** Maintain and, where incomplete, develop a citywide network of open spaces that is connected to and provides access for all neighborhoods and districts incorporating greenbelts, drainage corridors, parklands, bicycle and pedestrian paths, equestrian trails, and natural open spaces. (Imp LU-14, LU-15, M-10, M-31, M-34, CS-21, NR-1, NR-2)
- **Policy LU-4.8 Connectivity.** Promote the development of complete pedestrian, bicycle, and vehicular connections that provide access from all residential neighborhoods to commercial, employment, cultural, civic, recreational, and open space destinations. (Imp M-4, M-7, M-10, M-14, M-31, M-34, CS-21, CS-24, NR-2)
- **Goal LU-19 Maintenance of Open Spaces.** Open space lands that provide an attractive environmental setting for Agoura Hills and visual relief from development, protect the viability of natural resources and habitat, offer passive recreational opportunities for residents and visitors, and protect residents from the risks of natural hazards.
- **Policy LU-19.1 City of Trees and Open Spaces.** Maintain a multi-functional "green infrastructure" consisting of natural areas, open spaces, urban forest, and parklands, which serves as a defining physical feature of Agoura Hills, provides visitors and residents with access to open spaces and recreation, is designed for environmental sustainability, and reduces greenhouse gas emissions. (Imp U-40, CS-1, CS-2, CS-5, NR-1, NR-2, NR-4, NR-9, NR-10, NR-15, NR-16)
- **Policy LU-19.2 Open Space Preservation.** Place a high priority on acquiring and preserving open space lands for purposes of passive recreation, habitat protection and enhancement, resource conservation, flood hazard management, public safety purposes, and overall community benefit. (Imp LU-14, LU-15, NR-1)
- **Goal M-7 Pedestrians.** Transportation improvements and development enhancements that promote and support walking within the community.
- **Policy M-7.2 Pedestrian Connectivity.** Preserve and enhance pedestrian connectivity in existing neighborhoods and require a well-connected pedestrian network linking new and existing developments to adjacent land uses, including commercial uses, schools, and parks. (Imp LU-14, LU-19, LU-30, LU-31, LU-32, LU-36, LU-40, LU-41, M-31, M-34, CS-21, CS-24)
- **Goal NR-1 Open Space System.** Preservation of open space to sustain natural ecosystems and visual resources that contribute to the quality of life and character of Agoura Hills.
- **Policy NR-1.1 Open Space Preservation.** Continue efforts to acquire and preserve open space lands for purposes of recreation, habitat protection and enhancement, resource conservation, flood hazard management, public safety, aesthetic visual resource, and overall community benefit.

- **Policy NR-1.5 Funding.** Pursue and apply for grant funding from existing and anticipated county, state, federal, private, and other funding sources to support the purchase of open space and the restoration of open space resources.
- **Policy NR-4.7 Green Infrastructure.** Maintain a multi-functional "green infrastructure," consisting of natural areas, open spaces, urban forest, and parklands, that serves as a defining physical character of Agoura Hills, provides visitors and residents with access to open spaces and recreation, and is designed for environmental sustainability.
- **Policy NR-4.8 Open Space and Activity Centers.** Link open space to activity centers, parks, other open space, and scenic routes to help define urban form and beautify the City.
- **Policy NR-4.11 Creeks and Natural Resources.** Support the restoration of creeks and other natural resources. Activities include creek cleanup, erosion and urban runoff control, and weeding of non-native plants.

In particular, the project carries forth Implementation Measure NR-15, which states, "*the City shall explore the feasibility of improving the creeks, drainages and flood channels in the City through regular removal of non-native and invasive plants and trees; planting of native species within and/or along the top of the water courses; development of adjacent bikeways and pedestrian paths, as practicable; and, in some cases, restoring developed water courses to their natural earthen and vegetated condition while still maintaining adequate flood control and protection*". The project would be consistent with all applicable land use plans and regulation, and therefore, **no impact** would occur**.**

c. The project site is within an urban area and is not subject to an adopted habitat conservation plan (HCP), natural community conservation plan (NCCP), or any other approved local, regional, or state habitat conservation plans (City of Agoura Hills, General Plan 2035 Program Final EIR, February 2010). There are no such plans within the City or adjacent to the City. Therefore, **no impact** would occur**.**

MITIGATION MEASURES:

As there would be no adverse impacts, no mitigation measures are required.

	Potentially Significant Impact	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
X. 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a, b. According to the California Division of Mines and Geology, (CDMG) no significant mineral deposits are present within the City of Agoura Hills. The City was surveyed by CDMG as part of a regional study to determine the existence of aggregate construction materials such as sand, gravel, and crushed rock. The survey identified Agoura Hills as being part of the "Simi Production-Consumption Region," and delineated Mineral Resource Zone (MRZ) boundaries within the City. Most of the City north of Agoura Road is classified as MRZ-1 in the CDMG report *Mineral Land Classification of Ventura County* (1981). This classification defines areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. The remaining areas of the City, including Ladyface Mountain, a small portion of Palo Comado Canyon, and the Liberty Canyon area, are classified as MRZ-3. This classification includes areas containing mineral deposits, the significance of which cannot be evaluated from available data. (City of Agoura Hills, General Plan 2035, March 2010).

The proposed project is not located within or in proximity to an area classed as MRZ-1 and there has been no known mining in the area of the project site. Therefore, the proposed project would not affect the availability of mineral resources and **no impact** would occur**.**

MITIGATION MEASURES:

As there would be no adverse impacts, no mitigation measures are required.

	Potentially Significant Impact	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
XI. 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?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity due to construction activities above levels existing without the project?	☐	☐	☒	☐

XI. NOISE – Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

DISCUSSION:

Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound power levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz). For the most sensitive uses, such as single family residential, a 60 dBA Day-Night average level (Ldn) is the maximum normally acceptable exterior level. Ldn is the time average of all A-weighted levels for a 24-hour period, with a 10 dB upward adjustment added to those noise levels occurring between 10:00 p.m. and 7:00 a.m. to account for the general increased sensitivity of people to nighttime noise levels. The Community Noise Equivalent Level (CNEL) is similar to the Ldn except that it adds five additional dB to evening noise levels (7:00 p.m. to 10:00 p.m.). The City of Agoura Hills utilizes the CNEL for measuring noise levels.

Noise level allowances for various types of land uses reflect the varying noise sensitivities associated with those uses. In general, noise-sensitive land uses ("sensitive receptors") are any residence, hospital, school, hotel, library, office, or similar facility where quiet is an important attribute of the environment. Such uses have more stringent noise level allowances than most commercial or agricultural uses that are not subject to impacts such as sleep disturbance. Sensitive receptors in proximity of the site included the adjacent single-family residences at the eastern boundary of the site and the multi-family residences located approximately 250 feet south of the site.

The existing ambient noise environment in the project area is primarily defined by roadway noise along Thousand Oaks Boulevard and the surrounding local roadway network, noise from recreational use of the adjacent Chumash Park and noise from periodic maintenance of the LVMWD sewer line. Figure N-1 NOISE CONTOURS of the General Plan 2035 shows that the project area is within a portion of the City that experiences lower than 60 CNEL.

a, c. The proposed project would result in the continued use of the site for water conveyance and for passive recreation. Operational noise at the project site over the life of the project would primarily

include the sound of trail users talking and noise from periodic landscape maintenance. These noise sources would be intermittent, but would contribute incrementally to the ambient noise levels in the project vicinity. There is currently an informal, unpaved trail along the fence bounding the residential properties at the eastern edge of the site. As such, people currently use the base of the slope at the eastern edge of the site to access Thousand Oaks Boulevard from the area of Chumash Park. The proposed project would replace the informal trail with a surfaced trail that is not located on private property and is separated from these properties by a four-foot retaining wall and landscaped buffer. The intermittent and incremental noise caused by pedestrians using the on-site trail facilities, as well as maintenance activities for the vegetation, would not generate a measurable increase in ambient noise levels compared to existing conditions.

As such, the operational phase of the project would not result in a substantial permanent increase in ambient noise levels and would not expose people to long-term noise levels exceeding local noise standards. Impacts would be **less than significant.**

The General Plan 2035 includes a recommended noise/land use compatibility matrix that is designed to minimize noise/land use conflicts (Table N-1, General Plan). The matrix indicates whether specified land uses (e.g., commercial retail, commercial recreation, institutional, residential) are compatible in being located within areas of varying ambient levels of noise (e.g., CNEL 55-60, 60-65, 65-70, 70-75 and 75-80). The project falls within the category of "Parks" in the matrix. Parks are considered "clearly compatible" in a CNEL of 55-65, and "normally compatible" in a CNEL of 65-70. Figure N-1 NOISE CONTOURS – EXISTING of the General Plan indicates that the project area is within an area of lower than 60 CNEL. Therefore, the project, which is an improvement to an existing water conveyance system and existing informal trail, would be consistent with the area CNEL. Consequently, the project impacts with regarding to consistency with the General Plan would be **less than significant.**

b. Groundborne noise is addressed in Items a, c and d of this section. Vibration is an oscillating motion that travels through the ground. The background vibration velocity level in residential areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people.

Groundborne vibration may result during construction activities related to grading, concrete channel demolition and use of construction equipment onsite. No substantial earthwork, such as blasting and deep excavation, would occur with the project. Excavation and grading activities would be limited to re-contouring of the creek channel, construction of the retaining wall and construction of the ADA compliant trail.

Table 9 identifies various vibration velocity levels for the types of construction equipment that would operate at the project site during construction activities.

Based on the information presented in Table 9, vibration levels could reach approximately 77 VdB at the existing residences located within approximately 50 feet of the closest point where grading would occur. This would be less than the groundborne velocity threshold level of 80 vibration decibels (VdB) established by the Federal Railway Administration for noise-sensitive buildings, residences, and institutional land uses where people normally sleep. In addition, most grading construction activities would occur at a distance greater than 50 feet from these residences, resulting in generally lower vibration levels. Finally, construction activities and their associated vibration levels would be limited to daytime hours between 7:00 AM to 7:00 PM Monday through

Saturday in accordance with the Agoura Hills Municipal Code Article IV, Chapter 1 (AHMC Section 4100 et seq). The proposed project is required to comply with these regulations. Therefore, construction activities would not occur during recognized sleep hours for residences. As such, construction vibration impacts to residential uses within approximately 50 feet of the project site would be less than significant.

Table 9
Vibration Source Levels for Construction Equipment

Equipment	Approximate VdB			
	25 Feet	50 Feet	75 Feet	100 Feet
Small Bulldozer	86	77	71	68
Loaded Trucks	79	70	65	61
Jack Hammer	58	48	43	36

Source: Harris Miller Miller & Hanson, Inc., Transit Noise and Vibration Assessment, April 1995 (Prepared for USDOT Federal Transit Administration).

d. Construction of the proposed project could generate temporary noise during the several month construction period. Temporary increases in noise levels during project construction would result from construction activities and the use of heavy machinery. Earthwork and the placement of rock rip rap would be the activities expected to generate the most noise. Noise levels in construction areas would temporarily increase and could be heard by people in adjacent structures. In particular, the residences closest to the site, such as those adjacent to and in close proximity to the eastern boundary of the project site along Medea Valley Drive and Rock Tree Drive and the residences near the southern end of the project site on Oak Tree Lane and Argos Street, would experience temporary increases in noise (see **Figure 2** for locations). Construction activities would be required to comply with Article IV, Chapter 1, of the AHMC, which limits the use of construction equipment that generates noise in excess of 60 dBA to between the hours of 7:00 AM and 7:00 PM, Monday through Saturday. No construction activity is permitted between 7:00 PM and 7:00 AM that generates noise in excess of the 50 dBA nighttime standard, and no construction activity is permitted on Sundays or legal holidays. With conformance to Article IV, Chapter 1, the City's Municipal Code states in Article IV, Chapter 6 – Special Provisions that construction activities are exempt from all other noise provision standards. Because compliance with the AHMC with regard to construction noise is required and because construction noise is temporary, construction noise impacts would be **less than significant.** While not required, Mitigation Measure N – 1 is recommended to further reduce potential noise during construction.

e, f. The project site is not located within the vicinity of an airport or private airstrip. The closest airport is Van Nuys Airport, located approximately 16 miles from the site. Therefore, **no impact** would occur**.**

MITIGATION MEASURES:

The following measure would further reduce the less than significant noise impacts anticipated during construction:

N 1 **Construction Noise:** The following measures should be implemented, where feasible:

- Construction equipment, fixed or mobile, should be equipped with properly operating and maintained mufflers and other state required noise attenuation devices.
- All property owners and occupants located within 300 feet of the project site should be sent a notice, at least 15 days prior to commencement of construction, regarding the construction schedule of the project. All notices should indicate the dates and duration of construction activities, as well as provide a contact name and telephone number where residents can inquire about the construction process and register complaints.
- During construction, stationary construction equipment should be placed such that emitted noise is directed away from sensitive noise receivers.
- Construction staging areas should be located to maximize the distance from sensitive receptors (neighboring residences).

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING – Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

DISCUSSION:

a-c. The proposed project would implement site improvements, including removal of approximately 425 linear feet of concrete trapezoidal channel and construction of a natural channel stabilized with native vegetation, boulders and log structures. The project would also provide pedestrian connectivity between Kanan Road and Chumash Park through a footbridge and trails. The project is not an extension of any infrastructure, but a naturalization of an existing drainage facility. The project site is a natural area and drainage channel with no buildings, and so would not displace any housing. No dwelling units would be constructed and no long term employment opportunities would be provided as a result of the project. Thus, project implementation would not displace existing residents or housing. **No impact** would occur**.**

MITIGATION MEASURES:

As there would be no impacts, no mitigation measures are required.

XIII. PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for 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:				
i. Fire protection?	☐	☐	☐	☒
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

DISCUSSION:

a (i). The City of Agoura Hills is served by the Los Angeles County Fire Department (LACFD). Fire Station #89, located at 29575 Canwood Street in Agoura Hills, approximately one mile west of the project site, serves the project site and surrounding areas. The station is staffed with a three-person engine company and a two-person paramedic squad. The proposed project would not result in new residences, commercial facilities, or other land uses that would increase demand for fire protection service. As a result, the project would not require new or expanded fire protection facilities and **no impact** to fire protection services from implementation of this project would occur.

a (ii). The City of Agoura Hills receives police protection from the Los Angeles County Sheriff's Department (LACSD). Malibu/Lost Hills Station, located at 27050 Agoura Road in the City of Calabasas, approximately three miles east of the project site, serves the project site and surrounding areas. The station patrols the cities of Agoura Hills, Calabasas, Hidden Hills, Westlake Village, and Malibu, as well as adjacent unincorporated areas. The Lost Hills Station participates in a reciprocal aid agreement with the nearby communities of Westlake Village and Calabasas, which enables these stations to be called upon for assistance, if necessary.
The proposed project would not result in new residences, commercial facilities, or other land uses

that would require additional police services or generate an increase in service population. Implementation of the proposed project would not require expansion of the existing police facility, staff, or general equipment inventory. Therefore, **no impact** would occur**.**

a (iii-v) Project implementation would involve removal of approximately 425 linear feet of concrete trapezoidal channel and construction of a natural channel stabilized with native vegetation, boulders and log structures. The project would also provide pedestrian connectivity between Kanan Road and Chumash Park through trails and a footbridge. No new uses, buildings, or activities are proposed. Therefore, the proposed project would not generate new or additional residents or school-age children. Instead, the proposed project would better serve existing recreation users within the community and would assist in satisfying the demand for trail amenities. The project would not affect public or private schools, parks, or other public facilities, as it would not generate new service population. Therefore, **no impact** would occur**.**

MITIGATION MEASURES:

As there would be no impacts, no mitigation measures are required.

	Potentially Significant Impact	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
XIV. RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
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?	☐	☒	☐	☐

DISCUSSION:

a. Project implementation would involve removal of approximately 425 linear feet of concrete trapezoidal channel and construction of a natural channel stabilized with native vegetation, boulders and log structures. The project would also provide more direct pedestrian connectivity for users of Chumash Park from Kanan Road via trails and a footbridge, but would not be expected to increase the number of people actually using the park because the proposed project would not change the park's size, configuration or available amenities. No new uses, buildings, or activities are proposed that would generate new or additional service population that would require construction of additional park facilities. **No impact** would occur**.**

b. The proposed project would include trail connectivity from Kanan Road to Chumash Park. As such, the proposed project would better serve existing users in the community and would assist in

satisfying the demand for trail amenities. The physical effects on the environment of the proposed project are the subject of this Initial Study and are described throughout along with mitigation measures to reduce any potentially significant impacts that could arise. Therefore, this impact is considered **less than significant with mitigation incorporated.**

MITIGATION MEASURES:

Impacts related to construction of the project, which includes improving recreational facilities (i.e., trails) are addressed throughout this document, and mitigation measures incorporated in each relevant environmental issue area. No additional mitigation measures are required.

	Potentially Significant Impact	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
XV. TRANSPORTATION/TRAFFIC – Would the project:				
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b) Result in temporary street or lane closures that would result in either a change of traffic patterns or capacity of the street system during construction activities (i.e. result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☒
c) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
d) Result in a change in air traffic patterns, including either an increase in traffic levels or a chance in location that results in safety risks?	☐	☐	☐	☒

XV. TRANSPORTATION/TRAFFIC – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Substantially increase hazards related to existing intersections or roadway design features (e.g. sharp curves or dangerous intersections), or to incompatible uses (e.g., residential traffic conflicts with farm equipment)?	☐	☐	☐	☒
f) Result in inadequate emergency access?				
g) Result in inadequate parking capacity?	☐	☐	☐	☒

DISCUSSION:

a. Operation of the proposed project would not generate new or additional operational vehicle trips as no new uses, buildings or activities are proposed. Instead, the proposed project would enhance the existing recreational uses and pedestrian linkages in the project area. Therefore, operation of the proposed project is not expected to generate new trips to the site, nor would operation of the proposed project substantially increase traffic in relation to the existing traffic capacity of the surrounding street system or exceed the level of service standard for surrounding roadways.

Construction activity would involve construction and demolition of the existing concrete channel, and restoration activities. Demolition activity would likely occur over a two-week duration. Removal of demolition debris would require approximately 50-70 total truck trips, with up to five truck trips occurring per day. Up to 20 truck trips would be required to complete the restoration component over the remaining three and half month construction period.

Construction traffic traveling to and from the project site would likely travel north on Kanan Road from U.S. 101, then east on Thousand Oaks Boulevard, west on Parkheath Drive and west of Medea Valley Drive along the edge of Chumash Park. The highest number of daily truck trips associated with the proposed project would occur during demolition activities, which would last around two weeks. As noted above, up to five heavy truck trips could occur during demolition activities. During restoration activities, the number of heavy trucks traveling to the site per day would be lower (approximately one to two per day periodically throughout restoration). Therefore, up to 15 vehicles (five heavy trucks and ten employees) would travel to and from the site on the highest activity days during the four month construction period.

Given the limited number of trips per day on even the highest activity days, construction vehicles traveling to and from the site would not substantially affect traffic on adjacent streets. Routes in the City that would be used by heavy trucks and employees include Kanan Road north of U.S. 101, Thousand Oaks Boulevard east of Kanan Road, Argos Street, Parkheath Drive and Medea Valley Drive.

Based on information characterizing existing traffic conditions included in the Final Program EIR for the City of Agoura Hills 2035 General Plan (2010), traffic volumes along these segments of Kanan Road and Thousand Oaks Boulevard range between approximately 39,700 and 10,600 trips per day. Based on these volumes, addition of up to 15 trips to these arterial roadways during the four month construction period for the proposed project would not cause an increase in traffic that is substantial in relation to the existing traffic load. In addition, the Final Program EIR for the City of Agoura Hills 2035 General Plan (2010) indicates that, under existing conditions, Kanan Road operates at LOS D and East Thousand Oaks Boulevard operates at LOS C during the AM and PM peak hours. The temporary addition of up to 15 trips to these roadways would not be substantial in relation to the capacity of these arterial roadways and would not substantially increase congestion at intersections in proximity to the project site. In addition, inclusion of these trips to the arterial roadway network would be temporary and would cease once construction is complete.

While the proposed project construction would add up to 15 trips per day to the local roadway network around the site, including potentially Argos Street, Parkheath Drive and Medea Valley Drive, again these would be both temporary and short term, with the potential for the days with the highest number of trips to occur within the two-week demolition period. Once demolition is complete, the number of trips per day to the site would decrease. Given the temporary and short-term nature of the addition of these trips to the local roadway network, as well as the small number of trips anticipated to occur (up to 15 per day), impacts on the capacity of the local roadway network and congestion at surrounding intersections would be **less than significant.**

b. The proposed project would not require any street or lane closures to accommodate construction activity. Therefore, **no impact** would occur.

c. The Los Angeles County Congestion Management Plan (CMP) is intended to address regional congestion by linking land use, transportation, and air quality decisions. The CMP requires that LOS E or better be maintained on the County's CMP Highway System. U.S. 101 is the nearest CMP facility in the project area. Analysis of a proposed project's impact on a freeway segment is required of any project that would add 150 trips or more in either direction during the AM or PM weekday peak hours. An analysis of CMP monitored intersections is also required if a project contributes 50 or more peak hour trips to the CMP monitored intersections. As described in Item a) above, the project could add up to 15 trips per day to the roadway network during the construction phase only. Based on this, the proposed project's contribution to the roadway network would be below the thresholds requiring analysis of impacts to CMP facilities. Therefore, impacts to CMP facilities would be **less than significant.**

d. The proposed project involves the restoration of a reach of Medea Creek and construction of pedestrian trails and a footbridge. Therefore, the proposed project would not generate any uses that would result in a change in air traffic patterns by increasing traffic levels or a change in location that results in substantial safety risks. In any case, there are no airports in the vicinity; the closest airport is Van Nuys Airport located 18 miles away. So, **no impact** would occur**.**

e. The proposed project would not substantially increase hazards due to a design feature or incompatible use. Changes to the roadway circulation system are not included as part of the project. Therefore, **no impact** would occur.

f. As discussed in Section VIII. HAZARDS AND HAZARDOUS MATERIALS, there are no known emergency evacuation plans or response plans in the vicinity of the project site. Therefore, operation of the proposed project would not interfere with existing emergency evacuation plans or

emergency response plans. In addition, the proposed project would not restrict emergency access to the site, and, in fact, improvement to the existing informal trail on the eastern side of the site as well as provision of the ADA-compliant trail on the western portion of the site would improve emergency access to those areas, should it be required. Therefore, **no impact** to emergency access would occur.

g. As a creek restoration and trail improvement project, the proposed project neither proposes nor requires vehicle parking. The restored creek and formalizing of the trails are not expected to generate a substantial increase in users to this area, especially those who would drive vehicles to access the facility. Therefore, there would be **no impact** to parking.

MITIGATION MEASURES:

No mitigation measures are required.

	Potentially Significant Impact	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
XVI. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
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?	☐	☐	☐	☒

XVI. UTILITIES AND SERVICE SYSTEMS – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

DISCUSSION:

a, e. The proposed project would involve removal of approximately 425 linear feet of concrete trapezoidal channel and construction of a natural channel stabilized with native vegetation, boulders and log structures. The project would also provide pedestrian connectivity between Kanan Road and Chumash Park via trails and a footbridge. No restroom facilities or other structures are proposed. As such, the project would not result in an increase in wastewater generation or the need for additional treatment capacity, and **no impact** would occur.

b, d. No new water or wastewater facilities would be required (See Items a., e., above). In addition, the proposed project includes design features to protect the existing sewer trunk line at the site from scour with grouted riprap rock placed adjacent and on top of, the line at locations where the creek channel is within 10 to 15 feet of the sewer line. While the revegetation plan would likely include seasonal irrigation of new plants for several years after construction until they become well-established, the proposed planting plan includes native and low-water species as described in the PROJECT DESCRIPTION and shown in **Figure 9a**, which would not result in substantial increases in water demand requiring new water and wastewater treatment facilities or new or expanded entitlements. Water for irrigation would be sourced from existing LVMWD supplies via the existing potable water delivery system in the area. Therefore, impacts would be **less than significant.**

c. The proposed project involves the conversion of an existing concrete lined stormwater drainage channel to a more natural, vegetated condition. As discussed in Section VIII. HYDROLOGY AND WATER QUALITY, the proposed project would not contribute or create additional runoff to Medea Creek. However, the existing channel is designed to be very efficient in conveying flows through the project reach, and, as a result, can convey high flows in a small area. The proposed project would alter the hydraulic properties of the channel potentially resulting in localized flooding during large storm events. To prevent flooding of private property during the 100-year design storm, the proposed project includes a four-foot retaining wall along the property line of the slope on the eastern edge of the site. As a result, flooding of private property would not occur under the 100-year design storm. There would be no need for the construction of additional or expanded stormwater drainage facility as the proposed project would not adversely the storm water conveyance capacity of the channel. So, **no impact** would occur.

f, g. Demolition activities would generate approximately 1,000 cubic yards of waste that would be hauled off-site to a waste facility. The Calabasas Sanitary Landfill, operated by Los Angeles County Sanitation Districts, is located adjacent to U.S. 101 on at 5300 Lost Hills Road. The Simi Valley Landfill, privately operated, is located at 2801 Madera Road in Simi Valley. Both landfills serve the City of Agoura Hills. The total remaining capacity of the Calabasas Sanitary Landfill is 15.6 million cubic yards, or 7 million tons (City of Agoura Hills, 2014). The facility is permitted to accept up to 3,500 tons per day. The average daily tonnage of waste received during the previous four quarters was 643 tons per day. The expected remaining life of the landfill is to 2048. The Simi Valley Landfill is permitted to accept up to 6,000 tons per day of refuse. It currently receives about 2,500 tons per day. The landfill has a remaining capacity of 120 million cubic yards (City of Agoura Hills, 2014), and a remaining life of an estimated 50 years.

The amount of waste generated by the proposed project would not exceed the available capacity of the local landfills. It is City policy that construction wastes be recycled wherever possible, and the project would be subject to the requirements of the City's Construction and Demolition Debris Re-Use and Recycling Program to reduce the amount of waste entering landfills. Ongoing operation of the restored creek and associated trails would not require any solid waste disposal. As both landfills have sufficient capacity for the next 35-50 years, and the proposed project's contribution to solid waste is expected to be minimal and construction related only, impacts from the proposed project would be **less than significant.**

	Potentially Significant Impact	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
XVII. 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?	☐	☒	☐	☐
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)?	☐	☒	☐	☐

XVII. MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant With 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?	☐	☒	☐	☐

a. Mitigation Measures BIO 1, BIO 2, CR 1, and CR 2 would be required to reduce impacts to biological and cultural resources to a less than significant level. With the implementation of the aforementioned mitigation measures, the proposed project would not significantly 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. Therefore, impacts to biological and cultural resources would be **less than significant with mitigation incorporated.**

b. As described in the discussion of the various environmental impact areas, the proposed project would have no impact, a less than significant impact, or a less than significant impact after mitigation with respect to all environmental issues. In cases where mitigation is required, it is primarily to address temporary impacts associated with project construction. With implementation of required mitigation measures, the contribution of the proposed project to cumulative impacts would not be considerable and would be **less than significant with mitigation incorporated.**

c. Compliance with the City of Agoura Hills Municipal Code, compliance with State of California Regional Water Quality Control Board requirements, and compliance with all applicable state and federal regulations would reduce potential adverse effects to human beings associated with the proposed project. In addition, implementation of Mitigation Measures GEO 1, HAZ 1, and N 1 would reduce impacts to human beings related to geology and soils, hazards and hazardous materials and noise. As such, impacts to human beings would be **less than significant with mitigation incorporated.**

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Appendix A

Air Quality and Greenhouse Gas Emissions Modelling Outputs

Medea Creek IS Project

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	3.00	Acre	3.00	130,680.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Demolition activity would occur over a two week duration (10 workdays)
Site Prep would occur through the end of December - (100 workdays)
Arch Coating would occur over 10 days

Off-road Equipment - no air compressors

Off-road Equipment - no building construction

Off-road Equipment - -

Off-road Equipment - Off Road

Trips and VMT - Trips

On-road Fugitive Dust -

Grading - 3 acres

Architectural Coating - No interior area

Vehicle Trips - No vehicle Trips

Consumer Products - No consumer products

Area Coating - 0 interior SF - only Pedestrian Bridge (exterior and footpath) would receive some architectural coating.

Water And Wastewater - No outdoor water use

Solid Waste - no solid waste

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	65,340.00	10,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	196,020.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	65340	10000
tblAreaCoating	Area_Nonresidential_Interior	196020	0
tblConstructionPhase	NumDays	3.00	100.00
tblGrading	AcresOfGrading	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblSolidWaste	SolidWasteGenerationRate	0.26	0.00
tblTripsAndVMT	HaulingTripNumber	148.00	70.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	15.00
tblVehicleTrips	ST_TR	1.59	0.00
tblVehicleTrips	SU_TR	1.59	0.00
tblVehicleTrips	WD_TR	1.59	0.00
tblWater	OutdoorWaterUseRate	3,574,444.05	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.3589	3.3861	2.0753	3.2200e-003	0.3327	0.1508	0.4836	0.1718	0.1392	0.3111	0.0000	302.6107	302.6107	0.0845	0.0000	304.3849
Total	**0.3589**	**3.3861**	**2.0753**	**3.2200e-003**	**0.3327**	**0.1508**	**0.4836**	**0.1718**	**0.1392**	**0.3111**	**0.0000**	**302.6107**	**302.6107**	**0.0845**	**0.0000**	**304.3849**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.3589	3.3861	2.0753	3.2200e-003	0.1383	0.1508	0.2891	0.0693	0.1392	0.2085	0.0000	302.6103	302.6103	0.0845	0.0000	304.3846
Total	**0.3589**	**3.3861**	**2.0753**	**3.2200e-003**	**0.1383**	**0.1508**	**0.2891**	**0.0693**	**0.1392**	**0.2085**	**0.0000**	**302.6103**	**302.6103**	**0.0845**	**0.0000**	**304.3846**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.44**	**0.00**	**40.21**	**59.68**	**0.00**	**32.96**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.8000e-003	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.8000e-003**	**0.0000**	**4.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**0.0000**	**8.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.8000e-003	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.8000e-003**	**0.0000**	**4.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**0.0000**	**8.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
Vegetation Land Change	0.0000
Total	**0.0000**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2015	7/28/2015	5	20	
2	Site Preparation	Site Preparation	7/29/2015	12/15/2015	5	100	
3	Architectural Coating	Architectural Coating	12/16/2015	12/29/2015	5	10	

Acres of Grading (Site Preparation Phase): 3

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 10,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	1	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Cranes	1	8.00	226	0.29
Site Preparation	Dumpers/Tenders	1	8.00	16	0.38
Site Preparation	Excavators	2	8.00	162	0.38
Site Preparation	Off-Highway Trucks	2	8.00	400	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Skid Steer Loaders	1	8.00	64	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	15.00	0.00	70.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	8	20.00	0.00	20.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0161	0.0000	0.0161	2.4300e-003	0.0000	2.4300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0368	0.3863	0.2920	2.9000e-004		0.0197	0.0197		0.0184	0.0184	0.0000	27.3615	27.3615	7.1400e-003	0.0000	27.5114
Total	**0.0368**	**0.3863**	**0.2920**	**2.9000e-004**	**0.0161**	**0.0197**	**0.0358**	**2.4300e-003**	**0.0184**	**0.0209**	**0.0000**	**27.3615**	**27.3615**	**7.1400e-003**	**0.0000**	**27.5114**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.3000e-004	0.0117	8.4400e-003	3.0000e-005	6.0000e-004	1.8000e-004	7.8000e-004	1.6000e-004	1.7000e-004	3.3000e-004	0.0000	2.4142	2.4142	2.0000e-005	0.0000	2.4146
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.0600e-003	0.0110	2.0000e-005	1.6400e-003	2.0000e-005	1.6600e-003	4.4000e-004	2.0000e-005	4.5000e-004	0.0000	1.6593	1.6593	1.0000e-004	0.0000	1.6614
Total	**1.4600e-003**	**0.0128**	**0.0195**	**5.0000e-005**	**2.2400e-003**	**2.0000e-004**	**2.4400e-003**	**6.0000e-004**	**1.9000e-004**	**7.8000e-004**	**0.0000**	**4.0735**	**4.0735**	**1.2000e-004**	**0.0000**	**4.0760**

3.2 Demolition - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.2600e-003	0.0000	6.2600e-003	9.5000e-004	0.0000	9.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0368	0.3863	0.2920	2.9000e-004		0.0197	0.0197		0.0184	0.0184	0.0000	27.3614	27.3614	7.1400e-003	0.0000	27.5114
Total	**0.0368**	**0.3863**	**0.2920**	**2.9000e-004**	**6.2600e-003**	**0.0197**	**0.0260**	**9.5000e-004**	**0.0184**	**0.0194**	**0.0000**	**27.3614**	**27.3614**	**7.1400e-003**	**0.0000**	**27.5114**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.3000e-004	0.0117	8.4400e-003	3.0000e-005	6.0000e-004	1.8000e-004	7.8000e-004	1.6000e-004	1.7000e-004	3.3000e-004	0.0000	2.4142	2.4142	2.0000e-005	0.0000	2.4146
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	1.0600e-003	0.0110	2.0000e-005	1.6400e-003	2.0000e-005	1.6600e-003	4.4000e-004	2.0000e-005	4.5000e-004	0.0000	1.6593	1.6593	1.0000e-004	0.0000	1.6614
Total	**1.4600e-003**	**0.0128**	**0.0195**	**5.0000e-005**	**2.2400e-003**	**2.0000e-004**	**2.4400e-003**	**6.0000e-004**	**1.9000e-004**	**7.8000e-004**	**0.0000**	**4.0735**	**4.0735**	**1.2000e-004**	**0.0000**	**4.0760**

3.3 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3027	0.0000	0.3027	0.1657	0.0000	0.1657	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2554	2.9634	1.6744	2.7100e-003		0.1297	0.1297		0.1194	0.1194	0.0000	257.5388	257.5388	0.0764	0.0000	259.1424
Total	**0.2554**	**2.9634**	**1.6744**	**2.7100e-003**	**0.3027**	**0.1297**	**0.4324**	**0.1657**	**0.1194**	**0.2850**	**0.0000**	**257.5388**	**257.5388**	**0.0764**	**0.0000**	**259.1424**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.1000e-004	3.3400e-003	2.4100e-003	1.0000e-005	1.7000e-004	5.0000e-005	2.2000e-004	5.0000e-005	5.0000e-005	1.0000e-004	0.0000	0.6898	0.6898	1.0000e-005	0.0000	0.6899
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8500e-003	7.0600e-003	0.0735	1.4000e-004	0.0110	1.1000e-004	0.0111	2.9100e-003	1.0000e-004	3.0100e-003	0.0000	11.0621	11.0621	6.6000e-004	0.0000	11.0759
Total	**5.0600e-003**	**0.0104**	**0.0759**	**1.5000e-004**	**0.0111**	**1.6000e-004**	**0.0113**	**2.9600e-003**	**1.5000e-004**	**3.1100e-003**	**0.0000**	**11.7518**	**11.7518**	**6.7000e-004**	**0.0000**	**11.7658**

3.3 Site Preparation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1181	0.0000	0.1181	0.0646	0.0000	0.0646	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2554	2.9634	1.6744	2.7100e-003		0.1297	0.1297		0.1194	0.1194	0.0000	257.5385	257.5385	0.0764	0.0000	259.1421
Total	**0.2554**	**2.9634**	**1.6744**	**2.7100e-003**	**0.1181**	**0.1297**	**0.2477**	**0.0646**	**0.1194**	**0.1840**	**0.0000**	**257.5385**	**257.5385**	**0.0764**	**0.0000**	**259.1421**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.1000e-004	3.3400e-003	2.4100e-003	1.0000e-005	1.7000e-004	5.0000e-005	2.2000e-004	5.0000e-005	5.0000e-005	1.0000e-004	0.0000	0.6898	0.6898	1.0000e-005	0.0000	0.6899
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8500e-003	7.0600e-003	0.0735	1.4000e-004	0.0110	1.1000e-004	0.0111	2.9100e-003	1.0000e-004	3.0100e-003	0.0000	11.0621	11.0621	6.6000e-004	0.0000	11.0759
Total	**5.0600e-003**	**0.0104**	**0.0759**	**1.5000e-004**	**0.0111**	**1.6000e-004**	**0.0113**	**2.9600e-003**	**1.5000e-004**	**3.1100e-003**	**0.0000**	**11.7518**	**11.7518**	**6.7000e-004**	**0.0000**	**11.7658**

3.4 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0579					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0300e-003	0.0129	9.5100e-003	1.0000e-005		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	1.2766	1.2766	1.7000e-004	0.0000	1.2801
Total	**0.0600**	**0.0129**	**9.5100e-003**	**1.0000e-005**		**1.1000e-003**	**1.1000e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**1.2766**	**1.2766**	**1.7000e-004**	**0.0000**	**1.2801**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	3.9000e-004	4.0400e-003	1.0000e-005	6.0000e-004	1.0000e-005	6.1000e-004	1.6000e-004	1.0000e-005	1.7000e-004	0.0000	0.6084	0.6084	4.0000e-005	0.0000	0.6092
Total	**2.7000e-004**	**3.9000e-004**	**4.0400e-003**	**1.0000e-005**	**6.0000e-004**	**1.0000e-005**	**6.1000e-004**	**1.6000e-004**	**1.0000e-005**	**1.7000e-004**	**0.0000**	**0.6084**	**0.6084**	**4.0000e-005**	**0.0000**	**0.6092**

3.4 Architectural Coating - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0579					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0300e-003	0.0129	9.5100e-003	1.0000e-005		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	1.2766	1.2766	1.7000e-004	0.0000	1.2801
Total	**0.0600**	**0.0129**	**9.5100e-003**	**1.0000e-005**		**1.1000e-003**	**1.1000e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**1.2766**	**1.2766**	**1.7000e-004**	**0.0000**	**1.2801**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	3.9000e-004	4.0400e-003	1.0000e-005	6.0000e-004	1.0000e-005	6.1000e-004	1.6000e-004	1.0000e-005	1.7000e-004	0.0000	0.6084	0.6084	4.0000e-005	0.0000	0.6092
Total	**2.7000e-004**	**3.9000e-004**	**4.0400e-003**	**1.0000e-005**	**6.0000e-004**	**1.0000e-005**	**6.1000e-004**	**1.6000e-004**	**1.0000e-005**	**1.7000e-004**	**0.0000**	**0.6084**	**0.6084**	**4.0000e-005**	**0.0000**	**0.6092**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.533598	0.058434	0.178244	0.125508	0.038944	0.006283	0.016425	0.031066	0.002453	0.003157	0.003691	0.000543	0.001655

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.8000e-003	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Unmitigated	5.8000e-003	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.7900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Total	**5.7900e-003**	**0.0000**	**4.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**0.0000**	**8.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Landscaping	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Architectural Coating	5.7900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.7900e-003**	**0.0000**	**4.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**0.0000**	**8.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	0.0000	0.0000	0.0000	0.0000

10.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Wetlands	0 / 0.75	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Medea Creek IS Project

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	3.00	Acre	3.00	130,680.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Demolition activity would occur over a two week duration (10 workdays)
Site Prep would occur through the end of December - (100 workdays)
Arch Coating would occur over 10 days

Off-road Equipment - no air compressors

Off-road Equipment - no building construction

Off-road Equipment - -

Off-road Equipment - Off Road

Trips and VMT - Trips

On-road Fugitive Dust -

Grading - 3 acres

Architectural Coating - No interior area

Vehicle Trips - No vehicle Trips

Consumer Products - No consumer products

Area Coating - 0 interior SF - only Pedestrian Bridge (exterior and footpath) would receive some architectural coating.

Water And Wastewater - No outdoor water use

Solid Waste - no solid waste

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	65,340.00	10,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	196,020.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	65340	10000
tblAreaCoating	Area_Nonresidential_Interior	196020	0
tblConstructionPhase	NumDays	3.00	100.00
tblGrading	AcresOfGrading	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblSolidWaste	SolidWasteGenerationRate	0.26	0.00
tblTripsAndVMT	HaulingTripNumber	148.00	70.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	15.00
tblVehicleTrips	ST_TR	1.59	0.00
tblVehicleTrips	SU_TR	1.59	0.00
tblVehicleTrips	WD_TR	1.59	0.00
tblWater	OutdoorWaterUseRate	3,574,444.05	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	12.0483	59.4549	35.0603	0.0573	6.2809	2.5963	8.8772	3.3739	2.3902	5.7641	0.0000	5,947.2655	5,947.2655	1.6981	0.0000	5,982.9264
Total	**12.0483**	**59.4549**	**35.0603**	**0.0573**	**6.2809**	**2.5963**	**8.8772**	**3.3739**	**2.3902**	**5.7641**	**0.0000**	**5,947.2655**	**5,947.2655**	**1.6981**	**0.0000**	**5,982.9264**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	12.0483	59.4549	35.0603	0.0573	2.5881	2.5963	5.1844	1.3526	2.3902	3.7428	0.0000	5,947.2655	5,947.2655	1.6981	0.0000	5,982.9264
Total	**12.0483**	**59.4549**	**35.0603**	**0.0573**	**2.5881**	**2.5963**	**5.1844**	**1.3526**	**2.3902**	**3.7428**	**0.0000**	**5,947.2655**	**5,947.2655**	**1.6981**	**0.0000**	**5,982.9264**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.80**	**0.00**	**41.60**	**59.91**	**0.00**	**35.07**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0318	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0318**	**0.0000**	**3.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**	**0.0000**	**7.0000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0318	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0318**	**0.0000**	**3.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**	**0.0000**	**7.0000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2015	7/28/2015	5	20	
2	Site Preparation	Site Preparation	7/29/2015	12/15/2015	5	100	
3	Architectural Coating	Architectural Coating	12/16/2015	12/29/2015	5	10	

Acres of Grading (Site Preparation Phase): 3

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 10,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	1	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Cranes	1	8.00	226	0.29
Site Preparation	Dumpers/Tenders	1	8.00	16	0.38
Site Preparation	Excavators	2	8.00	162	0.38
Site Preparation	Off-Highway Trucks	2	8.00	400	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Skid Steer Loaders	1	8.00	64	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	15.00	0.00	70.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	8	20.00	0.00	20.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.6049	0.0000	1.6049	0.2430	0.0000	0.2430			0.0000			0.0000
Off-Road	3.6751	38.6332	29.1954	0.0293		1.9706	1.9706		1.8440	1.8440		3,016.0833	3,016.0833	0.7871		3,032.6125
Total	**3.6751**	**38.6332**	**29.1954**	**0.0293**	**1.6049**	**1.9706**	**3.5755**	**0.2430**	**1.8440**	**2.0870**		**3,016.0833**	**3,016.0833**	**0.7871**		**3,032.6125**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0701	1.1105	0.7571	2.6200e-003	0.0609	0.0183	0.0793	0.0167	0.0168	0.0335		266.3821	266.3821	2.1700e-003		266.4276
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0740	0.0930	1.1469	2.1800e-003	0.1677	1.6800e-003	0.1693	0.0445	1.5300e-003	0.0460		190.7132	190.7132	0.0109		190.9418
Total	**0.1440**	**1.2035**	**1.9040**	**4.8000e-003**	**0.2286**	**0.0200**	**0.2486**	**0.0612**	**0.0184**	**0.0795**		**457.0953**	**457.0953**	**0.0131**		**457.3694**

3.2 Demolition - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.6259	0.0000	0.6259	0.0948	0.0000	0.0948			0.0000			0.0000
Off-Road	3.6751	38.6332	29.1954	0.0293		1.9706	1.9706		1.8440	1.8440	0.0000	3,016.0833	3,016.0833	0.7871		3,032.6125
Total	**3.6751**	**38.6332**	**29.1954**	**0.0293**	**0.6259**	**1.9706**	**2.5965**	**0.0948**	**1.8440**	**1.9387**	**0.0000**	**3,016.0833**	**3,016.0833**	**0.7871**		**3,032.6125**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0701	1.1105	0.7571	2.6200e-003	0.0609	0.0183	0.0793	0.0167	0.0168	0.0335		266.3821	266.3821	2.1700e-003		266.4276
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0740	0.0930	1.1469	2.1800e-003	0.1677	1.6800e-003	0.1693	0.0445	1.5300e-003	0.0460		190.7132	190.7132	0.0109		190.9418
Total	**0.1440**	**1.2035**	**1.9040**	**4.8000e-003**	**0.2286**	**0.0200**	**0.2486**	**0.0612**	**0.0184**	**0.0795**		**457.0953**	**457.0953**	**0.0131**		**457.3694**

3.3 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0539	0.0000	6.0539	3.3137	0.0000	3.3137			0.0000			0.0000
Off-Road	5.1073	59.2674	33.4878	0.0542		2.5930	2.5930		2.3872	2.3872		5,677.7594	5,677.7594	1.6835		5,713.1130
Total	**5.1073**	**59.2674**	**33.4878**	**0.0542**	**6.0539**	**2.5930**	**8.6469**	**3.3137**	**2.3872**	**5.7008**		**5,677.7594**	**5,677.7594**	**1.6835**		**5,713.1130**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.0000e-003	0.0635	0.0433	1.5000e-004	3.4800e-003	1.0500e-003	4.5300e-003	9.5000e-004	9.6000e-004	1.9200e-003		15.2218	15.2218	1.2000e-004		15.2244
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0986	0.1240	1.5292	2.9100e-003	0.2236	2.2300e-003	0.2258	0.0593	2.0500e-003	0.0613		254.2843	254.2843	0.0145		254.5891
Total	**0.1026**	**0.1875**	**1.5725**	**3.0600e-003**	**0.2270**	**3.2800e-003**	**0.2303**	**0.0602**	**3.0100e-003**	**0.0633**		**269.5061**	**269.5061**	**0.0146**		**269.8135**

3.3 Site Preparation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3610	0.0000	2.3610	1.2923	0.0000	1.2923			0.0000			0.0000
Off-Road	5.1073	59.2674	33.4878	0.0542		2.5930	2.5930		2.3872	2.3872	0.0000	5,677.7594	5,677.7594	1.6835		5,713.1130
Total	**5.1073**	**59.2674**	**33.4878**	**0.0542**	**2.3610**	**2.5930**	**4.9540**	**1.2923**	**2.3872**	**3.6795**	**0.0000**	**5,677.7594**	**5,677.7594**	**1.6835**		**5,713.1130**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.0000e-003	0.0635	0.0433	1.5000e-004	3.4800e-003	1.0500e-003	4.5300e-003	9.5000e-004	9.6000e-004	1.9200e-003		15.2218	15.2218	1.2000e-004		15.2244
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0986	0.1240	1.5292	2.9100e-003	0.2236	2.2300e-003	0.2258	0.0593	2.0500e-003	0.0613		254.2843	254.2843	0.0145		254.5891
Total	**0.1026**	**0.1875**	**1.5725**	**3.0600e-003**	**0.2270**	**3.2800e-003**	**0.2303**	**0.0602**	**3.0100e-003**	**0.0633**		**269.5061**	**269.5061**	**0.0146**		**269.8135**

3.4 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.5875					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209		281.4481	281.4481	0.0367		282.2177
Total	**11.9941**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**		**281.4481**	**281.4481**	**0.0367**		**282.2177**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0543	0.0682	0.8411	1.6000e-003	0.1230	1.2300e-003	0.1242	0.0326	1.1300e-003	0.0337		139.8564	139.8564	7.9800e-003		140.0240
Total	**0.0543**	**0.0682**	**0.8411**	**1.6000e-003**	**0.1230**	**1.2300e-003**	**0.1242**	**0.0326**	**1.1300e-003**	**0.0337**		**139.8564**	**139.8564**	**7.9800e-003**		**140.0240**

3.4 Architectural Coating - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.5875					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209	0.0000	281.4481	281.4481	0.0367		282.2177
Total	**11.9941**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**	**0.0000**	**281.4481**	**281.4481**	**0.0367**		**282.2177**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0543	0.0682	0.8411	1.6000e-003	0.1230	1.2300e-003	0.1242	0.0326	1.1300e-003	0.0337		139.8564	139.8564	7.9800e-003		140.0240
Total	**0.0543**	**0.0682**	**0.8411**	**1.6000e-003**	**0.1230**	**1.2300e-003**	**0.1242**	**0.0326**	**1.1300e-003**	**0.0337**		**139.8564**	**139.8564**	**7.9800e-003**		**140.0240**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.533598	0.058434	0.178244	0.125508	0.038944	0.006283	0.016425	0.031066	0.002453	0.003157	0.003691	0.000543	0.001655

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0318	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Unmitigated	0.0318	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Architectural Coating	0.0318					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0318**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**		**7.0000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Architectural Coating	0.0318					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0318**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**		**7.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Medea Creek IS Project

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	3.00	Acre	3.00	130,680.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2016
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Demolition activity would occur over a two week duration (10 workdays)
Site Prep would occur through the end of December - (100 workdays)
Arch Coating would occur over 10 days

Off-road Equipment - no air compressors

Off-road Equipment - no building construction

Off-road Equipment - -

Off-road Equipment - Off Road

Trips and VMT - Trips

On-road Fugitive Dust -

Grading - 3 acres

Architectural Coating - No interior area

Vehicle Trips - No vehicle Trips

Consumer Products - No consumer products

Area Coating - 0 interior SF - only Pedestrian Bridge (exterior and footpath) would receive some architectural coating.

Water And Wastewater - No outdoor water use

Solid Waste - no solid waste

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	65,340.00	10,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	196,020.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	65340	10000
tblAreaCoating	Area_Nonresidential_Interior	196020	0
tblConstructionPhase	NumDays	3.00	100.00
tblGrading	AcresOfGrading	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblSolidWaste	SolidWasteGenerationRate	0.26	0.00
tblTripsAndVMT	HaulingTripNumber	148.00	70.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	15.00
tblVehicleTrips	ST_TR	1.59	0.00
tblVehicleTrips	SU_TR	1.59	0.00
tblVehicleTrips	WD_TR	1.59	0.00
tblWater	OutdoorWaterUseRate	3,574,444.05	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	12.0506	59.4706	34.9783	0.0571	6.2809	2.5963	8.8772	3.3739	2.3902	5.7641	0.0000	5,932.9671	5,932.9671	1.6981	0.0000	5,968.6280
Total	**12.0506**	**59.4706**	**34.9783**	**0.0571**	**6.2809**	**2.5963**	**8.8772**	**3.3739**	**2.3902**	**5.7641**	**0.0000**	**5,932.9671**	**5,932.9671**	**1.6981**	**0.0000**	**5,968.6280**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	12.0506	59.4706	34.9783	0.0571	2.5881	2.5963	5.1844	1.3526	2.3902	3.7428	0.0000	5,932.9671	5,932.9671	1.6981	0.0000	5,968.6280
Total	**12.0506**	**59.4706**	**34.9783**	**0.0571**	**2.5881**	**2.5963**	**5.1844**	**1.3526**	**2.3902**	**3.7428**	**0.0000**	**5,932.9671**	**5,932.9671**	**1.6981**	**0.0000**	**5,968.6280**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.80**	**0.00**	**41.60**	**59.91**	**0.00**	**35.07**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0318	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0318**	**0.0000**	**3.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**	**0.0000**	**7.0000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0318	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0318**	**0.0000**	**3.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**	**0.0000**	**7.0000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2015	7/28/2015	5	20	
2	Site Preparation	Site Preparation	7/29/2015	12/15/2015	5	100	
3	Architectural Coating	Architectural Coating	12/16/2015	12/29/2015	5	10	

Acres of Grading (Site Preparation Phase): 3

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 10,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	1	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Cranes	1	8.00	226	0.29
Site Preparation	Dumpers/Tenders	1	8.00	16	0.38
Site Preparation	Excavators	2	8.00	162	0.38
Site Preparation	Off-Highway Trucks	2	8.00	400	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Skid Steer Loaders	1	8.00	64	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	15.00	0.00	70.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	8	20.00	0.00	20.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.6049	0.0000	1.6049	0.2430	0.0000	0.2430			0.0000			0.0000
Off-Road	3.6751	38.6332	29.1954	0.0293		1.9706	1.9706		1.8440	1.8440		3,016.0833	3,016.0833	0.7871		3,032.6125
Total	**3.6751**	**38.6332**	**29.1954**	**0.0293**	**1.6049**	**1.9706**	**3.5755**	**0.2430**	**1.8440**	**2.0870**		**3,016.0833**	**3,016.0833**	**0.7871**		**3,032.6125**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0745	1.1496	0.8677	2.6100e-003	0.0609	0.0184	0.0793	0.0167	0.0169	0.0336		265.7585	265.7585	2.1900e-003		265.8045
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0771	0.1031	1.0807	2.0600e-003	0.1677	1.6800e-003	0.1693	0.0445	1.5300e-003	0.0460		180.0161	180.0161	0.0109		180.2447
Total	**0.1516**	**1.2528**	**1.9484**	**4.6700e-003**	**0.2286**	**0.0201**	**0.2487**	**0.0612**	**0.0184**	**0.0796**		**445.7746**	**445.7746**	**0.0131**		**446.0492**

3.2 Demolition - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.6259	0.0000	0.6259	0.0948	0.0000	0.0948			0.0000			0.0000
Off-Road	3.6751	38.6332	29.1954	0.0293		1.9706	1.9706		1.8440	1.8440	0.0000	3,016.0833	3,016.0833	0.7871		3,032.6125
Total	**3.6751**	**38.6332**	**29.1954**	**0.0293**	**0.6259**	**1.9706**	**2.5965**	**0.0948**	**1.8440**	**1.9387**	**0.0000**	**3,016.0833**	**3,016.0833**	**0.7871**		**3,032.6125**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0745	1.1496	0.8677	2.6100e-003	0.0609	0.0184	0.0793	0.0167	0.0169	0.0336		265.7585	265.7585	2.1900e-003		265.8045
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0771	0.1031	1.0807	2.0600e-003	0.1677	1.6800e-003	0.1693	0.0445	1.5300e-003	0.0460		180.0161	180.0161	0.0109		180.2447
Total	**0.1516**	**1.2528**	**1.9484**	**4.6700e-003**	**0.2286**	**0.0201**	**0.2487**	**0.0612**	**0.0184**	**0.0796**		**445.7746**	**445.7746**	**0.0131**		**446.0492**

3.3 Site Preparation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0539	0.0000	6.0539	3.3137	0.0000	3.3137			0.0000			0.0000
Off-Road	5.1073	59.2674	33.4878	0.0542		2.5930	2.5930		2.3872	2.3872		5,677.7594	5,677.7594	1.6835		5,713.1130
Total	**5.1073**	**59.2674**	**33.4878**	**0.0542**	**6.0539**	**2.5930**	**8.6469**	**3.3137**	**2.3872**	**5.7008**		**5,677.7594**	**5,677.7594**	**1.6835**		**5,713.1130**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.2500e-003	0.0657	0.0496	1.5000e-004	3.4800e-003	1.0500e-003	4.5300e-003	9.5000e-004	9.7000e-004	1.9200e-003		15.1862	15.1862	1.3000e-004		15.1888
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1028	0.1375	1.4409	2.7400e-003	0.2236	2.2300e-003	0.2258	0.0593	2.0500e-003	0.0613		240.0215	240.0215	0.0145		240.3263
Total	**0.1070**	**0.2032**	**1.4905**	**2.8900e-003**	**0.2270**	**3.2800e-003**	**0.2303**	**0.0602**	**3.0200e-003**	**0.0633**		**255.2077**	**255.2077**	**0.0146**		**255.5151**

3.3 Site Preparation - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3610	0.0000	2.3610	1.2923	0.0000	1.2923			0.0000			0.0000
Off-Road	5.1073	59.2674	33.4878	0.0542		2.5930	2.5930		2.3872	2.3872	0.0000	5,677.7594	5,677.7594	1.6835		5,713.1130
Total	**5.1073**	**59.2674**	**33.4878**	**0.0542**	**2.3610**	**2.5930**	**4.9540**	**1.2923**	**2.3872**	**3.6795**	**0.0000**	**5,677.7594**	**5,677.7594**	**1.6835**		**5,713.1130**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.2500e-003	0.0657	0.0496	1.5000e-004	3.4800e-003	1.0500e-003	4.5300e-003	9.5000e-004	9.7000e-004	1.9200e-003		15.1862	15.1862	1.3000e-004		15.1888
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1028	0.1375	1.4409	2.7400e-003	0.2236	2.2300e-003	0.2258	0.0593	2.0500e-003	0.0613		240.0215	240.0215	0.0145		240.3263
Total	**0.1070**	**0.2032**	**1.4905**	**2.8900e-003**	**0.2270**	**3.2800e-003**	**0.2303**	**0.0602**	**3.0200e-003**	**0.0633**		**255.2077**	**255.2077**	**0.0146**		**255.5151**

3.4 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.5875					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209		281.4481	281.4481	0.0367		282.2177
Total	**11.9941**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**		**281.4481**	**281.4481**	**0.0367**		**282.2177**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0565	0.0756	0.7925	1.5100e-003	0.1230	1.2300e-003	0.1242	0.0326	1.1300e-003	0.0337		132.0118	132.0118	7.9800e-003		132.1794
Total	**0.0565**	**0.0756**	**0.7925**	**1.5100e-003**	**0.1230**	**1.2300e-003**	**0.1242**	**0.0326**	**1.1300e-003**	**0.0337**		**132.0118**	**132.0118**	**7.9800e-003**		**132.1794**

3.4 Architectural Coating - 2015

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	11.5875					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4066	2.5703	1.9018	2.9700e-003		0.2209	0.2209		0.2209	0.2209	0.0000	281.4481	281.4481	0.0367		282.2177
Total	**11.9941**	**2.5703**	**1.9018**	**2.9700e-003**		**0.2209**	**0.2209**		**0.2209**	**0.2209**	**0.0000**	**281.4481**	**281.4481**	**0.0367**		**282.2177**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0565	0.0756	0.7925	1.5100e-003	0.1230	1.2300e-003	0.1242	0.0326	1.1300e-003	0.0337		132.0118	132.0118	7.9800e-003		132.1794
Total	**0.0565**	**0.0756**	**0.7925**	**1.5100e-003**	**0.1230**	**1.2300e-003**	**0.1242**	**0.0326**	**1.1300e-003**	**0.0337**		**132.0118**	**132.0118**	**7.9800e-003**		**132.1794**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.533598	0.058434	0.178244	0.125508	0.038944	0.006283	0.016425	0.031066	0.002453	0.003157	0.003691	0.000543	0.001655

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0318	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Unmitigated	0.0318	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0318					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Total	**0.0318**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**		**7.0000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.6000e-004	6.6000e-004	0.0000		7.0000e-004
Architectural Coating	0.0318					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0318**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.6000e-004**	**6.6000e-004**	**0.0000**		**7.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Appendix B

Geotechnical Investigation Report

Medea Creek Restoration Project

Geotechnical Investigation Report- revised

Prepared for:

City of Agoura Hills
Engineering Division
30001 Ladyface Court
Agoura Hills, CA 91301

Submitted by:

Questa Engineering Corporation
1220 Brickyard Cove Road, Suite 206
Point Richmond, California 94807
(510) 236-6114

November 24, 2014

Medea Creek Restoration Project

Geotechnical Investigation Report - revised

Prepared for:

City of Agoura Hills
Engineering Division
30001 Ladyface Court
Agoura Hills, CA 91301

Submitted by:

Questa Engineering Corporation
1220 Brickyard Cove Road, Suite 206
P. O. Box 70356
Point Richmond, California 94807
(510) 236-6114

Questa Project Number 1300042

Sydney Temple, PE # 59695
Principal/Senior Engineer

Willard N. Hopkins, CEG #1761, exp. 7/31/15
Senior Engineering Geologist

REGISTERED PROFESSIONAL ENGINEER
SYDNEY A. TEMPLE
59695
12-31-15
EXPIRES
CIVIL
STATE OF CALIFORNIA

November 24, 2014

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ATTACH MENTS

PROJECT DESCRIPTION AND ADJACENT FACILITIES PROTECTION

The Medea Creek Restoration project site (project site) is located within the City of Agoura Hills (City) between Canwood Street and Thousand Oaks Boulevard on the east side of Kanan Road. Based on our review and the summarized project description below the proposed measures will adequately protect the adjacent lands and structures from geological hazards such as landslide, settlement or slippage.

The project site is located in the eastern Conejo Valley between the Simi Hills and Santa Monica Mountains in western Los Angeles County. The site is depicted in Township 1 North, Range 18 West of the U.S. Geographical Survey (USGS) Thousand Oaks 7.5-minute topographic quadrangle. Sheet 1 (**Attachments**), Regional Location, shows the regional context of the project site. The project site includes an approximately 450 foot reach of Medea Creek and its associated access roads and right-of-way, located between Kanan Road and Chumash Park. This reach of Medea Creek is currently contained in a trapezoidal concrete channel with a slope of 1%. This channel, which collects flows from a steep box culvert draining under Kanan Road, conveys flows to a naturally vegetated segment of the creek approximately 450 feet south of Kanan Road consisting of riparian vegetation and pool habitat. Currently, there is an informal trail along the edge of existing fence lines that connects Chumash Park to Kanan Road. This trail is unimproved consisting of dirt surfacing with steep gradients. It crosses private residential property, which fronts Medea Valley Drive, along the rear portion of the parcels adjacent to the project area. A major trunk sewer line draining a significant portion of the City parallels the existing channel along this reach of the creek.

Land uses surrounding the project site consist of residential single-family housing and Chumash Park to the east, Kanan Road and commercial mixed-use developments to the north, open space to the west, and a naturalized portion of Medea Creek to the south abutted by residential high-density housing development.
Project Characteristics

Project implementation would involve removal of the approximately 425 feet of concrete trapezoidal channel and construction of a natural channel stabilized with native vegetation, boulders and log structures. The project would also provide pedestrian connectivity from Kanan Road, through a vacant parcel to the west of Medea Creek, to Chumash Park east of Medea Creek via a footbridge.

Demolition. As part of the proposed project, the existing concrete channel and asphalt access roads would be demolished and the rubble will be hauled off site to an appropriate refuse disposal facility. A 30-foot length of concrete channel directly downstream from the Kanan Road culvert would be left in place and a concrete cutoff wall would be constructed, as shown in Sheet 4.

Restoration. Once removal of the concrete channel is complete, the creek would be restored to a natural condition through the planting of native riparian vegetation, which would be generally

consistent with vegetation found south of the project site. Project construction would also entail the construction of a pedestrian trail from Kanan Road to Chumash Park, crossing Medea Creek via a footbridge.

Channel Gradient Control. The first restoration component involves the slope of the channel. The current channel has a slope of approximately 1% with an elevation drop of approximately 4 feet over the 425-foot project reach. If the concrete was to be removed and the existing slope maintained, then flow velocities would be high, turbulent flow would dominate, and the channel bed would likely undergo significant bed degradation.

The proposed project addresses these issues through a series of pools and riffles with rock weirs constructed throughout the sequences to insure that the channel features are maintained over time. Varying the number of rock weirs and their vertical drop heights allows for numerous options; however, to accommodate passage of the rainbow trout that inhabit the downstream channel, the project design limits drop heights to less than 1 foot (see Sheet 5, Channel Grading). In addition to the gradient control weirs, constructed riffles would be installed using a variety of rock sizes to mimic a natural channel riffle.

The channel banks along the riffles and grade control structures would be planted would willow stakes to ensure that vegetation cover becomes part of the overall channel structure. Willow would be planted in the deep trenches associated with the weir and keyway construction. The trenches would be of sufficient depth so that willow planting could have access to underflow and groundwater resources. Additional riparian planting would be completed on the flood plains and channel banks to insure long term stability of the channel.

Bank Slope Configuration. The existing concrete bank slopes are currently 1.5 (horizontal) to 1 (vertical). For the restoration of the bank slopes to be successful, the angle of the slope would be reduced. Typically, a slope of 2:1 or flatter is recommended for re-vegetation. Steeper slopes such as 1.75:1 can be re-vegetated but require greater effort; colonization and growth can be slower, as well. As shown in Sheet 8, Proposed Channel Sections, the project has been designed with a minimum bank slope of 2:1 with most slopes at least 2.5:1 or flatter.

Sewer Line Protection. The existing trunk sewer line would not be realigned as part of the proposed project. Instead the sewer line would be protected from scour with grouted riprap rock placed adjacent and on top of the line at locations where the creek channel is within 10 to 15 feet of the sewer line. See Sheet 6, Sewer Line Protection Plan, for details.

Flood Control. Because the project has increased frictional resistance in the channel, predicted water surface elevations show that flooding could affect small portions of private property (although predicted water surface elevations pose no threat to any improvements or structures). In order to eliminate flooding of private property, a 4-foot high retaining wall would be constructed adjacent to the private parcels on the eastern side of the project, as shown in Sheet 13.

Erosion Control. Channel erosion potential would change over time as the planted vegetation matures. Typically, the erosion potential of the channel and banks decreases as the project ages,

and mature, stable vegetation is established. Approaches that integrate vegetation and biodegradable products such as fiber blankets, logs, and coir products would be used. The biodegradable products are used to provide temporary erosion protection and allow for the vegetation to mature and provide the primary erosion control within 3 to 5 years, giving re-vegetation plantings time to establish.

In order to provide short term erosion control but also not construct an entirely riprap-lined channel, the project design combines rock placement with other "softer" erosion control and habitat features. The floodplain terrace would be covered with an erosion control blanket that would be made of biodegradable coir fiber. Typically, the fiber begins to degrade within 2 to 3 years but takes up to 10+ years to fully disintegrate. The bank slope would be hydroseeded with an appropriate woody and grass seed mixture, and a biodegradable erosion control blanket would be installed on top of all exposed slopes. Bank slope planting would be completed by cutting holes within the blanket and installing appropriate tree and shrub species. Anchored logs would be incorporated into the pools and grade control structures to dissipate erosive energy and create habitat complexity. These logs would anchored using large stone counter weights. In addition, coir bio-blocks would be installed along the channel edge in association with willow stakes.

Confluence Restoration. The confluence area at the downstream portion of the project would be treated with many of the same channel stabilization and habitat enhancement techniques utilized throughout the rest of the project. Near the outflow of the storm drain pipe, riprap rock armoring will be installed to dissipate the energy of flows exiting the drain. Farther downstream, a small pool, two rock grade control structures, and large wood habitat features will create a smooth transition into the main channel.

Planting Plan. Planting for the project area would be divided into three different planting zones: a) floodplain and lower bank, b) mid-bank slope, and c) uplands, allowing for site-specific native species selection. Willow staking of the rock weirs, rock revetment, and coir bio-blocks have been previously discussed. A temporary irrigation system would need to be installed to ensure adequate irrigation during the vegetation establishment period. See Sheet 10 and 11, Planting and Irrigation Plan, for details.

Public Access. Sheet 9 illustrates the conceptual alignment of the proposed public access facilities. A pedestrian bridge and trail compliant with the American Disability Act (ADA) is proposed to connect Chumash Park with Kanan Road. The pedestrian bridge would be installed with a minimum of 1 foot of freeboard above the 100-year flood elevation with a low chord at approximately 865 feet. In addition, a trail is proposed accessing the "confluence area" at the downstream extent of the project site and an additional connection to Kanan Road via concrete steps is also being considered.

INTRODUCTION

This report presents results from the Geotechnical Investigation for the Medea Creek Restoration Project Public Access Improvements. Questa's Geotechnical Investigation included background geologic and seismic data review, a geophysical survey, a subsurface investigation including drilling, logging and sampling of three boreholes, laboratory soils testing, engineering analysis, and development of geotechnical design recommendations. The design recommendations presented in this report are limited to the site preparation and grading, paved and unpaved trail sections, pedestrian bridge foundations, and stairs foundation. For information on the creek bank and channel stabilization measures to be undertaken following removal of the concrete channel, refer to the *Design Report for Medea Creek Restoration Project, City of Agoura Hills, California* and the Project Plans.

REGIONAL SEISMICITY

The project site is located within the Traverse Ranges Geomorphic Province in Southern California, a region characterized by connected valleys, low hills, and undulating terrain bounded on the south by the Santa Monica Mountains on the north by Mountclef ridge, Conejo Ridge, and the Simi Hills. This area forms a major structural block of the earth's crust between the San Gabriel and San Andreas faults on the northeast, and the Malibu Coast and Anacapa-Dume faults on the south. Within this area the City of Agoura Hills occupies part of a depression extending from the western Conejo Valley to the Southwestern San Fernando Valley, known as the Conejo-Las Virgenes region.

Within the Transverse Ranges there are abundant compressional reverse, thrust, and normal faults and strike-slip faults that generally trend in an east-west direction. The dominant structural feature that has shaped the geologic development of the province is the San Andreas Fault. This fault, located approximately 45 miles northeast of the site, has a northwest strike, located both to the north and south of the Transverse Ranges, but bends into a west to northwest strike within the Transverse Ranges.

FAULTING

The Southern California region is seismically active and commonly experiences strong ground-shaking resulting from earthquakes along both known and previously unknown active faults. Active faults are defined as faults that have caused displacement within the Holocene period (the last 11,000 years). Potentially active faults are faults that have experienced movement in the Quaternary period (the last 1.6 million years), but not during the Holocene period. Faults that have not experienced movement in the last 1.6 million years are generally considered inactive.

The nearest active fault traces in relation to the project site are the Malibu Coast fault located approximately 7 miles to the south and the Simi-Santa Rosa fault located approximately 7 miles to the north. These faults each have an Alquist-Priolo Earthquake Fault Zone Boundary and are the nearest regulated active faults to the project site. Other nearby active faults include the San

Andreas fault located 45 miles northeast, the Anacapa-Dume fault located 12 miles south, the Santa Monica fault located 13 miles southeast, and the Northridge fault located 13 miles northeast. In addition, the Thousand Oaks area contains segments of the potentially active Sycamore Canyon-Boney Mountain fault zone, which lies no closer than 5 miles from the City of Agoura Hills. The faults most likely to produce earthquakes in the geographic region are the San Andreas, San Jacinto, Elsinore-Whittier and the Newport-Inglewood faults. The risk of surface rupture at the site is considered low. The Project Site is not located within an Alquist-Priolo Earthquake Fault Zone or other mapped fault trace. **Table 1** presents a summary of the regional active and potentially active faults that could impact the site. No faults zoned as active by the State of California Geological Survey cross the subject property.

Table 1. Regional Faults and Activity

Fault Name	Maximum Magnitude (Richter)	Slip Rate (mm/yr)	Distance From Site (mi)	Direction From Site
Malibu Coast	6.7	0.3	7	S
Simi-Santa Rosa	7	1	7	N
Anacapa-Dume	7.5	3	12	S
Santa Monica	6.6	1	13	SE
Northridge	7	4.5	13	NE
Santa Susana	6.7	5	15	NE
Oak Ridge	7	4	17	NW
San Cayetano	7	6	18	NW
Hollywood	6.4	1	20	E
San Fernando	6.7	2	21	NE
Chino-Central Avenue	6.7	1	22	NE
Verdugo	6.9	0.5	22	NE
San Gabriel	7.2	1	22	NE
Upper Elysian Park	6.4	1.3	24	E
Newport-Inglewood	7.0	1	27	SE
Sierra Madre	7.2	2	27	NE
Raymond	6.5	4.5	29	E
Palos Verdes	7.3	3	32	SE
Elsinore	6.8	5	42	SE
San Andreas	7.4	30	45	NE
Clamshell-Sawpit	6.5	.5	47	E
Whittier	6.8	2.5	48	SE
San Jose	6.4	.5	50	SE

Sources: California Geological Survey, 2007; US Geological Survey and California Geological Survey,2006; Wills and Others, 2008

Table 2 presents a summary of the major historic earthquakes in Southern California with the date of occurrence, magnitude and the approximate distance and direction to the epicenter relative to the site location.

Table 2. List of Major Historic Earthquakes in Southern California

Fault	Date of Earthquake	Magnitude (Richter)	Distance From Site (mi)	Direction To Epicenter
Long Beach	March 11, 1933	6.4	56	SE
Kern County	July 21, 1952	7.3	60	NW
San Fernando	February 9, 1971	6.6	30	NE
Whittier Narrows	October 1, 1987	5.9	40	SE
Sierra Madre	June 28, 1991	5.8	44	NE
Big Bear	June 28, 1992	6.4	111	E
Landers	June 28, 1992	7.3	143	E
Northridge	January 17, 1994	6.7	25	E
Hector Mine	October 16, 1999	7.1	145	NE

Source: California Geological Survey, 2013, California Historical Earthquake Online Database (M>=5.5)

SITE GEOLOGY

Bedrock geology is shown on the *Geologic Map of the Thousand Oaks Quadrangle in Ventura and Los Angeles Counties* (USGS 1993). Overlying the bedrock is Quaternary gravel and sand and recent alluvial gravel, sand and clay deposited by historic stream channels where the existing concrete channel now lies. These materials overlie the bedrock units which include marine-deposited sedimentary rocks generally consisting of conglomerate, sandstone, siltstone, and shale of the Topanga, Calabasas, and Modelo Formations, and andesitic and basaltic volcanic rocks of the Conejo Formation. Andesitic flows and breccias of the Conejo Volcanics are exposed along the southwestern slope in the vicinity of the proposed project corridor (USGS 1993). Although not exposed, a lense of gray thinly bedded clay shale and siltstone, the Upper Topanga Formation is mapped along the northwestern slope of the site (USGS 1993). **Plate 1** presents a geologic map of the site and vicinity.

SITE SOILS

The USDA soil survey map for the Santa Monica Mountains National Recreation Area (CA 692) classifies this site as urban land-Cropley fill complex with slopes between 0 and 8 percent. The typical soil section is composed of 0 to 2 inches of sandy loam, 2 to 10 inches of gravelly sandy clay loam, 10 to 14 inches of clay, 14 to 30 inches of sandy clay loam, 30 to 37 inches of clay loam and 37 to 69 inches of clay. The observable soils on the western bank and open-space are quite shallow. Bedrock outcrops can be seen throughout the area. Soils on the eastern portion of the site are expected to be deeper, but highly disturbed due to the adjacent residential development.

SLOPE STABILITY

Slope failure is relatively common in the Traverse Ranges of Southern Califronia and often results from a combination of step slope and periods of intense rainfall, where saturation of the

ground results in a loss of soil or rock strength. Occasionally, seismic shaking may trigger slope failure in the form of a rockslide, slump or other type of failure. Mudflows or debris flows generally refer to a deforming mass of soil, organic material and rock that when saturated starts to flow downhill. Landsliding or slumping involves slippage of a discrete mass along a zone or plane of weakness. The plane of weakness commonly occurs along bedding, a fracture, or a contact between fill and native material. The frequency of nearly all types of failure is strongly dependent upon the specific rock and soil conditions occurring on a slope.

The Geologic Map (USGS 1993) for the project vicinity maps the area primarily as gravel and sand of major stream channels and some additional areas of alluvial gravel, sand and clay of valley areas along the slopes of the project vicinity as shown in **Plate 1.** The Relative Slope Stability map of the project area (CDMG, 1983) indicated that the channel is located in an area underlain by geologically competent formations having few or no perceptible landslides and no landslides are shown on the Landslide map of the area (CDMG, 1983). The area has been mapped in accordance with the Seismic Hazard Mapping Act for risk of earthquake-induced landsliding as shown in **Plate 2**. No areas of the site have been identified as areas at risk of earthquake-induced landsliding according to the Seismic Hazards Zone Map for the Thousand Oaks Quadrangle (CDMG, 2000).

The primary slope stability concerns at the proposed project corridor are the possibility of upstream slope failures that may impact the site.

LIQUEFACTION

The area has been mapped in accordance with the Seismic Hazard Mapping Act for liquefaction potential (**Plate 2**). The liquefaction potential of the Agoura Hills area has been examined and is summarized in the Seismic Hazard Zone Report for Thousand Oaks (CDMG, 2000). According to CDMG maps, the risk from liquefaction at this site is considered very low. However, the subsurface drilling investigation revealed loose to medium dense sandy soils present in two of the boreholes completed. These materials are potentially liquefiable or could undergo dynamic densification and are evaluated in the following section.

Liquefaction Analysis

Based on the results of our subsurface investigation, sand, silty sand and clayey sand deposits found in boreholes BH-1 at a depth of 2.75 feet to 5.75 feet BGS have a high potential for liquefaction or dynamic densification. Clayey sand deposits in BH-2 at a depth of 14.75 to 18.75 feet BGS have a low to moderate potential for liquefaction. These sediments may undergo ground shaking induced liquefaction (if saturated with groundwater) or dynamic densification (if in the dry state) during a major earthquake event. The potentially liquefiable soils in BH-1 at the proposed stairs bottom landing location are located above the existing groundwater table which would preclude liquefaction from occurring. No groundwater was found in BH-1 to the total depth at 18 feet below ground surface. Based on soil moisture contents, soils shallower than 5 feet are dry to moist and moisture contents increase considerably below 5 feet where soils become wet. In the dry state, these sands would still be subject to the effects of dynamic densification during earthquake induced ground shaking.

Potentially liquefiable clayey sand soils in BH-2 are located below the groundwater table and have a moderate potential for liquefaction during earthquake induced ground shaking. The laboratory testing of physical properties of these materials indicate that they have approximately 25 percent fines, but the low liquid limit of 30 and plasticity index of 15 are in a range that could potentially be subject to liquefaction.

Liquefaction Settlement

Liquefaction settlement of sand, silty sand, and clayey sand lenses underlying the proposed stair landing and clayey sand underlying the proposed eastern bridge abutment were calculated using the computer program Liquefaction SPT 3.0 (SoilStructure.com, 2014) which follows the procedures of Idriss and Boulanger (2008) in conformance with Special Publication 117A, California Geological Survey (2008). Based on Liquefaction factor of safety analysis using a design groundwater depth of 5.0 feet, the soils underlying the stair landing area in borehole BH-1 would have no liquefaction settlement or lateral displacement. The dry sand and silty sand soils in the upper 5.25 feet could undergo dynamic densification. Clayey sand soils found in BH-2 at depths of 14.75 to 18.75 feet could have liquefaction induced settlements of as much as 2.0 inches at the eastern abutment of the pedestrian bridge with no lateral displacement. A groundwater design level of 5.0 feet was used in this calculation. Liquefaction settlement analysis results are presented in **Appendix A.**

Lateral Spreading

Lateral spreading is another secondary effect of seismically induced ground shaking wherein pore-pressure buildup during liquefaction can result in the movement of gently sloping ground towards a free face or down slope direction. Calculations of lateral displacement for soils found in BH-2 indicate that no lateral displacement would occur during liquefaction settlement at the eastern bridge abutment. Lateral displacement calculations are presented in **Appendix A.**

FIELD INVESTIGATION

A multiple phase field investigation was conducted for the project site. Initially, a site reconnaissance was performed to review the surface conditions along the proposed project corridor. Much of the project area that is outside of the concrete channel is covered in brush and vegetation. Outcrops of volcanic rocks of the Conejo Formation are exposed in a few locations along the channel banks to the southwest. Locally, there were no slope or bank instabilities observed in or around the project location.

Following this, a geophysical study was performed to determine the general subsurface conditions of the project site to aid in determining the feasibility of removal of the channel improvements to establish an engineered "natural" drainage course. The final stage of the field investigation included the drilling, logging and sampling of three boreholes at the proposed locations of the stairs and pedestrian bridge abutments.

Geophysical Survey

Geophysical study of the site area was conducted by Spectrum Geophysics on August 6, 2013 using seismic refraction surveying (**Appendix B**). This seismic method indirectly examines the strength of rocks and their suitability for foundations, and can detect pressure zones and discontinuities within the rock. It can detect the depth to bedrock and provide an initial assessment of the rippability of earth materials. All three seismic refraction transects show two distinct units: (1) a low velocity (1,100-1,900 ft/s) upper layer and (2) a high velocity (9,600-13,000 ft/s) lower layer. The Geophysical Survey line locations and cross-sections are presented in **Appendix B.**

When comparing the results of the three geophysical surveys there are similarities between the thickness of the layers and their corresponding velocities. Line 1 shows the upper alluvium unit varying between 10 and 15 feet thick with low velocities (1,000-1,800 ft/s) and the lower bedrock unit as being at least 40 feet thick with a high velocity (9,900 ft/s). Line 2 shows the upper alluvium unit varying between 10 and 15 feet thick with low velocities (1,500-1,900 ft/s) and the lower bedrock unit as being at least 40 feet thick with a high velocity (9,600 ft/s). Line 3 shows the upper alluvium unit as being 5 feet thick with low velocities (1,100-1,800 ft/s) and the lower bedrock unit as being at least 40 feet thick with a high velocity (13,000 ft/s).

The variance shown in the velocities of the upper unit suggest a composition of fill, native alluvial soils and sedimentary rocks that would be easily rippable and could be excavated with conventional equipment. Conversely the lower bedrock unit velocities indicate an intact bedrock unit that would be difficult to excavate. This unit is likely the Conejo Formation consisting of andesitic volcanic rock.

Subsurface Drilling Investigation

The subsurface drilling investigation included completion of three boreholes to depths of 13.5 feet below ground surface to 23.5 feet BGS. Drilling was performed on October 21, 2013, by High Definition Drilling of Woodland Hills, California, using a truck mounted CME 75. Drilling utilized hollow-stem augers and sampling was performed using a 140-pound safety hammer dropped from a height of 30 inches. Samples were collected using the California Modified split-spoon sampler with 2.45 inch inside diameter brass liners and with the Standard Penetration Test sampler with 1.38 inch inside diameter. Boreholes were logged by a Staff Geologist under the supervision of our Senior Engineering Geologist. Borehole locations are presented on **Figure 1,** site location and borehole location plan.

Borehole 1 (BH-1) was completed at the location of the proposed stairs adjacent to the northeast side of the culvert at Kanaan Road The log of BH-1 is presented as **Figure 2.** The soils as penetrated in this borehole underlie a pavement section of asphalt concrete and Class 2 AB 0.75 feet deep. The soils consist of clayey sand and silty sand to 3.5 feet, well graded sand to 5.5 feet, and clayey sand to 5.75 feet. These are underlain by silty sandstone and interbedded claystone, siltstone, and sandstone to a depth of 12.5 feet BGS, and andesite volcanic bedrock to the total depth of drilling at 18 feet BGS

Borehole 2 (BH-2) was completed on the east side of Medea Creek at the proposed abutment location for the Pedestrian Bridge across the creek. The log of BH-2 is presented as **Figure 3.** The soils as penetrated in this borehole underlie asphalt concrete and Class 2 AB which extend to approximately 1 foot in depth. The soils consist of clayey sand to 4.75 feet, sandy lean clay to 7.5 feet, sandy fat clay to 10.5 feet, clayey sand to 14.75 feet, silty sand to 18.75 feet, and clayey sand to 20 feet BGS. These soils are underlain by andesite volcanic bedrock to the total depth of the hole at 23.5 feet BGS.

Borehole 3 (BH-3) was completed on the west side of Medea Creek at the proposed abutment location for the Pedestrian Bridge across the creek. The log of BH-3 is presented as **Figure 4.** The soils as penetrated in this borehole consist of sandy gravel to a depth of 2.5 feet, sandy lean clay to 4.5 feet, and sandy fat clay to 7.25 feet BGS. These soils are underlain by andesite volcanic bedrock from 7.25 feet to the total depth of the borehole at 13.5 feet BGS.

LABORATORY TESTING

Laboratory testing was performed on selected soil samples from the boreholes. Laboratory testing was performed in Questa's laboratory in general accordance with American Society for Testing and Materials (ASTM) standards for moisture content, dry density, particle size analysis, and liquid and plastic limits (including plasticity index). Unconfined compressive strength (UC) testing was performed in accordance with ASTM standards by Soil Mechanics Laboratory. Full reports of strength testing are included in **Appendix C**. Corrosion testing was performed by Cooper Testing Laboratories of Palo Alto California. The corrosion testing results are also included in **Appendix C**. A brief explanation of the testing that was performed follows.

Moisture/Density

Moisture content and dry density testing were performed on selected soil samples to characterize the moisture content and dry density of material throughout the soil column. Testing was performed in accordance with ASTM 2937. In this test, the dry density of the soil is determined by a mathematical relationship between moisture content and wet density of the soil sample. Results of moisture-density testing are summarized on the borehole logs (**Figures 2** through **4**).

Particle Size Analysis

Particle size analysis testing was performed in accordance with ASTM D 422. Samples collected from each of the boreholes were tested for grain size using both the dry sieve method and the hydrometer method, used to determine clay and silt fraction percentages. Results are presented on **Figures 7** through **12.**

Liquid Limit, Plastic Limit and Plasticity Index

Testing of liquid limit, plastic limit and plasticity index were performed in accordance with ASTM D 4318. Samples collected from each of the boreholes were tested by this method. Results are presented on **Figures 13** through **15.**

Laboratory test data is summarized on **Table 3.**

Table 3. Results of Laboratory Testing

Sample Number	Moisture Content (%)	Dry Density (pcf)	% Passing #200 Sieve	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index
BH-1 @ 3.0'	5.4	93.4	15	--	--	--
BH-1 @ 3.5'	5.4	90.6	5	--	--	--
BH-1 @ 5.0'	6.4	98.6	10	--	--	--
BH-1 @ 5.5'	25.6	92.9	15	42	19	23
BH-1 @ 8.0'	26.7	88.3	25	--	--	--
BH-2 @ 2.5'	23.4	98.0	48	40	22	18
BH-2 @ 4.0'	13.9	102.2	45	--	--	--
BH-2 @ 6.0'	25.9	87.3	52	41	20	21
BH-2 @ 7.5'	37.8	74.8	87	85	28	57
BH-2 @ 10.0'	37.3	71.0	73	70	29	41
BH-2 @ 14.5'	32.1	86.8	57	56	19	37
BH-2 @ 15.0'	21.6	91.6	27	--	--	--
BH-2 @ 16.5'	29.8	88.4	24	--	--	--
BH-2 @ 3.0'	18.7	89.4	50	58	22	36
BH-3 @ 4.5'	26.0	80.5	56	63	23	40
BH-3 @ 10.0'	17.2	96.0	51	--	--	--

Unconfined Compressive Strength Testing

Results of unconfined compressive strength testing are presented in **Appendix B**. BH-2 at 6.5-7.0 feet BGS has an unconfined compressive strength of 6,290 psf. BH-2 at 10.5-11.0 feet BGS has an unconfined compressive strength of 3,000 psf.

Corrosion Testing

Soil samples were obtained for corrosion analyses from boreholes located at the site. Based on the results of the corrosion analyses, the site soils in the vicinity of BH-2 3-3.5' BGS are considered marginally corrosive by Caltrans standards (Caltrans Corrosion Guidelines version 2.0). The soils in the vicinity of BH-1 2-2.5 feet BGS and BH-3 2.5-8.0 feet BGS are considered non-corrosive. Corrosion test data is summarized in **Table** 4. The full laboratory test report by Cooper Testing Laboratory is presented in **Appendix B.**

Table 4. Corrosion Testing Results

Sample No.	Moisture Content (%)	Resistivity (Ohm-cm)	Chloride (ppm)	Sulfate (ppm)	pH	Redox (mV)
BH-1 2-2.5'	22.1	1,352	<2	42	7.5	524
BH-2 3-3.5'	20.8	962	4	1,352	7.6	535
BH-3 2.5-8.0'	21.3	2,778	8	80	7.7	544

Notes: ppm-parts per million; mV-millivolt

GEOTECHNICAL RECOMMENDATIONS

Site Preparation and Grading

Areas to be graded during Creek restoration should be cleared and grubbed to a depth of 4 to 6 inches to remove vegetation and surface organic soils, or to the depth of subgrade soil preparation at the base of the structural section which includes aggregate base (AB) and trail surfacing. Subgrade soils underlying trail sections should be scarified to a minimum of six inches, moisture conditioned to 2 to 4 percent above the optimum moisture content and compacted to a minimum of 90 percent of the maximum dry density as determined in the laboratory in accordance with ASTM D 1557.

Trail Sections

Unpaved
Foot path trail sections should be underlain by a minimum of six inches of Caltrans Class 2 AB placed over compacted subgrade soils as detailed above. A layer of woven geotextile may be desirable to provide segregation between the subgrade soils and the trail aggregate base. Class 2 AB should be compacted to a minimum of 95 percent of the maximum dry density at moisture contents within 2 percent of the optimum as determined in the laboratory in accordance with ASTM D 1557. The trail surface material should consist of a suitable quarry fines or decomposed granite (DG) material that is non-expansive and should be a minimum of 3 inches in thickness and compacted to 95 percent minimum relative compaction within 2 percent of optimum moisture content.

Paved
Roadway sections intended for limited light weight truck or medium weight truck traffic at reduced speeds less than 15 miles per hour should be underlain by a minimum of 9 inches of Class 2 AB placed over the woven geotextile. Asphalt concrete (AC) pavement should be a minimum of 3 inches in thickness. This section is based on a Traffic Index (TI) of 5.0 and an assumed Resistance value (R-value) of 10 for the subgrade soils.

PEDESTRIAN BRIDGE FOUNDATIONS

Based on results of our geotechnical investigation, the soils at the proposed bridge abutment locations should be founded on a cast-in-place pier and grade beam type foundation abutment, with piers extending into underlying sedimentary and volcanic bedrock a minimum of 6 feet. Based on the boreholes completed, bedrock was present at a depth of approximately 20 feet BGS in BH-2 under the east bank of the creek and at a depth of approximately 7.25 feet under the west bank of the creek.

Drilled cast-in-place concrete piers should be a minimum of 18 inches in diameter and should be designed to support vertical and uplift loads based on an allowable skin friction of 500 psf in stiff clay and clayey sand soils and 1,000 psf in sandstone and andesite, neglecting the top 5 feet of soils. Skin friction should be neglected in clayey sand soils beneath the eastern bridge abutment at depths of 14.75 to 18.75 feet due to the potential for liquefaction of soils in that depth range,

which could reduce the skin friction in that zone to near zero. The recommended skin friction is for dead plus long-term live loads and can be increased by 33 percent for total loads including wind or seismic forces. End bearing should be neglected due to the difficulty in cleaning out small diameter pier holes. Resistance to lateral loads should be based on passive pressures using an equivalent fluid weight of 250 pcf over a width of two pier diameters on the portion of the piers extending into firm supporting soil, and 400 pcf in andesite bedrock.

The pier holes should be straight and free of loose soil and debris. Due to the possible presence of shallow ground water in the area, pier holes may require temporary casing during drilling and pouring of the concrete to prevent caving of the pier walls. The holes should be filled with concrete on the same days they are drilled. If holes are allowed to remain open, then the clay soils in portions of the sidewalls could begin to soften, reducing the skin friction on the sides of the piers. The concrete should be tremied into place and there should be no over-pouring of the concrete at the surface.

The pier reinforcements should be placed with a minimum of 3 inches clearance from the bottom and sidewalls of the pier holes using dobees or other approved spacers. Concrete should be Type II/V, or another type of corrosion resistant concrete.

Downdrag Forces

Downdrag loads could develop on the piles because of liquefaction-induced settlement of the soil adjacent to the piles. The magnitude of the downdrag load due to liquefaction-induced settlement will depend on several factors, including the thickness of liquefiable soil beneath the bridge abutment. We estimate the downdrag load will be on the order of 70 kips for 18-inch diameter cast-in-place piers. The downdrag load will only be applied temporarily shortly following a large earthquake on a nearby fault. Accounting for downdrag load and based on preliminary capacity estimates, we estimate the factor of safety of cast-in-place piers in compression will temporarily be reduced to about 1.7, which is acceptable.

STAIR FOUNDATION

The stairs to be located adjacent to the culvert and vehicle bridge across the creek at Kanan Road are underlain by shallow loose sandy soils having supporting characteristics for foundations that could be subject to a dynamic densification of less than 2". Loose soils located beneath the stair landing should be excavated to a depth of 4 feet and replaced with Class 2 aggregate base compacted to a minimum of 95 percent of the maximum dry density to create a firm base for the concrete landing at the base of the stairs.

The stairs should be founded on a cast-in-place pier and grade beam type foundation abutment, with piers for the bottom landing extending into underlying sedimentary and volcanic bedrock a minimum of 10 feet. Piers for the landings located on the existing road embankment should have piers penetrating a minimum of 10 feet into the embankment engineered fill soils.

Drilled cast-in-place concrete piers should be a minimum of 18 inches in diameter and should be designed to support vertical and uplift loads based on a skin friction of 500 psf in sedimentary bedrock and engineered fill soils, neglecting the top 6 feet of potentially densifiable or liquefiable sandy soils or 3 feet of engineered embankment fill soils. The recommended skin friction is for dead plus long-term live loads and can be increased by 33 percent for total loads including wind or seismic forces. End bearing should be neglected due to the difficulty in cleaning out small diameter pier holes. Resistance to lateral loads should be based on passive pressures using an equivalent fluid weight of 250 pcf over a width of two pier diameters on the portion of the piers extending into firm supporting sedimentary bedrock or engineered fill soils.

SEISMIC DESIGN CRITERIA

The project should be designed in conformance with current applicable standards for seismic stability as presented in the 2013 California Building Code. The average soil conditions in the upper 100 feet indicate Site Class B, Rock. Seismic Design Criteria are summarized in **Table 5** for design of the project in accordance with the 2013 California Building Code, ASCE 7-10 Standard.

Table 5. Seismic Design Criteria in accordance with the 2013 California Building Code

Site Class	B
Soil Profile Name	Rock
Risk Category	I/II/III
Seismic Design Category	D
Peak Ground Acceleration (PGA)	0.574 g
Fpga	1.0
Mapped Spectral Response for Short Periods - 0.2 Sec (S_s)	1.545 g
Mapped Spectral Response for Long Periods - 1 Sec (S_1)	0.600 g
Site Coefficient- Fa, based on the mapped spectral response for short periods	1.0
Site Coefficient- Fv, based on the mapped spectral response for long periods	1.0
Adjusted Maximum Considered EQ Spectral Response for Short Periods (S_{MS})	1.545
Adjusted Maximum Considered EQ Spectral Response for Long Periods (S_{M1})	0.6
Design (5-percent damped) Spectral Response Acceleration Parameters at short periods (S_{DS})	1.030
Design (5-percent damped) Spectral Response Acceleration Parameters at long periods (S_{D1})	0.4
Design Response Spectrum T_L	8 seconds

CONCLUSIONS

Provided that the site is properly prepared and the structures and foundations are designed and constructed as recommended, we estimate that normal post-construction settlement for the Pedestrian Bridge and Stairs areas will be small, less than 1.0 inch. Differential settlements from the northeast bridge abutment to the southwest bridge abutment could be as much as 1 inch. Differential settlements under the Stairs are anticipated to be less than ½-inch.

Liquefaction settlement analysis indicates that liquefaction induced settlements of as much as 2.0 inches could occur at the northeastern abutment of the pedestrian bridge. Differential settlements associated with the liquefaction could be as much as 2 inches between the southwest and northeast bridge abutments.

LIMITATIONS

This investigation was performed in accordance with present geotechnical and engineering geologic standards applicable to this project. In our opinion, the scope of services adequately supports the conclusions and recommendations presented. The findings are valid now, but should not be relied upon after two years without our review.

The recommendations of this report are based upon the assumption that the conditions do not deviate from those interpreted from the surface observations of this investigation and review of available subsurface information developed by others. If any variation or undesirable conditions are encountered during construction, or if the proposed construction differs from that planned at the present time, we should be notified so that supplemental recommendations can be given. The recommendations of this report are intended for the site described only, and must not be extended to adjacent areas. This report is issued with the understanding that it is the responsibility of the owner to ensure that contractors and subcontractors carry out the recommendations presented.

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Figures

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N

0 25' 50'
IF BAR DOES NOT MEASURE 2" - THIS PLOT IS NOT TO SCALE
ADJUST ACCORDINGLY
(1" = 50')

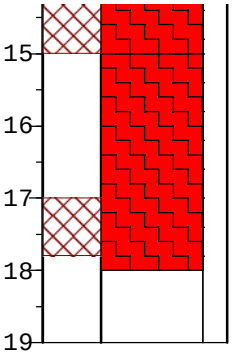
Borehole Locations
Medea Creek
Agoura Hills, CA

Date: 11/25/2013
Project: 1300042
Figure: 1

Lab Tests	Torvane, tsf	Sampler Type	% Passing #200 Sieve	Dry Density, pcf	Moisture %	Penetrometer, tsf	Blows/Foot * (Converted to SPT N-value)	Sample Location	Graphical Symbol	Groundwater Depth	USCS Symbol	Lithologic Description
								0				ASPHALT: 1.5" AC overlying 6" AB
								1			SC	SC: Mottled brown clayey sand w/gravel, slightly moist, stiff and moderately cemented
Corr.								2				
		CA MOD					4*	3			SM	SM: Brown fine to silty sand, dry, loose
			15	93.4	5.4	0.5						
	1.0	CA MOD	5	90.6	5.4	1.0	2*	4			SW	SW: Brown fine to coarse grained sand, dry, very loose, coarsening downward
			10	98.6	6.4			5				
PI23 LL42 PL19	1.2	CA MOD	15	92.9	25.6	4.5	5*	6			SC	SC: Brown Clayey Sand, wet, loose
								7				SANDSTONE: Silty Sandstone, Mottled brown, moderately weathered, interlayered w/claystone, siltstone & sandstone, moist to wet, friable, laminated bedding
		CA MOD	25	88.3	26.7	>4.5	24*	8				
								9				
		SPT				>4.5	34	10				
								11				
								12				
		CA MOD				>4.5	48*	13				ANDESITE: Andesitic volcanic bedrock,dark gray, moist, weathered, moderately hard to hard, unfractured
								14				

Questa Engineering Corporation 1220 Brickyard Cove Road, Suite 206 Point Richmond, CA 94807	**LOG OF BOREHOLE BH-1** Medea Creek Agoura Hills, CA	Figure **2**

Lab Tests	Torvane, tsf	Sampler Type	% Passing #200 Sieve	Dry Density, pcf	Moisture %	Penetrometer, tsf	Blows/Foot * (Converted to SPT N-value)	Sample Location	Graphical Symbol	Groundwater Depth	USCS Symbol	Lithologic Description
		SPT				>4.5	84/ 9"	15				
								16				ANDESITE: Andesitic volcanic bedrock,dark gray, moist, slightly weathered, hard, unfractured
		SPT					98/ 10"	17				
								18				End @ 18.0' 10/21/13 9:00am No Groundwater Encountered
								19				

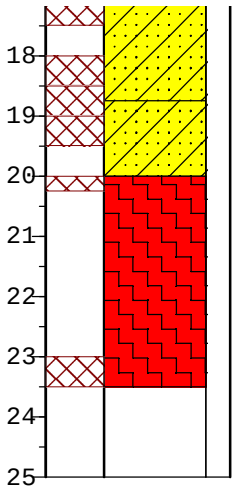


Questa Engineering Corporation 1220 Brickyard Cove Road, Suite 206 Point Richmond, CA 94807	**LOG OF BOREHOLE BH-1** Medea Creek Agoura Hills, CA	Figure **2**

Lab Tests	Torvane, tsf	Sampler Type	% Passing #200 Sieve	Dry Density, pcf	Moisture %	Penetrometer, tsf	Blows/Foot * (Converted to SPT N-value)	Sample Location	Graphical Symbol	Groundwater Depth	USCS Symbol	Lithologic Description
								0				ASPHALT: 1.5" of AC overlying 6" AB
								1			SC	SC: Light brown clayey sand w/gravel, slightly moist, medium dense
PI18 LL40 PL22		CA MOD	48	98	23.4	3.0	21*	2 3				
Corr.		CA MOD	45	102	13.9	3.0	14*	4			SC	SC: Brown clayey sand, moist, med. dense
								5			CL	CL: Mottled brown sandy clay, moist, stiff, medium plasticity
PI21 LL41 PL20	1.0 1.5	CA MOD	52	87.3	25.9	4.0	11*	6 7				
PI57 LL85 PL28	1.5	CA MOD	87	74.8	37.8	3.0	10*	8			CH	CH: Mottled brown sandy fat clay, moist to wet, stiff, high plasticity
								9				
PI41 LL70 PL29	1.5	CA MOD	73	71.0	37.3	1.5 2.0	7*	10 11			SC	SC: Dark gray-brown clayey sand, moist to wet, high to medium plasticity, loose to medium dense
								12 13 14				
PI37 LL56 PL19		CA MOD	57 27	86.8 91.6	32.1 21.6	0.5	7*	15			SC	SC: Gray-brown clayey sand, wet, loose to medium dense
			24	88.4	29.8			16 17			SC	SC: Gray-brown clayey sand , moist,

Questa Engineering Corporation 1220 Brickyard Cove Road, Suite 206 Point Richmond, CA 94807	**LOG OF BOREHOLE BH-2** Medea Creek Agoura Hills, CA	Figure **3**

Lab Tests	Torvane, tsf	Sampler Type	% Passing #200 Sieve	Dry Density, pcf	Moisture %	Penetrometer, tsf	Blows/Foot * (Converted to SPT N-value)	Sample Location	Graphical Symbol	Groundwater Depth	USCS Symbol	Lithologic Description
PI15 LL30 PL15		CA MOD				1.0	31*					medium dense to dense
		SPT					80/ 11"				SC	SC: Mottled brown clayey sand w/gr., moist, v. dense
		SPT					50/ 4"					ANDESITE: Dark gray andesitic volcanic bedrock, dry, slightly weathered, moderately hard to hard, unfractured, calcite veins
		SPT					50/ 4"					End @ 23.5' 10/21/13 11:00am Groundwater encountered @ 11' BGS



Questa Engineering Corporation	LOG OF BOREHOLE BH-2	Figure
1220 Brickyard Cove Road, Suite 206 Point Richmond, CA 94807	Medea Creek Agoura Hills, CA	3

Lab Tests	Torvane, tsf	Sampler Type	% Passing #200 Sieve	Dry Density, pcf	Moisture %	Penetrometer, tsf	Blows/Foot * (Converted to SPT N-value)	Sample Location	Graphical Symbol	Groundwater Depth	USCS Symbol	Lithologic Description
								0			GP	GP: Light brown sandy gravel, dry, medium dense
								1				
								2				
PI36 LL58 PL22	15	CA MOD	50	89.4	18.7	3.0	18*	3			CL	CL: Mottled brown sandy clay to clayey sand, moist, very stiff, medium dense, medium plasticity
								4				
PI40 LL63 PL23		CA MOD	56	80.5	26.0	3.0	13*	5			CH	CH: Yellow-brown sandy clay, moist, stiff, high plasticity
Corr.		CA MOD				>4.5	15*	6				
								7				ANDESITE: Dark gray weathered andesitic volcanic bedrock, moist, hard, massive, fractured
		CA MOD				>4.5	48*	8				
								9				
		CA MOD	51	96.0	17.2		50/6"	10				
								11				ANDESITE: Dark gray andesitic volcanic bedrock, moist, hard, massive, fractured
		SPT					50/5"	12				
		SPT					50/5"	13				
								14				End @ 13.5' 10/21/13 1:30pm Goundwater encountered @ 13' BGS

Questa Engineering Corporation 1220 Brickyard Cove Road, Suite 206 Point Richmond, CA 94807	**LOG OF BOREHOLE BH-3** Medea Creek Agoura Hills, CA	Figure **4**

SOIL CLASS KEY.CDR

MAJOR DIVISION				TYPICAL NAMES
COARSE GRAINED SOILS MORE THAN HALF IS LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN #4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	Well graded Gravels, Gravel-Sand mixtures
			GP	Poorly graded Gravels, Gravel-Sand mixtures
		GRAVELS WITH OVER 12% FINES	GM	Silty Gravels, poorly graded, Gravel-Sand-Silt mixtures
			GC	Clayey Gravels, poorly graded Gravel-Sand-Clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS LARGER THAN #4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW	Well graded Sands, Gravelly-Sands
			SP	Poorly graded Sands, Gravelly-Sands
		SANDS WITH OVER 12% FINES	SM	Silty Sands, poorly graded, Sand-Silt mixtures
			SC	Clayey Sands, poorly graded, Sand-Clay mixtures
FINE GRAINED SOILS MORE THAN HALF IS SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	Inorganic Silts and very fine Sands, rock flour, Silty or Clayey fine Sands, or Clayey-Silts with slight plasticity
			CL	Inorganic Clays of low to medium plasticity, Gravelly Clays, Sandy Clays, Silty Clays, lean Clays
			OL	Organic Clays and Organic Silty Clays of low plasticity
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH	Inorganic Silts, micaceous or diatomaceous fine Sandy or Silty Soils,elastic Silts
			CH	Inorganic Clays of high plasticity, fat Clays
			OH	Organic Clays of medium to high plasticity, organic Silts
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils

BGS	Below Ground Surface	PSA	Particle Size Analysis
SPT	Standard Penetration Test Sampler (1.38" inside diameter)	UC/TXUU	Unconfined Compression / Triaxial Shear Unconsolidated-Undrained
CAM	California Modified Sampler (S & H) (2.45" inside diameter)	LL, PL, PI	Liquid Limit, Plastic Limit, Plasticity Index

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UNIFIED SOIL CLASSIFICATION SYSTEM AND KEY TO ABBREVIATIONS

FIGURE 5

PHYSICAL PROPERTIES CRITERIA FOR EVALUATING CONDITIONS OF BEDROCK

I. INDURATION - The process of hardening or consolidating of sediments or other rock aggregates through cementation, pressure, heat, or other cause.

U = unindurated P = poorly indurated M = moderately indurated W = well indurated

II. BEDDING

Splitting Property	Thickness (feet)	Stratification
massive	greater than 4.0	very thick bedded
blocky	2.0 to 4.0	thick bedded
slabby	0.2 to 2.0	thin bedded
flaggy	0.05 to 0.2	very thin bedded
shaly or platy	0.01 to 0.05	laminated
papery	less than 0.01	thinly laminated

III. FRACTURING

Intensity	Frequencies of Fractures (feet)
little fractured	greater than 4.0
occasionally fractured	1.0 to 4.0
moderately fractured	0.5 to 1.0
closely fractured	0.1 to 0.5
intensely fractured	0.05 to 0.1
crushed	less than 0.05

IV. HARDNESS

soft - Reserved for plastic material

low hardness - Can be gouged deeply or carved easily with a knife blade

moderately hard - Can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away

hard - Can be scratched with difficulty; scratch produces little powder and is often faintly visible

very hard - Cannot be scratched with knife blade; leaves a metallic streak

V. STRENGTH

plastic - Very low strength, similar to soil

friable - Crumbles easily by rubbing with fingers

weak - An unfractured specimen will crumble under light hammer blows

moderately strong - Specimen will withstand a few heavy hammer blows before breaking

strong - Specimen will withstand a few heavy ringing hammer blows before breaking into large fragments

very strong - Specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments

VI. WEATHERING - The physical and chemical disintegration and decomposition or rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing.

deep - Moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration; many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt

moderate - Slight change or partial decomposition of minerals; little disintegration; cementation is little to unaffected; moderate to occasionally intense discoloration; moderately coated fractures

little - No megascopic decomposition of minerals; little to no effect on normal cementation; slight and intermittent or localized discoloration; a few stains on fracture surfaces

fresh - Unaffected by weathering agents; no disintegration or discoloration; fractures usually less numerous than joints

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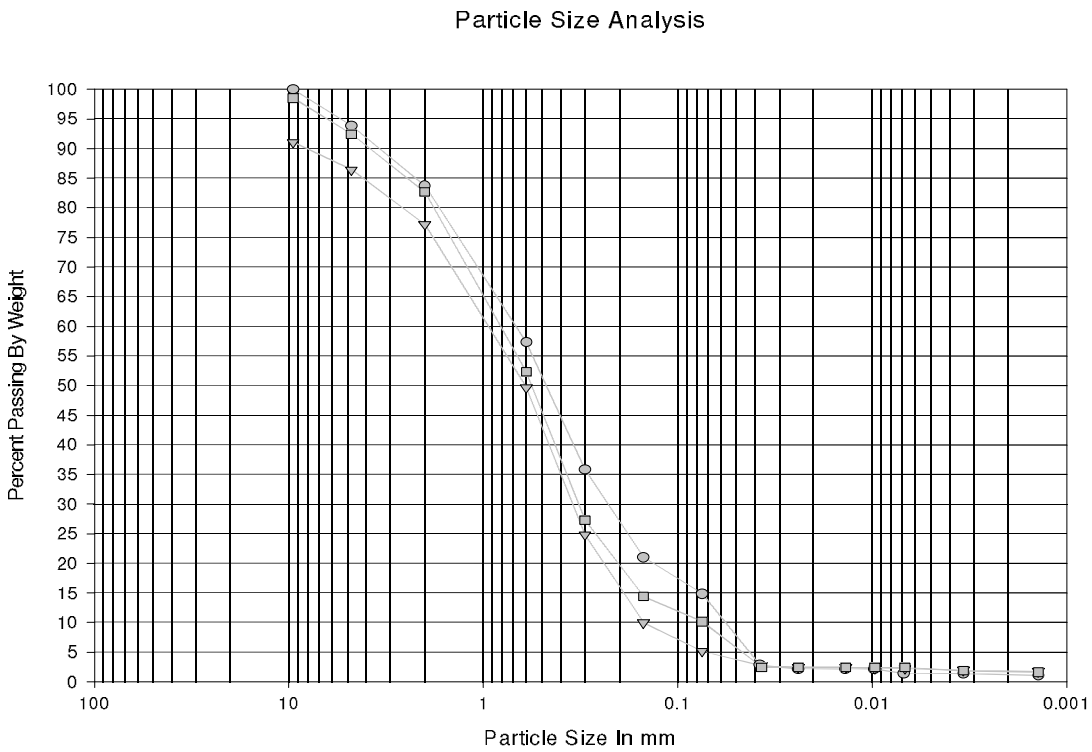
PHYSICAL PROPERTIES CRITERIA FOR EVALUATING CONDITIONS OF BEDROCK

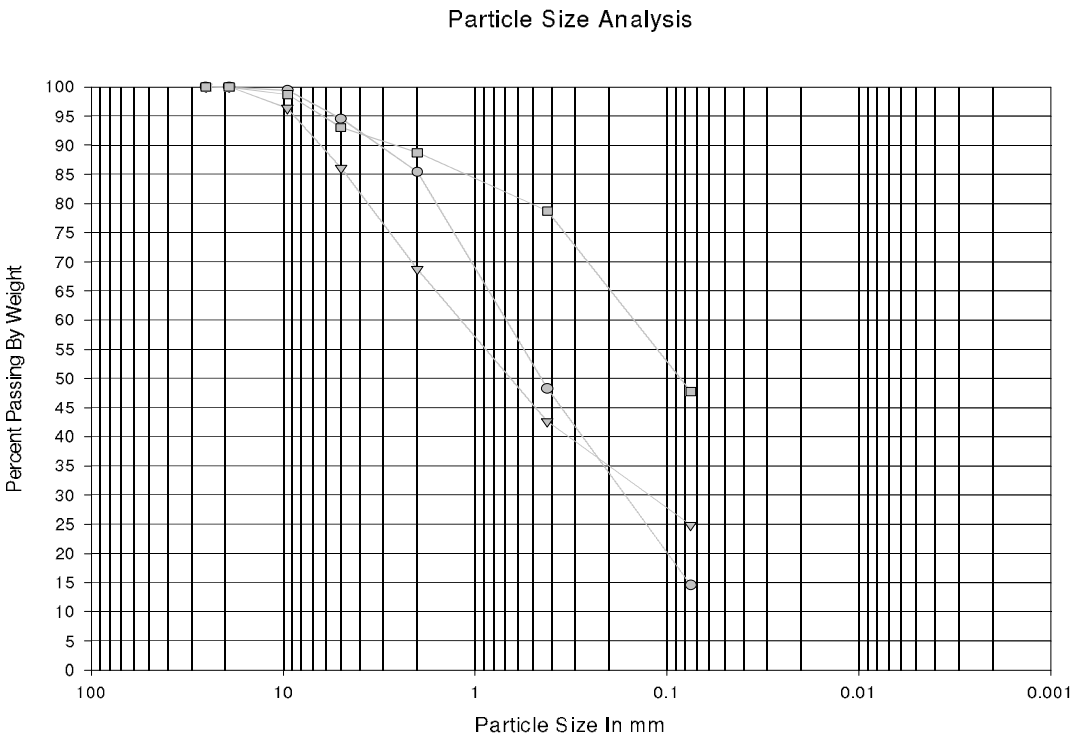
FIGURE 6



GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		

Symbol	Source
●	BH-1 3.0-3.5'
▼	BH-1 3.5-4.0'
■	BH-1 5.0-5.5'

Questa Engineering Corporation	Particle Size Analysis	Figure
PO Box 70356 (510) 236-6114 1220 Brickyard Cove Road FAX (510) 236-2423 Point Richmond, CA 94807 questa@questaec.com	Medea Creek Agoura Hills, CA	7



GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		

Symbol	Source
●	BH-1 5.5-6.0'
▼	BH-1 8.0-8.5'
■	BH-2 2.5-3.0'

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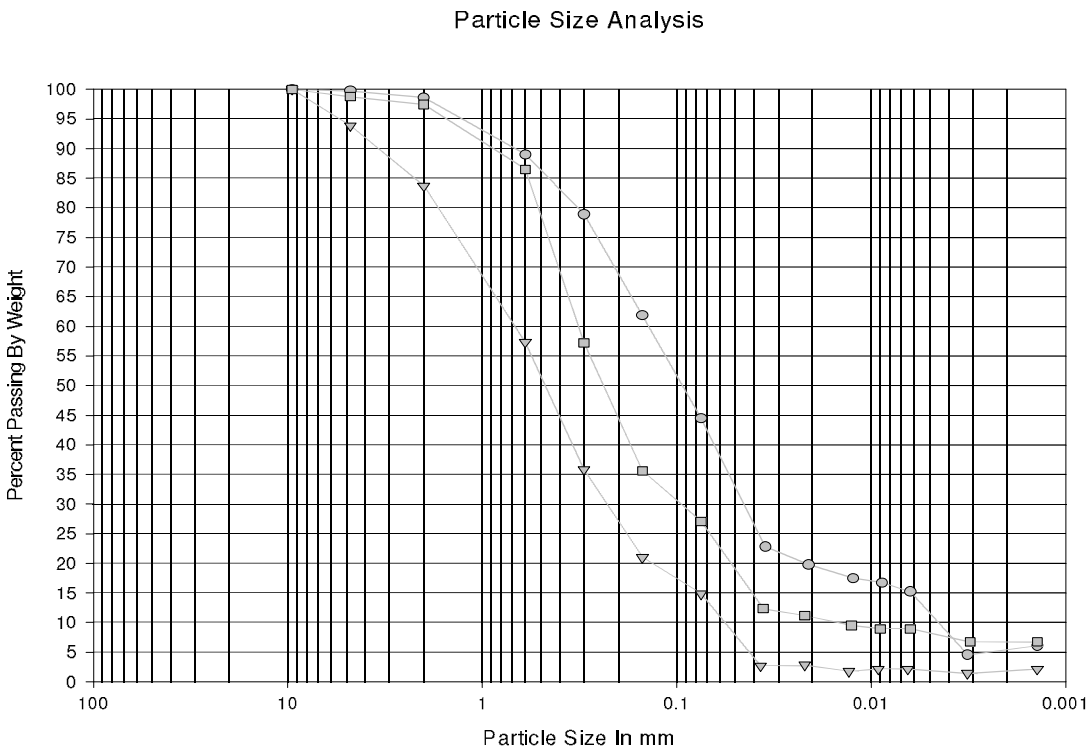
Particle Size Analysis

Medea Creek
Agoura Hills, CA

Figure
8



GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		

Symbol	Source
●	BH-2 4.0-4.5'
▼	BH-2 15.0-15.5'
■	BH-2 16.5-17.0'

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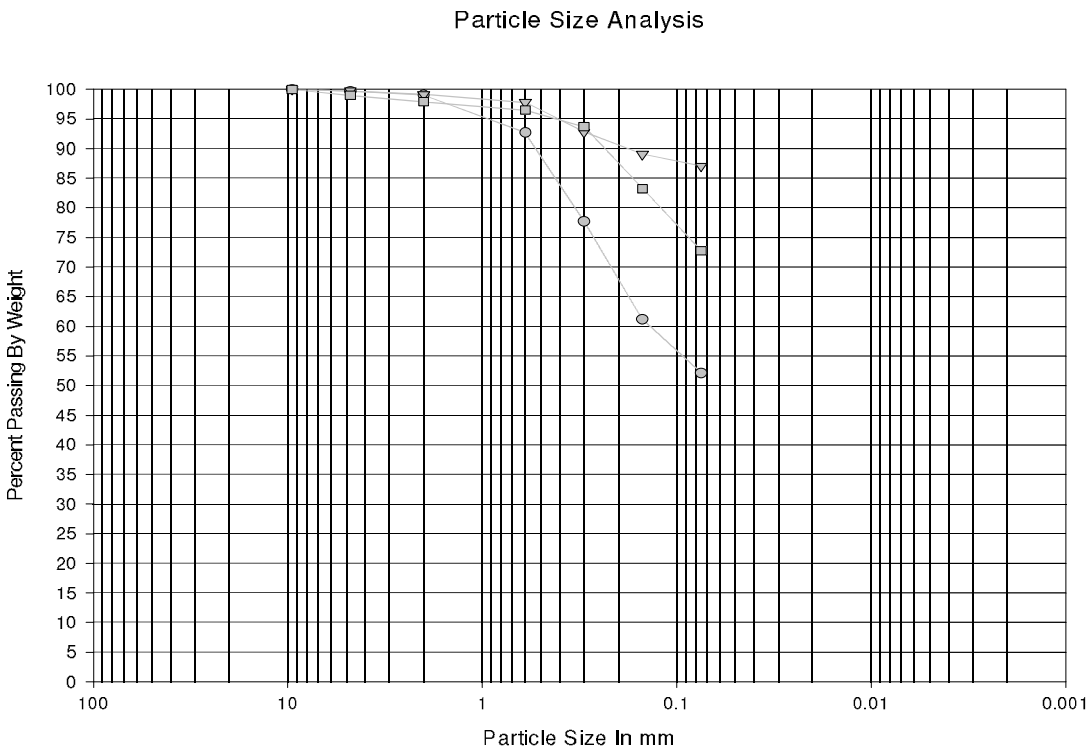
Particle Size Analysis

Medea Creek
Agoura Hills, CA

Figure

9



GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		

Symbol	Source
●	BH-2 6.0-6.5'
▼	BH-2 7.5-8.0'
■	BH-2 10.0-10.5'

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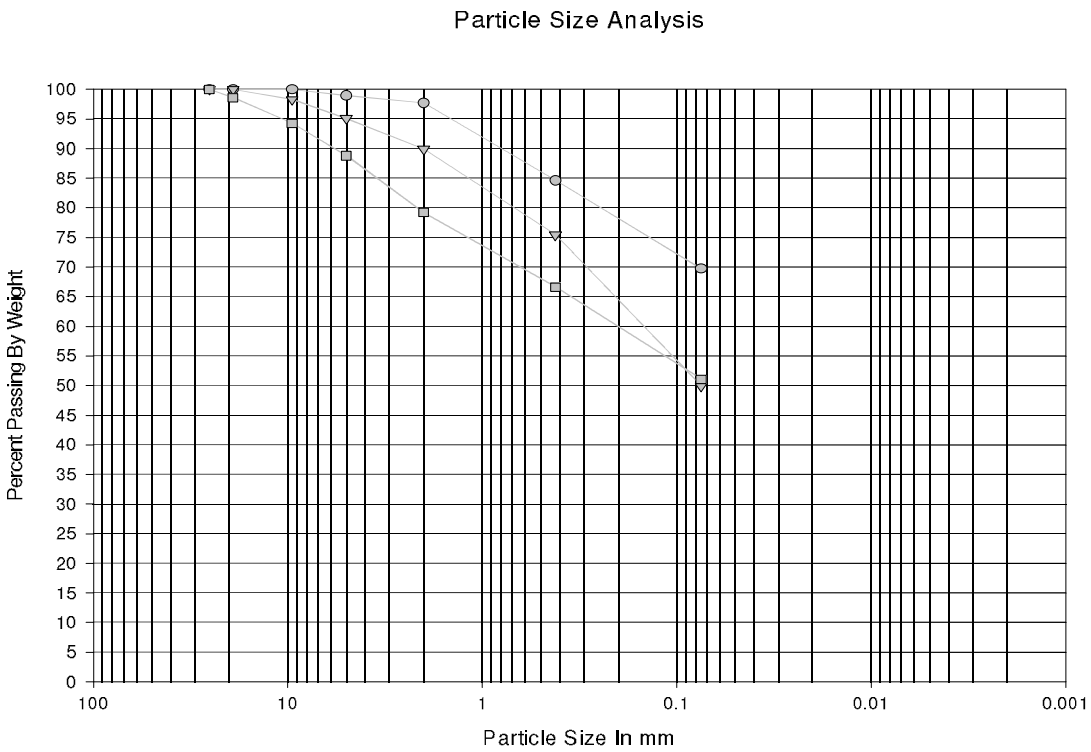
Particle Size Analysis

Medea Creek
Agoura Hills, CA

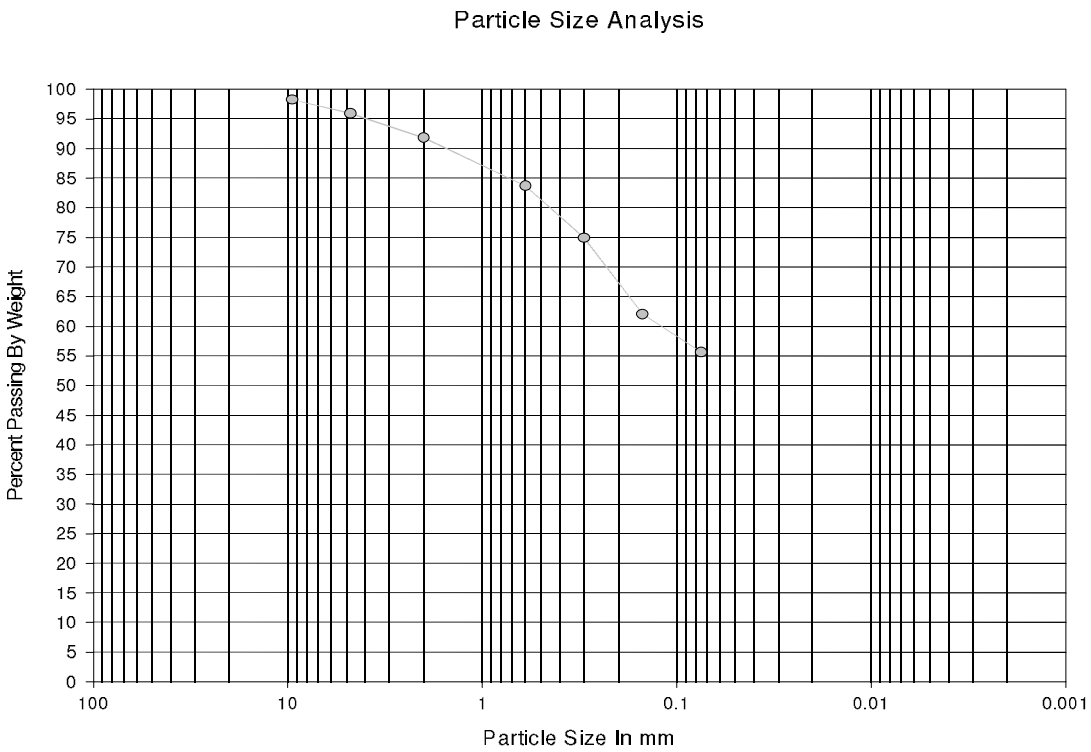
Figure
10



GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		

Symbol	Source
●	BH-2 Bulk 10-12'
▼	BH-3 3.0-3.5'
■	BH-3 Bulk 5-7'

Questa Engineering Corporation	Particle Size Analysis	Figure
PO Box 70356 (510) 236-6114 1220 Brickyard Cove Road FAX (510) 236-2423 Point Richmond, CA 94807 questa@questaec.com	Medea Creek Agoura Hills, CA	11



GRAVEL		SAND			SILT	CLAY
Coarse	Fine	Coarse	Medium	Fine		

Symbol	Source
●	BH-3 4.5-5.0'
▼	
■	

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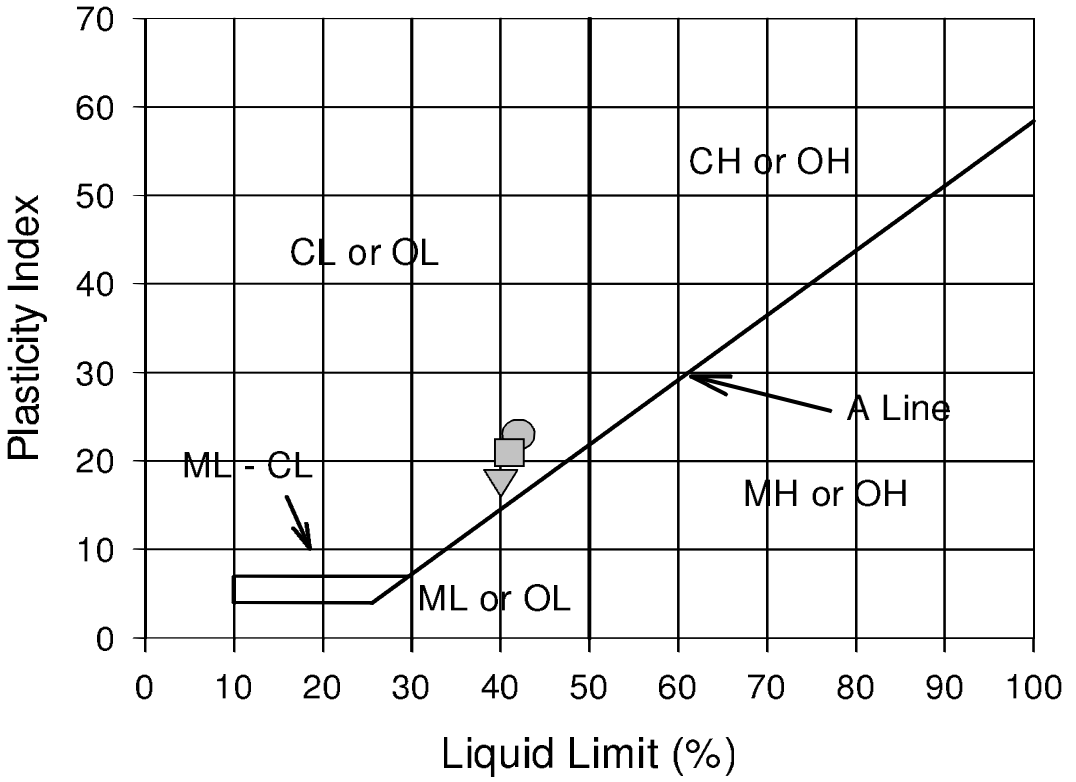
Particle Size Analysis

Medea Creek
Agoura Hills, CA

Figure
12

Atterberg Limits



Symbol	Classification and Source	Liquid Limit %	Plastic Limit %	Plasticity Index	% Passing #200 Sieve
●	Brown clayey sand (SC), BH-1 5.5-6.0'	42	19	23	15
▼	Light brown clayey sand (SC), BH-2 2.5-3.0'	40	22	18	48
■	Mottled brown sandy clay (CL), BH-2 6.0-6.5'	41	20	21	52

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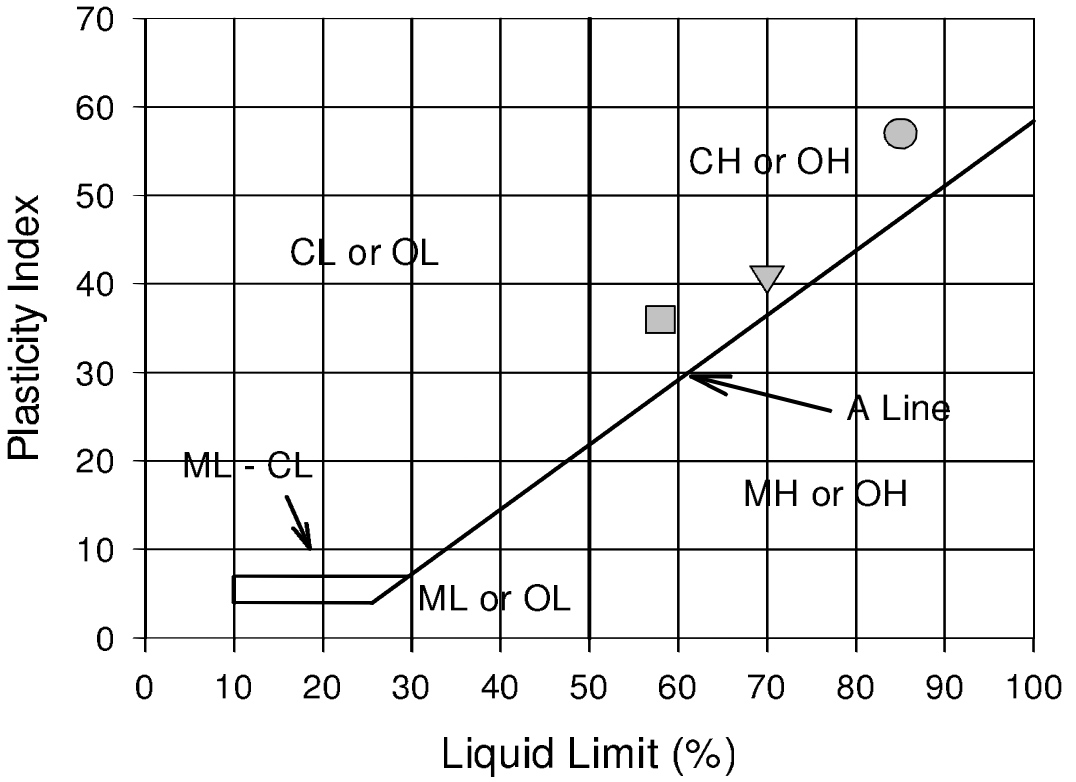
Atterberg Limits Testing
by ASTM D4318

Medea Creek
Agoura Hills, CA

Figure
13

Atterberg Limits



Symbol	Classification and Source	Liquid Limit %	Plastic Limit %	Plasticity Index	% Passing #200 Sieve
●	Mottled brown sandy clay (CH), BH-2 7.5-8.0'	85	28	57	87
▼	Mottled brown sandy clay (CH), BH-2 10.0-10.5'	70	29	41	73
■	Mottled brown sandy clay (CH), BH-3 3.0-3.5'	58	22	36	50

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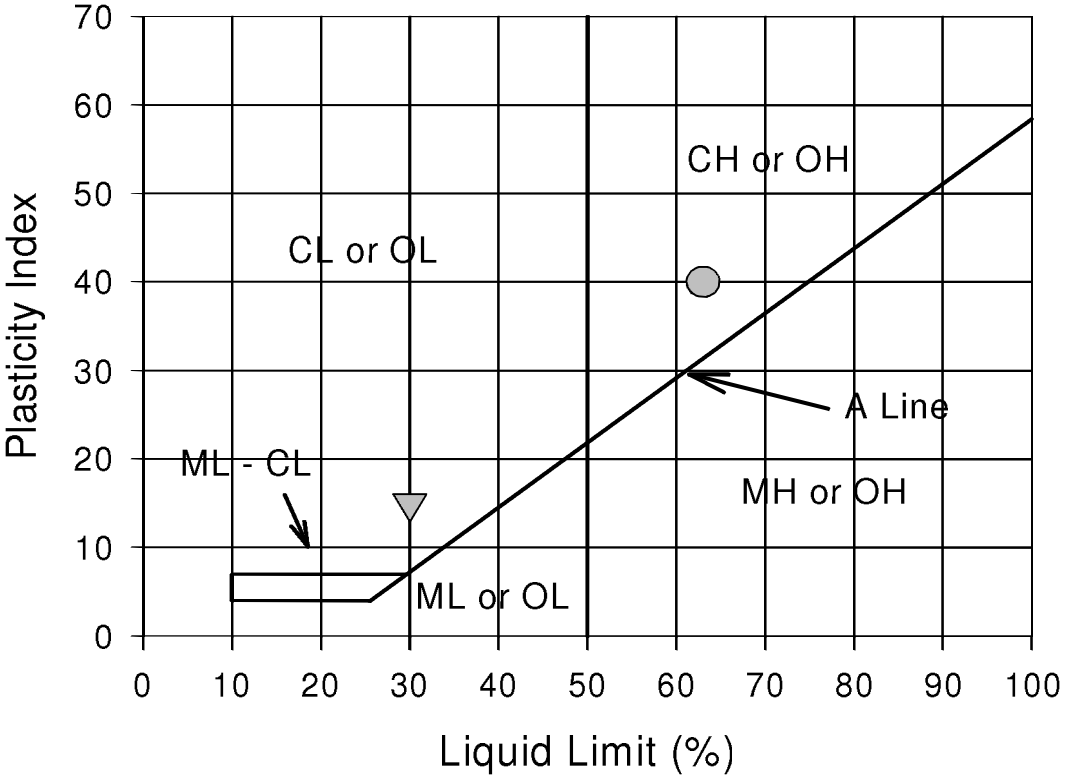
Atterberg Limits Testing
by ASTM D4318

Medea Creek
Agoura Hills, CA

Figure
14

Atterberg Limits



Symbol	Classification and Source	Liquid Limit %	Plastic Limit %	Plasticity Index	% Passing #200 Sieve
●	Mottled brown sandy clay (CH), BH-3 4.5-5.0'	63	23	40	56
▼	Grayish Brown Clayey Sand (SC), BH-2 15-15.5'	30	15	15	27
■					

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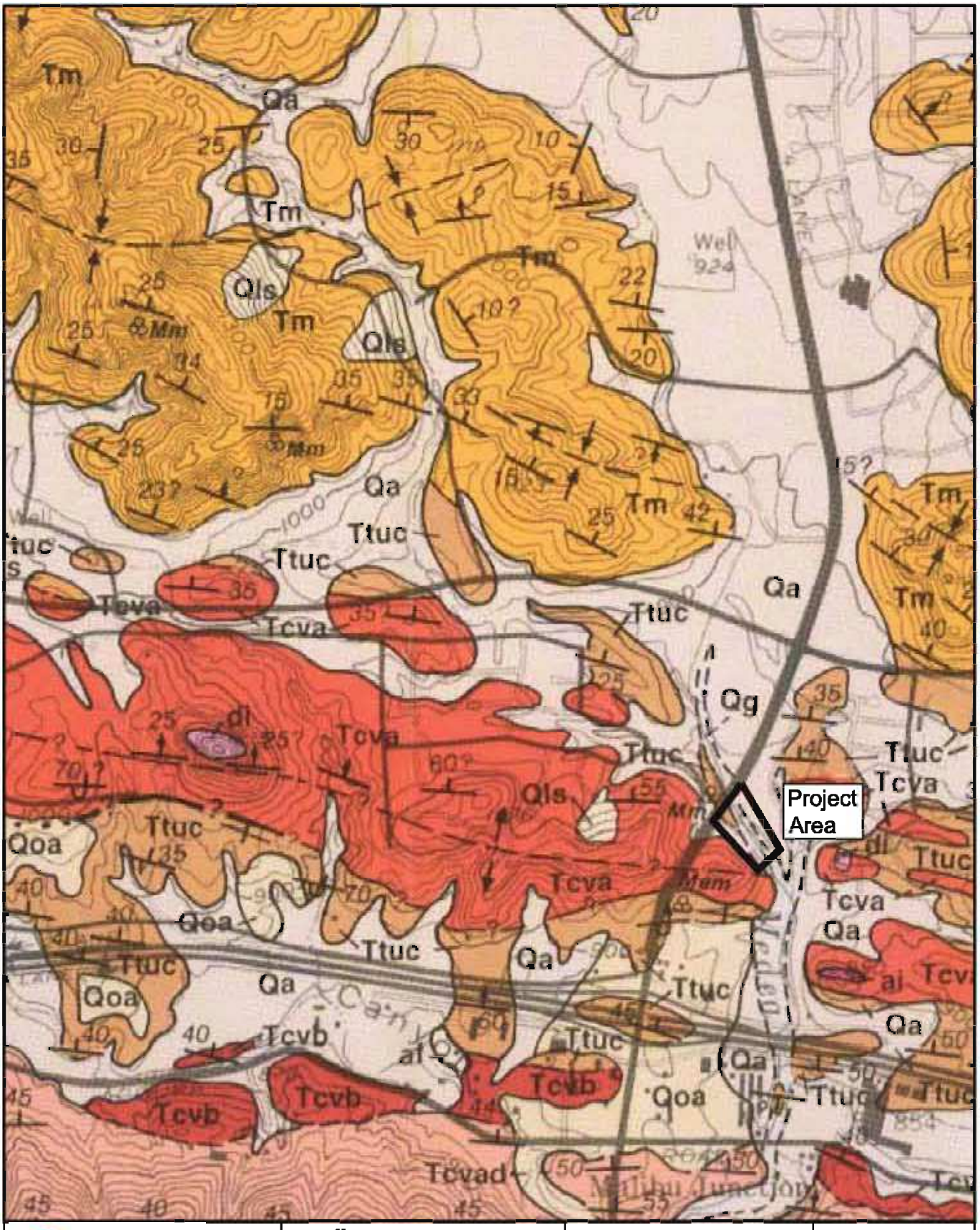
Atterberg Limits Testing
by ASTM D4318

Medea Creek
Agoura Hills, CA

Figure
15

Plates



QUESTA ENGINEERING CORP
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P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

N

0 500' 1000'
(1" = 1000')

Source: Geologic Map of the Thousand Oaks Quadrangle, Diblee (1993)

Geologic Map
Medea Creek
Agoura Hills, CA

Date: 11/25/2013
Project: 1300042
Plate: 1a

THOUSAND OAKS QUADRANGLE

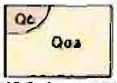
LEGEND

SURFICIAL SEDIMENTS

unconsolidated detrital sediments, undissected to partly dissected

Qg *gravel and sand of major stream channels* **xl** *artificial cut and fill*

Qa *alluvial gravel, sand and clay of valley areas* **Qls** *landslide debris*



OLDER SURFICIAL SEDIMENTS

unconsolidated to weakly consolidated alluvial sediments, dissected where elevated; late Pleistocene age

Qoa *older dissected alluvial gravel* **Qc** *talus fan gravel and sand, locally lithified*

—UNCONFORMITY—

MONTEREY FORMATION

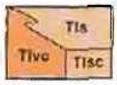
(Modelo Formation and in part upper Topanga Formation of Weber 1984; Yerkes and Showalter 1992, Monterey Formation of Truex and Hall 1969; same lithologic unit as Monterey Shale of Ventura basin of Dibblee 1989)

marine biogenic, middle and late Miocene age

(Luisian and Mohnian Stages, (Yerkes and Showalter 1992)

Tm *white weathering, thin bedded, platy, locally brittle siliceous shale to soft, punky shale; devoid of sandstone in this quadrangle; mostly late Miocene age (Mohnian Stage)*

Tml *lower part, similar to Tm, but soft, fissile to punky; includes scattered thin, hard calcareous layers and concretions; middle Miocene age (Luisian Stage)*



DETRITAL SEDIMENTS OF LINDERO CANYON

(typically exposed in upper Lindero and Skeleton Canyons (Dibblee 1989); assigned to upper Topanga Formation by Weber 1984, Calabasas Formation by Yerkes and Showalter 1992; in Simi Hills may be in part equivalent to upper Topanga Formation

marine and nonmarine? clastic; late middle Miocene age

Tls *sandstone; light gray to tan, soft, friable to semi-coherent, massive to vaguely bedded, locally calcareous, hard, rarely fossiliferous; east of upper Medea Creek locally includes conglomerate similar to Tlgc; in northwest area may be in part interfingered with unit Tlvc; in a few places contains shallow marine molluscan fossils*

Tlsc *conglomerate of granitic detritus; light gray, composed of rounded pebbles, cobbles and small boulders of granitic and lesser metavolcanic rocks in incoherent sandstone matrix, massive to poorly bedded; in Simi Hills composes facies of unit Tls*

Tlvc *basal epiclastic (reworked) conglomerate of detritus derived from Conejo Volcanics; gray to dusty brown, massive to crudely bedded, in southwestern area and Simi Hills composed of poorly sorted, subrounded clasts as large as small boulders, of mostly andesitic rocks in nonhomogeneous detrital matrix; southwest of Thousand Oaks partly interfingered with shale of unit Tml; in Simi Hills contains smooth rounded cobbles reworked from Simi Conglomerate (Tsug) as well as volcanic (andesitic) detritus; in northwestern area mostly massive to crudely bedded, light brown pebble-small cobble conglomerate and breccia of volcanic detritus in semi-coherent matrix, probably deposited subaerially on platform of deeply eroded pre existing rocks*

—MAJOR UNCONFORMITY—

UPPER TOPANGA FORMATION

(of Durrell 1954; Topanga Formation of Truex and Hall 1969, Truex 1976; Calabasas Formation of Yerkes and Showalter 1991)

marine clastic; middle Miocene age, exposed only in Agoura area

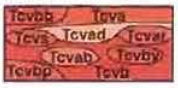
Ttuc *clay shale and siltstone, gray, thin-bedded, soft, crumbly, weakly resistant to erosion; locally contains calcareous concretions or lenses, includes few thin sandstone strata*

Ttus *sandstone, light gray to tan, friable, massive to vaguely bedded, interbedded with clay shale*

CONEJO VOLCANICS

(of Taliaferro 1924, Campbell et al. 1970; Weber 1984, Yerkes and Showalter 1991; middle Topanga Formation of Durrell 1954; Topanga Volcanics of Truex and Hall 1969; Truex 1976)

submarine and subaerial volcanic extrusive and related intrusive rocks; middle Miocene (Relizian-Luisian?) age (16.1 to 13.1 m.y. old in western Santa Monica Mountains - Turner 1970, in Yerkes and Campbell 1979)



EXTRUSIVE ROCKS

Tcvbb *basaltic flow breccias exposed only on Mountclef Ridge; dark gray to dark reddish brown, dense to scoriaceous basalt, contains small elongate phenocrysts of plagioclase feldspar and hypersthene (Williams 1985); moderately coherent, erosion resistant*

Tcva *andesitic flows and breccias; in northwest area, and at Agoura, reddish brown to gray, massive, moderately coherent, fine grained, feldspathic to locally slightly porphyritic; deposited as laharic (mud flow) breccia; in Westlake area ranges from tan to light brown, massive, coherent, fine grained feldspathic rock to less coherent, somewhat darker andesitic breccia; in Triunfo Canyon area light gray to tan, massive to crudely bedded, fine grained feldspathic andesite-dacite (?), composed of unsoaded angular fragments in coherent matrix of same rock, deposited subaerially (?) as laharic flows (broken and jumbled during movement) from nearby volcanic source*

Tcvad *andesite-dacite breccia of Westlake (designated as Tcvab in Calabasas quadrangle of Dibblee 1992); light colored (light tinkish gray to light brown), composed of moderately to poorly sorted, mostly cobble-boulder sized angular fragments of light colored, very fine grained feldspathic hornblende-dacite in semi-coherent, detrital or tuffaceous (?) matrix of same rock, crudely stratified, in eastern exposures well stratified and many fragments subrounded; in western exposures near Lake Sherwood some of lower part of breccia is firmly indurated to form prominent, resistant outcrops; and gradational into*

Tcva, *probably deposited subaerially as laharic (rock and mudflow) and reworked detritus from nearby volcanic source to west; prominently exposed near Westlake Dam; lithologically similar to and may be equivalent to more coherent unit Tcvdb in Triunfo Pass and Newbury Park quadrangles (Dibblee and Ehrenspeck 1990a and b)*

Tcvab *andesitic breccias; medium gray to brown, composed of angular to slightly subrounded, mostly cobble to boulder-size fragments of andesitic to basaltic rocks in moderately coherent detrital andesitic matrix, moderately to crudely bedded, lenticular within Tcvb, on Mountclef Ridge includes thin stratum of gray brown volcanic sandstone; breccias probably deposited subaerially as laharic rock and mudflow and reworked detritus from nearby volcanic sources*

Tcvat *andesitic flow breccia, exposed only on north slope of Ladyface Ridge; brown, reddish to gray. Composed of unsoaded angular fragments of commonly vesicular, sub-porphyritic andesitic rocks in semi-coherent brown to reddish, fragmental, pyroclastic andesitic matrix. Includes flows of platy gray andesite locally; unit contains scattered spindle shaped volcanic "bombs" of andesitic rocks up to 10' meters long (Dibblee and Ehrenspeck 1993); massive to crudely stratified, deposited subaerially*

Tcvby *porphyritic basaltic-andesite flow breccia of Ladyface Ridge; exposed only on that ridge and on a low ridge 1 km south; dark gray to nearly black, composed of unsoaded large angular (cubbly) to subrounded fragments of vesicular to scoriaceous gray-black porphyritic basalt-andesite in coherent detrital matrix of same rock, phenocrysts composed of white lathy (elongated) plagioclase feldspar; very crudely stratified, erosion resistant, deposited subaerially (?)*

Tcvb *basaltic flows and breccias, black to dark gray, weather dark olive-brown, fine grained, massive to vaguely bedded, incoherent and crumbly where weathered, weakly resistant to erosion; range from basalt to basaltic andesite composed of plagioclase feldspar (average An_{55}) and ferromagnesian minerals (hypersthene or augite, rarely olivine, (Weigand 1982)), in places amygdaloidal; in a few places, mostly in northwestern area, includes a few thin lenses up to a few meters thick of dark gray basaltic sandstone and siltstone, probably deposited subaerially, probably in part under shallow sea*

Tcvbp *basaltic flows, minor breccias in northwestern area; similar to unit Tcvb, but composed largely of basalt pillows, and hyaloclastic breccias (shattered by rapid underwater chilling) deposited under sea; also includes several thin lenses of dark gray basaltic sandstone and siltstone*

Tcvs *lenses of dark gray basaltic sandstone and siltstone in northwestern and southeastern areas; where mappable*

—UNCONFORMITY—

LOWER TOPANGA FORMATION

marine transgressive clastic; middle or early Miocene age

Ttls *thin sandstone unit exposed only northwest of Bard Reservoir; light gray to tan, sandstone, thick bedded, in a few places contains molluscan fossils*

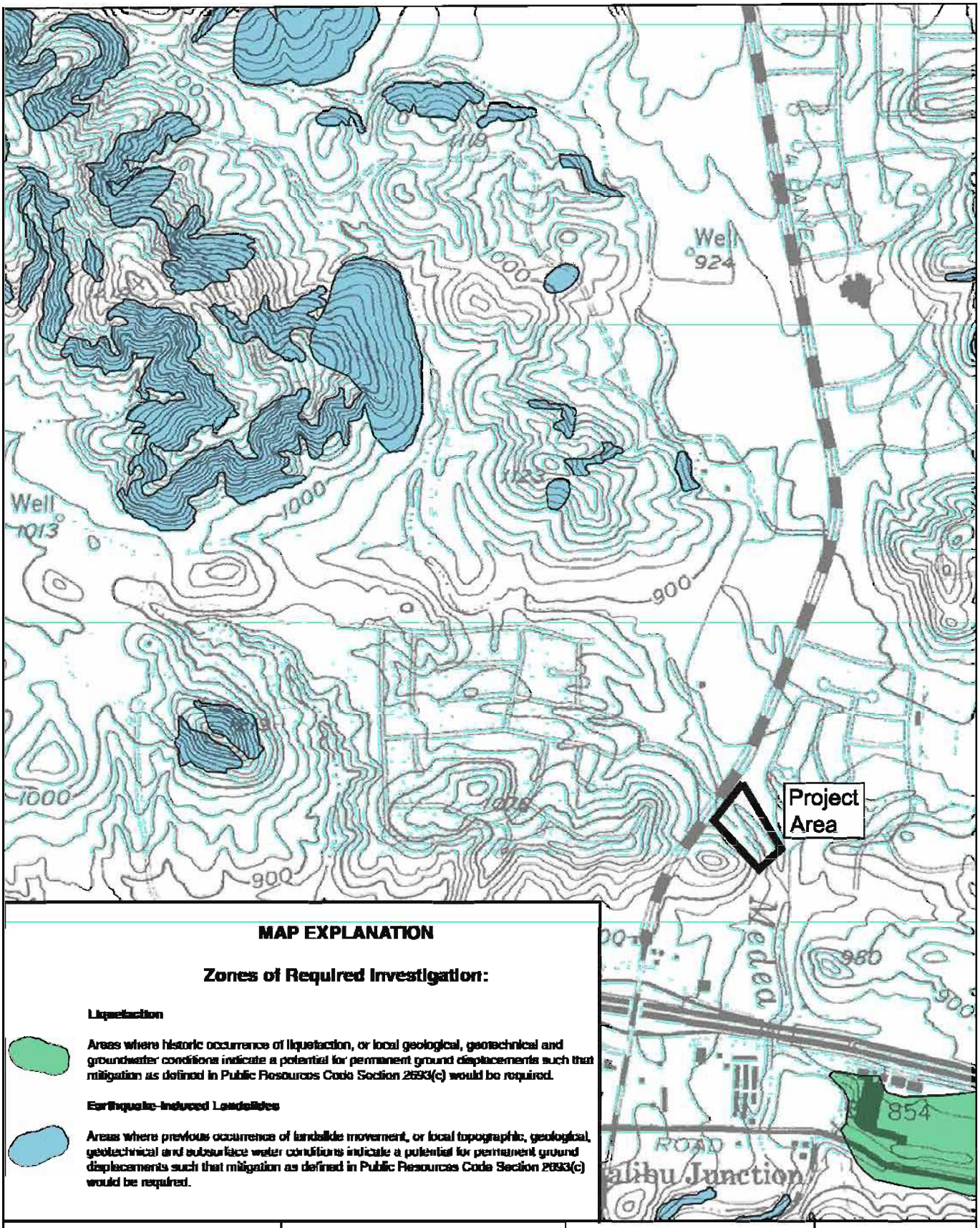
—UNCONFORMITY?—

SESPE FORMATION

nonmarine clastic; primarily of Oligocene age

Tsp *mostly sandstone, gray-white, tan to light brown, friable, arkosic, fine to coarse grained, bedded, in places conglomeratic with scattered pebbles and cobbles of granitic rocks, metavolcanic rocks and quartzite; includes a few thin strata of maroon to red silty claystone, mostly near top*

QUESTA ENGINEERING CORP. P.O. Box 70269 1220 Bridgeport Cove Road Point Richmond, CA 94807	Source: Geologic Map of the Thousand Oaks Quadrangle, Dibblee (1993)	Geologic Map Key Medea Creek Agoura Hills, CA	Date: 11/25/2013 Project: 1300042 Plate: 1b



MAP EXPLANATION

Zones of Required Investigation:

Liquefaction

Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslides

Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

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Civil
Environmental
& Water Resources
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N

0 500' 1000'
(1" = 1000')

Source: State of California Seismic Hazards Map of the Thousand Oaks Quadrangle (2000)

Seismic Hazards Map
Medea Creek
Agoura Hills, CA

Date: 11/25/2013
Project: 1300042
Plate: 2

Appendix A

Liquefaction SPT Analysis 3.1

Borehole 1

Organization: **Questa Engineering**
Project Name: **Medea Creek- BH-1**
Job #: **1300042**
Analysis by: **W. Hopkins**
Date: **10/30/2014**

Input Parameters

Borehole 1

Units: **English**

Variable	Value	Variable	Value
Peak Ground Acceleration	0.574 g	Design GWT (Historical)	5.50 ft
Earthquake Magnitude	7.5 MW	Site GWT	18.0 ft
Bottom Depth	18.00 ft	Average Soil Unit Weight	
Bore Hole Diameter	4.0 in	above GWT	100.0 pcf
Rod Length Height Stick up	4.9 ft	below GWT	115.0 pcf
Correction for Sample Liners	Yes	Sloping Ground	No

Geotechnical Properties

#	Material Type	USCS	Bottom Depth, ft	Consistency	Flags	SPT field	Fines Content, %	Energy Ratio, %
1	Structural Fill	95%	0.60	Competent	Unsaturated	50	5	70
2	Granular Soil	SC	2.75	Medium Dense	Unsaturated	4	15	70
3	Granular Soil	SM	3.50	Loose	Unsaturated	2	15	70
4	Granular Soil	SW	5.25	Very Loose	Unsaturated	2	5	70
5	Granular Soil	SC	5.75	Loose	Unsaturated	5	15	70
6	Sandstone Bedrock	Bedrock1	12.25	Dense		34	25	70
7	Hard Rock Bedrock	Bedrock4	18.00	Dense		48	25	70

Results

Dynamic Settlement: 0.00 in
Lateral Displacement: 0.00 ft

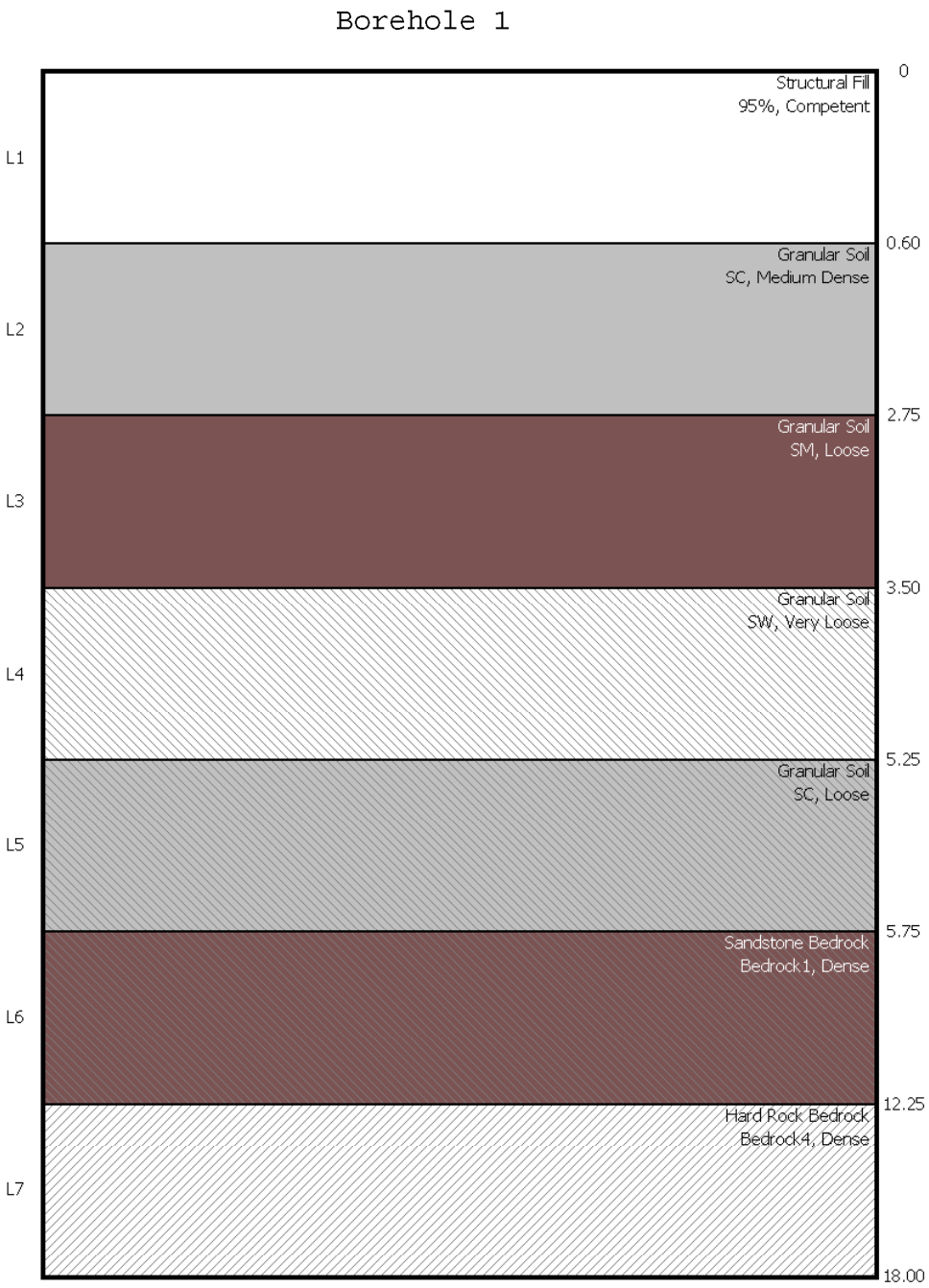


Fig. 1: Subsurface profile

Borehole 1

Liquefaction Analysis - Set 1/4

Sample #	Depth, ft	C_E	C_B	C_R	C_S	N_{60}
1	0.60	1.17	1.00	0.75	1.30	56.88
2	2.75	1.17	1.00	0.75	1.10	3.85
3	3.50	1.17	1.00	0.75	1.10	1.93
4	5.25	1.17	1.00	0.80	1.10	2.05
5	5.75	1.17	1.00	0.80	1.10	5.13
6	12.25	1.17	1.00	0.85	1.30	43.83
7	18.00	1.17	1.00	0.95	1.30	69.16

Liquefaction Analysis - Set 2/4

Sample #	Depth, ft	σ V, psf	σ V', psf	C_N	$(N_1)_{60}$
1	0.60	60.0	60.0	1.70	96.69
2	2.75	275.0	275.0	1.70	6.55
3	3.50	350.0	350.0	1.70	3.27
4	5.25	525.0	525.0	1.70	3.49
5	5.75	578.8	563.2	1.70	8.73
6	12.25	1326.3	905.1	1.25	54.76
7	18.00	1987.5	1207.5	1.16	80.09

Liquefaction Analysis - Set 3/4

Sample #	Depth, ft	ΔN-Fines	$(N_1)_{60}$-CS	Stress Reduc.	CSR	MSF-Sand
1	0.60	0.00	96.69	1.005	0.375	1.000
2	2.75	3.26	9.81	1.000	0.373	1.000
3	3.50	3.26	6.53	0.999	0.373	1.000
4	5.25	0.00	3.49	0.994	0.371	1.000
5	5.75	3.26	11.99	0.993	0.381	1.000
6	12.25	5.07	59.83	0.975	0.533	1.000
7	18.00	5.07	85.16	0.955	0.587	1.000

Liquefaction Analysis - Set 4/4

Sample #	Depth, ft	K_σSand	CRR-M=7.5 & σvc=1	CRR	Liq. F.S.
1	0.60	1.100	2.00	n.a	n.a
2	2.75	1.100	0.12	n.a	n.a
3	3.50	1.100	0.10	n.a	n.a
4	5.25	1.098	0.08	n.a	n.a
5	5.75	1.100	0.13	n.a	n.a
6	12.25	1.100	2.00	2.000	2.00
7	18.00	1.100	2.00	2.000	2.00

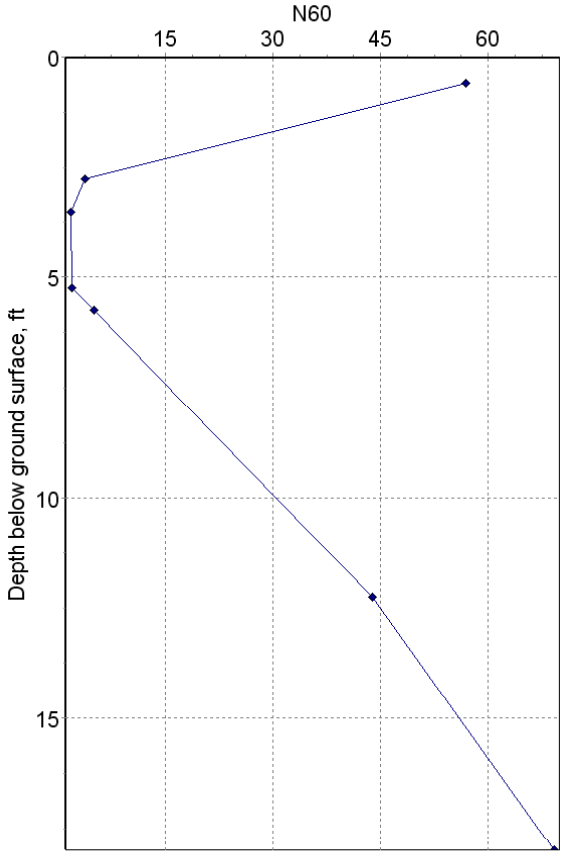
Dynamic Settlement - Set 1/2

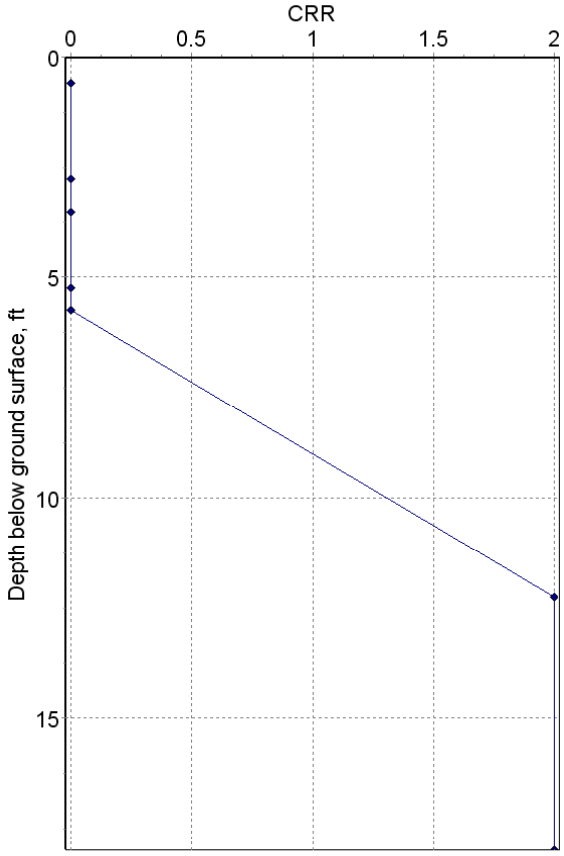
Sample #	Depth, ft	Lim. Shear Strain, γlim	Fα Parameter	Max. Shear Strain, γmax	ΔH I, ft
1	0.60	0.00	-5.753	0.000	0.60
2	2.75	0.48	0.918	0.000	2.15
3	3.50	0.50	0.948	0.000	0.75
4	5.25	0.50	0.948	0.000	1.75
5	5.75	0.38	0.863	0.000	0.50
6	12.25	0.00	-2.409	0.000	6.50
7	18.00	0.00	-4.672	0.000	5.75

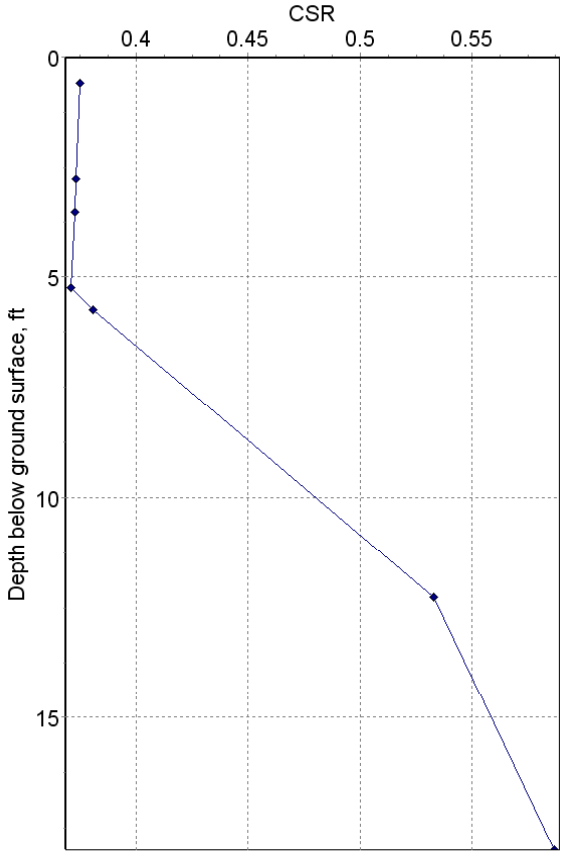
Borehole 1

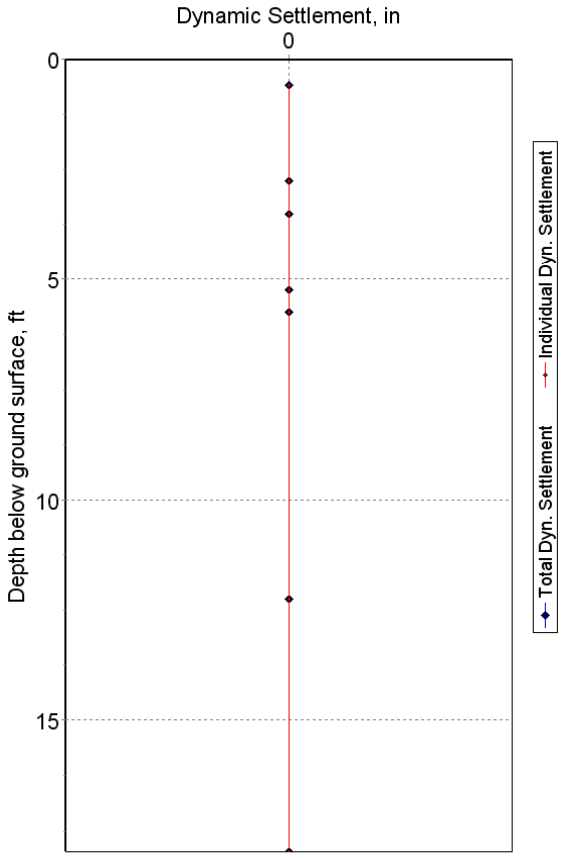
Dynamic Settlement - Set 2/2

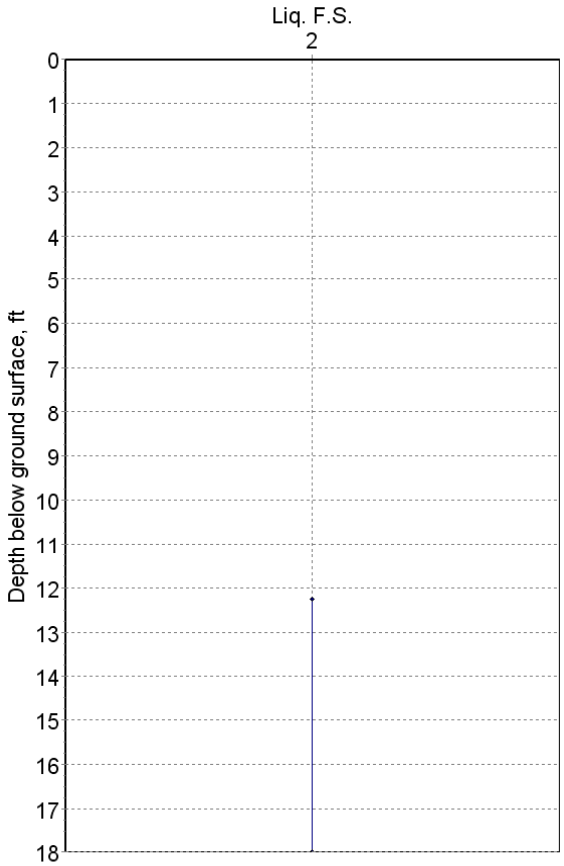
Sample #	Depth, ft	Vert. Consol. Str, εV	Dyn. Sett, in	Accum. Sett, in
1	0.60	0.000	0.000	0.000
2	2.75	0.000	0.000	0.000
3	3.50	0.000	0.000	0.000
4	5.25	0.000	0.000	0.000
5	5.75	0.000	0.000	0.000
6	12.25	0.000	0.000	0.000
7	18.00	0.000	0.000	0.000


N60
15
30
45
60
0
5
10
15
Depth below ground surface, ft


CRR
0
0.5
1
1.5
2
0
5
10
15
Depth below ground surface, ft


CSR
0.4
0.45
0.5
0.55
0
5
10
15
Depth below ground surface, ft





References:

1. "Soil Liquefaction During Earthquakes", I.M. Idriss & R.W. Boulanger, 2008, MNO-12, EERI
2. LiquefactionSPT by SoilStructure.com

Liquefaction SPT Analysis 3.1

Borehole 2

Organization: **Questa Engineering**
Project Name: **Medea Creek**
Job #: **1300042**
Analysis by: **W. Hopkins**
Date: **10/29/2014**

Input Parameters

Units: **English** Borehole 2

Variable	Value	Variable	Value
Peak Ground Acceleration	0.574 g	Design GWT (Historical)	5.00 ft
Earthquake Magnitude	7.5 MW	Site GWT	11.0 ft
Bottom Depth	23.50 ft	Average Soil Unit Weight	
Bore Hole Diameter	4.0 in	above GWT	115.0 pcf
Rod Length Height Stick up	4.9 ft	below GWT	120.0 pcf
Correction for Sample Liners	Yes	Sloping Ground	No

Geotechnical Properties

#	Material Type	USCS	Bottom Depth, ft	Consistency	Flags	SPT field	Fines Content, %	Energy Ratio, %
1	Structural Fill	95%	1.25	Competent	Unsaturated	50	5	70
2	Granular Soil	SC	4.75	Medium Dense	Unsaturated	21	48	70
3	Cohesive Soil	CL	7.50	Stiff	Clay	11	52	70
4	Cohesive Soil	CH	10.50	Stiff	Clay	10	87	70
5	Granular Soil	SC	14.75	Medium Dense		7	27	70
6	Granular Soil	SC	16.50	Medium Dense		7	24	70
7	Granular Soil	SC	18.75	Dense		31	25	70
8	Granular Soil	SC	20.00	Very Dense		50	25	70
9	Hard Rock Bedrock	Bedrock4	23.50	Dense		50	20	70

Results

Dynamic Settlement: 2.00 in
Lateral Displacement: 0.00 ft

Borehole 2

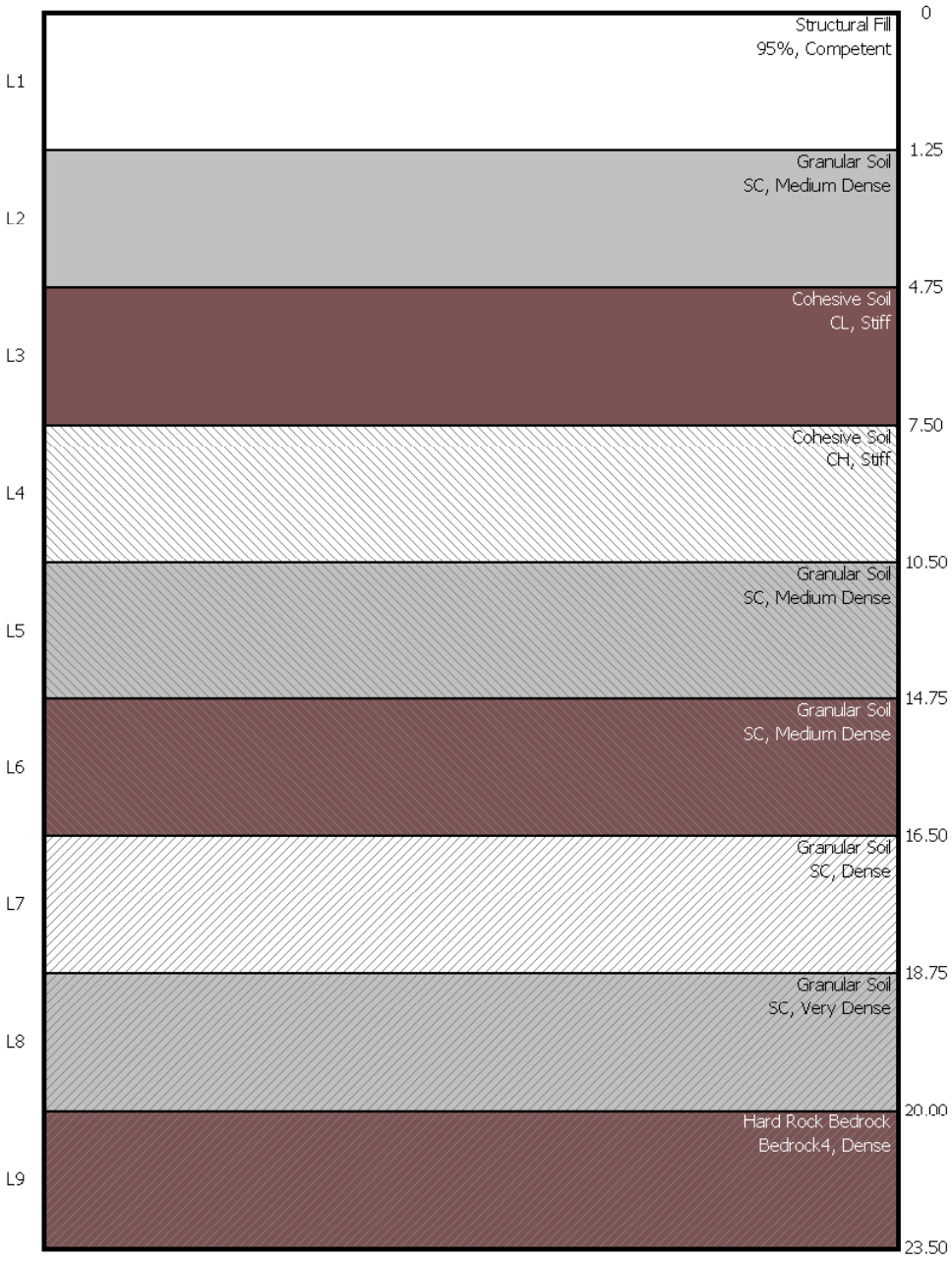


Fig. 1: Subsurface profile

Borehole 2

Liquefaction Analysis - Set 1/4

Sample #	Depth, ft	C_E	C_B	C_R	C_S	N_{60}
1	1.25	1.17	1.00	0.75	1.30	56.88
2	4.75	1.17	1.00	0.75	1.30	23.89
3	7.50	1.17	1.00	0.80	1.10	11.29
4	10.50	1.17	1.00	0.85	1.10	10.91
5	14.75	1.17	1.00	0.85	1.10	7.66
6	16.50	1.17	1.00	0.95	1.11	8.62
7	18.75	1.17	1.00	0.95	1.30	44.67
8	20.00	1.17	1.00	0.95	1.30	72.04
9	23.50	1.17	1.00	0.95	1.30	72.04

Liquefaction Analysis - Set 2/4

Sample #	Depth, ft	σ V, psf	σ V', psf	C_N	$(N_1)_{60}$
1	1.25	143.8	143.8	1.70	96.69
2	4.75	546.3	546.3	1.48	35.44
3	7.50	875.0	719.0	1.70	n.a
4	10.50	1235.0	891.8	1.70	n.a
5	14.75	1745.0	1136.6	1.35	10.31
6	16.50	1955.0	1237.4	1.29	11.11
7	18.75	2225.0	1367.0	1.12	50.06
8	20.00	2375.0	1439.0	1.11	79.66
9	23.50	2795.0	1640.6	1.07	76.96

Liquefaction Analysis - Set 3/4

Sample #	Depth, ft	ΔN-Fines	$(N_1)_{60}$-CS	Stress Reduc.	CSR	MSF-Sand
1	1.25	0.00	96.69	1.004	0.374	1.000
2	4.75	5.61	41.05	0.996	0.371	1.000
3	7.50	n.a	n.a	0.989	0.449	1.000
4	10.50	n.a	n.a	0.980	0.506	1.000
5	14.75	5.21	15.53	0.966	0.554	1.000
6	16.50	4.98	16.10	0.961	0.566	1.000
7	18.75	5.07	55.14	0.953	0.578	1.000
8	20.00	5.07	84.74	0.948	0.584	1.000
9	23.50	4.48	81.44	0.935	0.594	1.000

Liquefaction Analysis - Set 4/4

Sample #	Depth, ft	K_σSand	CRR-M=7.5 & σvc=1	CRR	Liq. F.S.
1	1.25	1.100	2.00	n.a	n.a
2	4.75	1.100	2.00	n.a	n.a
3	7.50	1.057	n.a	n.a	n.a
4	10.50	1.046	n.a	n.a	n.a
5	14.75	1.070	0.16	0.172	0.31
6	16.50	1.062	0.17	0.176	0.31
7	18.75	1.100	2.00	2.000	2.00
8	20.00	1.100	2.00	2.000	2.00
9	23.50	1.074	2.00	2.000	2.00

Dynamic Settlement - Set 1/2

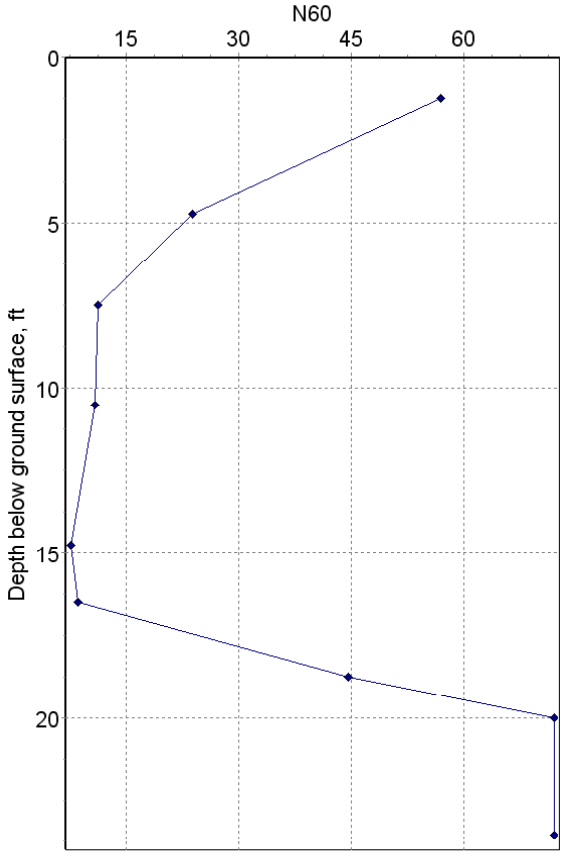
Sample #	Depth, ft	Lim. Shear Strain, γlim	Fα Parameter	Max. Shear Strain, γmax	ΔH I, ft
1	1.25	0.00	-5.753	0.000	1.25
2	4.75	0.01	-0.884	0.000	3.50
3	7.50	0.00	0.000	0.000	2.75
4	10.50	0.00	0.000	0.000	3.00
5	14.75	0.26	0.732	0.260	4.25
6	16.50	0.24	0.708	0.244	1.75
7	18.75	0.00	-2.012	0.000	2.25
8	20.00	0.00	-4.632	0.000	1.25
9	23.50	0.00	-4.328	0.000	3.50

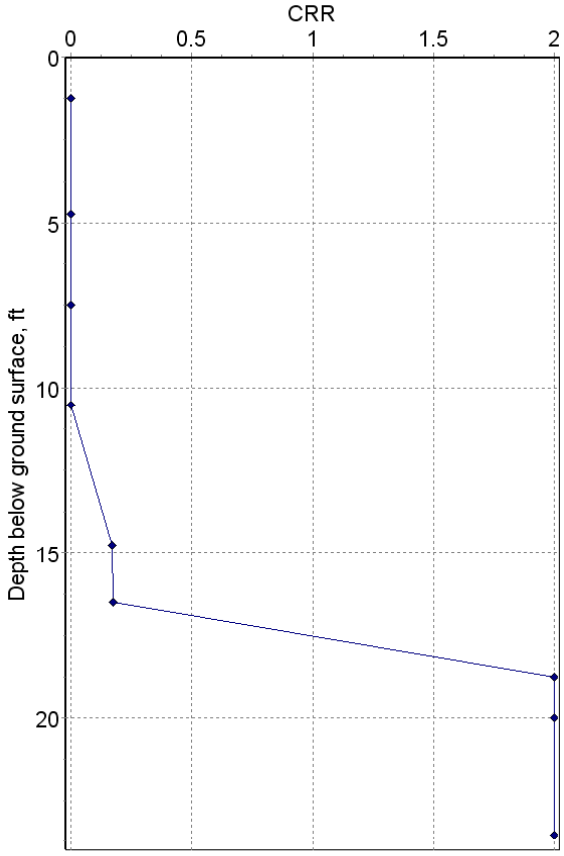
Borehole 2

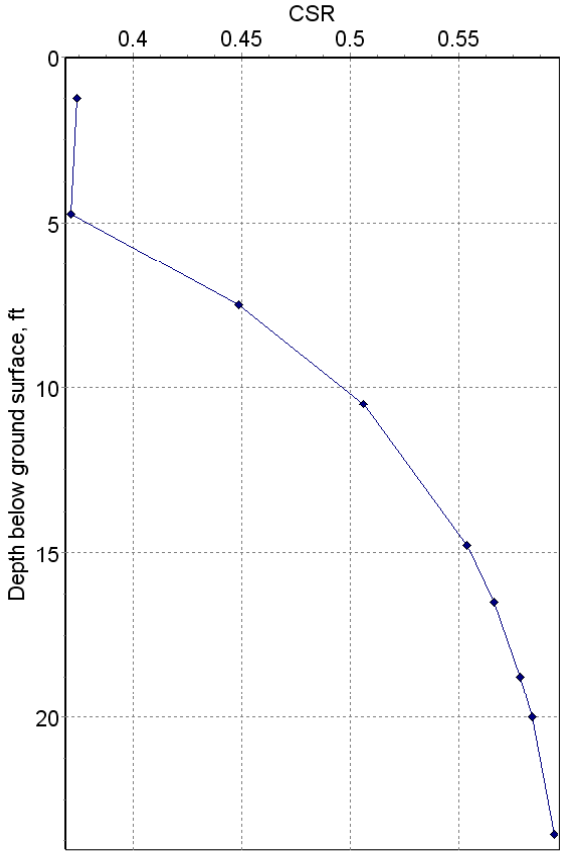
Dynamic Settlement - Set 2/2

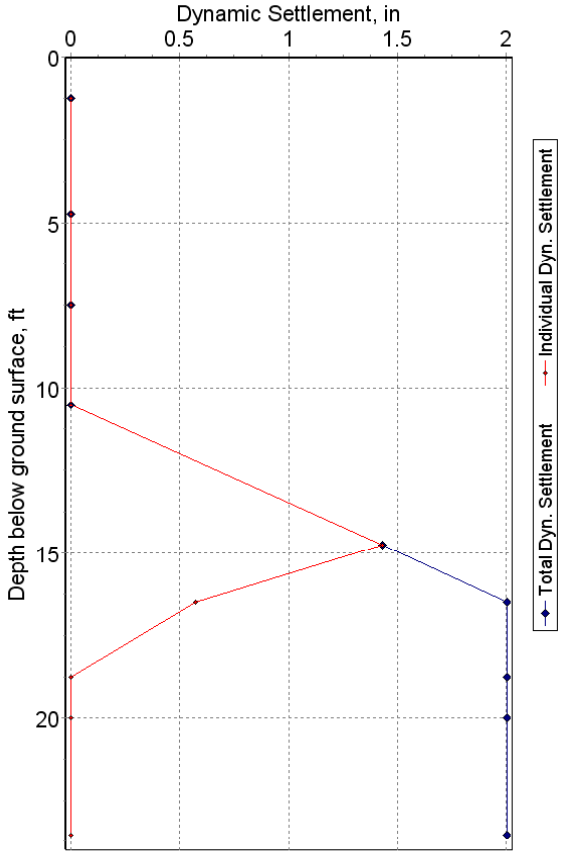
Sample #	Depth, ft	Vert. Consol. Str, εV	Dyn. Sett, in	Accum. Sett, in
1	1.25	0.000	0.000	0.000
2	4.75	0.000	0.000	0.000
3	7.50	0.000	0.000	0.000
4	10.50	0.000	0.000	0.000
5	14.75	0.028	1.430	1.430
6	16.50	0.027	0.573	2.003
7	18.75	0.000	0.000	2.003
8	20.00	0.000	0.000	2.003
9	23.50	0.000	0.000	2.003

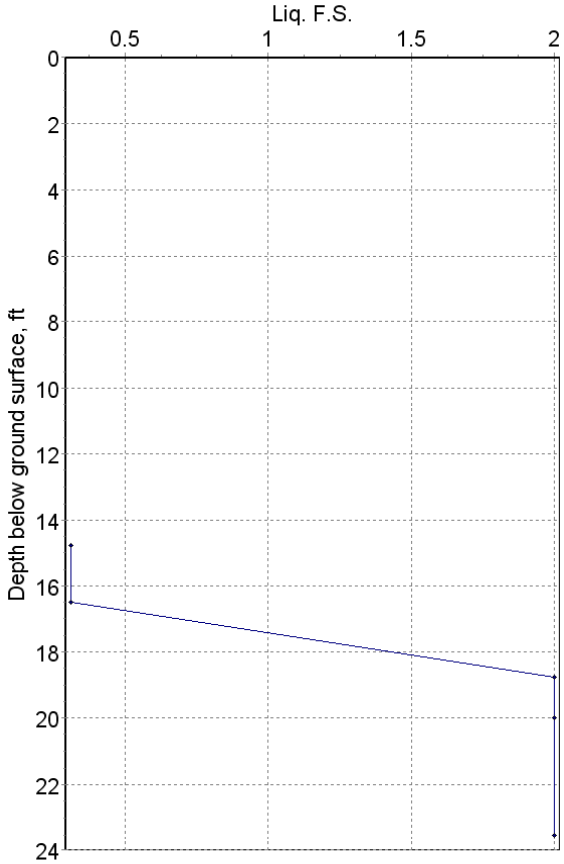
Borehole 2


N60
15
30
45
60
0
5
10
15
20
Depth below ground surface, ft


CRR
0
0.5
1
1.5
2
0
5
10
15
20
Depth below ground surface, ft


CSR
0.4
0.45
0.5
0.55
0
5
10
15
20
Depth below ground surface, ft





References:

1. "Soil Liquefaction During Earthquakes", I.M. Idriss & R.W. Boulanger, 2008, MNO-12, EERI
2. LiquefactionSPT by SoilStructure.com

Liquefaction Equations- Based on 2008 Idriss & Boulanger EERI MNO-12:

SPT Correction factor for Energy ratio, CE ,Hammer Energy % / 60,example:70%/60 = 1.17

$$C_E = \frac{ER_m}{60}$$

Doughnut hammer	$C_E = 0.5–1.0$
Safety hammer	$C_E = 0.7–1.2$
Automatic triphammer	$C_E = 0.8–1.3$

SPT Correction factor for Borehole Diameter, CB = If DIA. < 4.53 inch, =1.0, else = 1.15

Borehole diameter of 65–115 mm	$C_B = 1.0$
Borehole diameter of 150 mm	$C_B = 1.05$
Borehole diameter of 200 mm	$C_B = 1.15$

SPT Correction factor for Rod Length, CR=

Rod length < 3 m	$C_R = 0.75$
Rod length 3–4 m	$C_R = 0.80$
Rod length 4–6 m	$C_R = 0.85$
Rod length 6–10 m	$C_R = 0.95$
Rod length 10–30 m	$C_R = 1.00$

SPT Correction factor for Sampler, CS =

$$C_S = 1.1 \quad \text{for} \quad (N_1)_{60} \leq 10$$
$$C_S = 1 + \frac{(N_1)_{60}}{100} \quad \text{for} \quad 10 \leq (N_1)_{60} \leq 30$$
$$C_S = 1.3 \quad \text{for} \quad (N_1)_{60} \geq 30$$

Corrected SPT, N60 =;

$$N_{60} = C_E C_B C_R C_S N_m \qquad N_{60} = N_m \frac{ER_m}{60}$$

Total Vertical Stress, σ_{vc} = Gamma Soil x Depth + Pore water Pressure

Effective Vertical Stress, σ'_{vc} = σ_{vc} - Pore water pressure

Overburden Correction factor, CN=

$$C_N = \left(\frac{P_a}{\sigma'_{vc}}\right)^{0.784-0.0768\sqrt{(N_1)_{60}}} \leq 1.7$$

with $(N_1)_{60}$ limited to values ≤ 46 for use in this expression

$$C_N = \left(\frac{P_a}{\sigma'_{vc}}\right)^{1.338-0.249(q_{c1N})^{0.264}} \leq 1.7$$

SPT corrected for 60% & 1atm, (N1)60 = $(N_1)_{60} = C_N N_{60}$

ΔN-Fines =

$$\Delta(N_1)_{60} = \exp\left(1.63 + \frac{9.7}{FC+0.01} - \left(\frac{15.7}{FC+0.01}\right)^2\right)$$

(N1-60)CS = $(N_1)_{60cs} = (N_1)_{60} + \Delta\,(N_1)_{60}$

Stress Reduction Coefficient, rd =

$$r_d = \exp(\alpha(z) + \beta(z)M)$$

$$\alpha(z) = -1.012 - 1.126\sin\left(\frac{z}{11.73} + 5.133\right)$$

$$\beta(z) = 0.106 + 0.118\sin\left(\frac{z}{11.28} + 5.142\right)$$

Cyclic Shear Stress Ration (Earthquake induced), CSR =

$$\mathrm{CSR} = 0.65\frac{\tau_{\max}}{\sigma'_{vc}} = 0.65\frac{\sigma_{vc}}{\sigma'_{vc}}\frac{a_{\max}}{g}r_d \qquad \mathrm{CSR} = \frac{q_{cyc}}{2\sigma'_{3c}}$$

Magnitude Scaling Factor, MSF-Sand =

$$\mathrm{MSF} = 6.9\exp\left(\frac{-M}{4}\right) - 0.058$$
$$\mathrm{MSF} \leq 1.8$$

K-σ SAND =

$$K_\sigma = 1 - C_\sigma \ln\left(\frac{\sigma'_{vc}}{P_a}\right) \leq 1.1$$

$$C_\sigma = \frac{1}{18.9 - 17.3D_R} \leq 0.3$$
$$C_\sigma = \frac{1}{18.9 - 2.55\sqrt{(N_1)_{60}}} \leq 0.3$$
$$C_\sigma = \frac{1}{37.3 - 8.27(q_{c1N})^{0.264}} \leq 0.3$$

Cyclic Shear Resistance Ratio, CRR =

$$\mathrm{CRR}_{M=7.5,\sigma'_{vc}=1} = \exp\left(\frac{(N_1)_{60cs}}{14.1} + \left(\frac{(N_1)_{60cs}}{126}\right)^2 - \left(\frac{(N_1)_{60cs}}{23.6}\right)^3 + \left(\frac{(N_1)_{60cs}}{25.4}\right)^4 - 2.8\right)$$

$$\mathrm{CRR} = a \cdot N^{-b}$$

Factor of Safety against Liquefaction, F.S. Liq =

$$FS_{liq} = \frac{\mathrm{CRR}_{M,\sigma'_{vc}}}{\mathrm{CSR}_{M,\sigma'_{vc}}} \qquad FS_{liq} = \frac{\mathrm{CRR}_{M=7.5,\sigma'_{vc}=1}}{\mathrm{CSR}_{M=7.5,\sigma'_{vc}=1}}$$

Limiting Shear Strain, γlim =

$$\gamma_{\text{lim}} = 1.859\left(1.1 - \sqrt{\frac{(N_1)_{60cs}}{46}}\right)^3 \geq 0 \qquad \gamma_{\text{lim}} = 1.859\,(1.1 - D_R)^3 \geq 0$$

$$\gamma_{\text{lim}} = 1.859\left(2.163 - 0.478\,(q_{c1Ncs})^{0.264}\right)^3 \geq 0$$

F Alpha Parameter =

$$F_\alpha = 0.032 + 0.69\sqrt{(N_1)_{60cs}} - 0.13\,(N_1)_{60cs}$$

$$F_\alpha = 0.032 + 4.7\,D_R - 6.0\,(D_R)^2$$

Maximum Shear Strain =

$$\gamma_{\max} = \min\left(\gamma_{\text{lim}}, 0.035\,(2 - FS_{\text{liq}})\left(\frac{1 - F_\alpha}{FS_{\text{liq}} - F_\alpha}\right)\right)$$

$$\text{if} \quad 2 > FS_{\text{liq}} > F_\alpha$$

$$\gamma_{\max} = \gamma_{\text{lim}} \quad \text{if} \quad FS_{\text{liq}} \leq F_\alpha$$

Lateral Displacement =

Maximum Shear Strain x ΔH

Volumetric Strain, εV =

$$\varepsilon_v = 1.5 \cdot \exp(-2.5 D_R) \cdot \min(0.08, \gamma_{\max})$$

$$\varepsilon_v = 1.5 \cdot \exp\left(-0.369\sqrt{(N_1)_{60cs}}\right) \cdot \min(0.08, \gamma_{\max})$$

$$\varepsilon_v = 1.5 \cdot \exp\left(2.551 - 1.147\,(q_{c1Ncs})^{0.264}\right) \cdot \min(0.08, \gamma_{\max})$$

Dynamic Settlement = εV x ΔH

Appendix B

North Approximated

SPECTRUM GEOPHYSICS
"Revealing The Subsurface"

2727 Croddy Way, Unit I
Santa Ana, CA 92704

(714) 435-1073 www.spectrum-geophysics.com

Overview Map - NOT TO SCALE

PROJECT
Geophysical Investigation
Agoura Hills, California

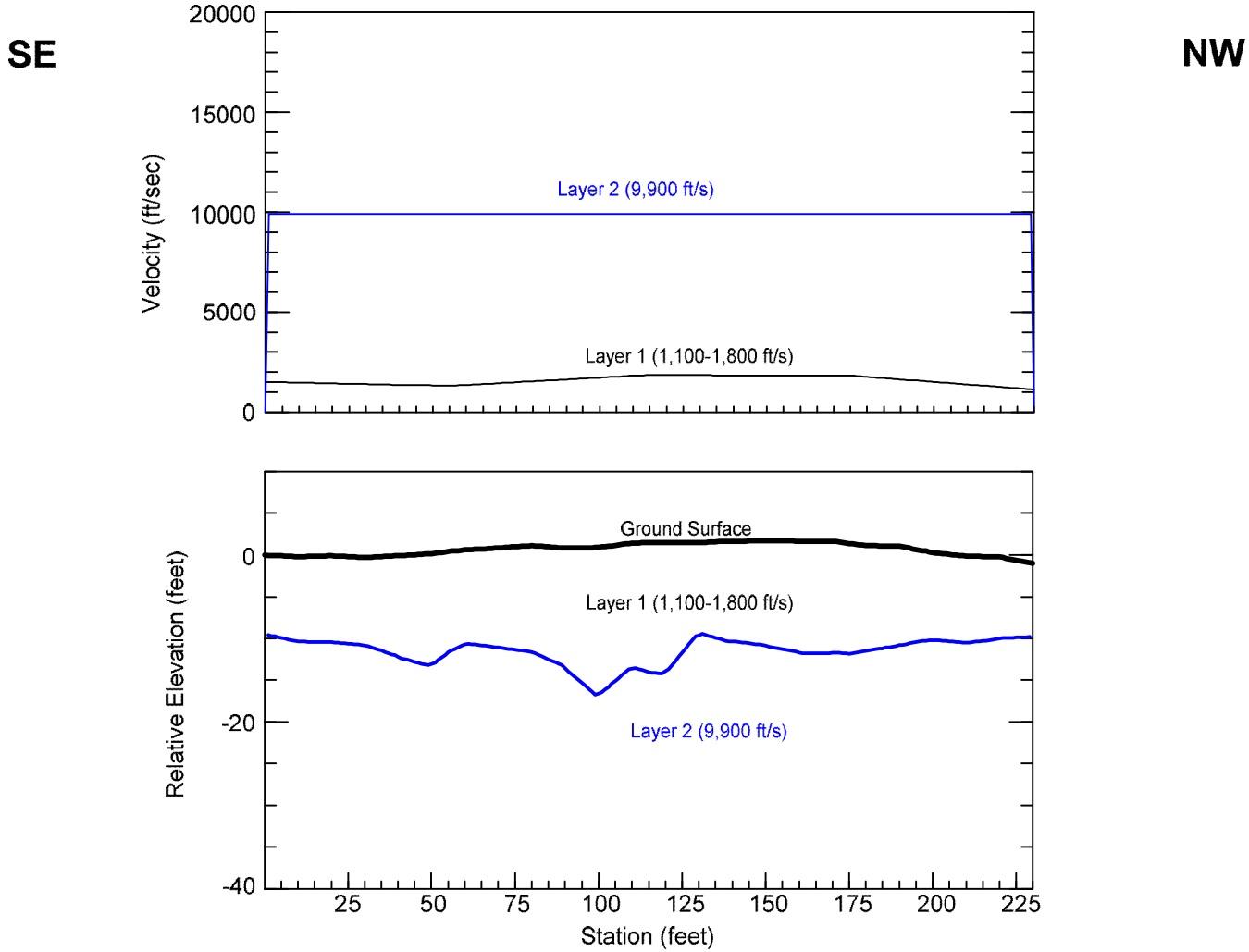
PREPARED FOR
Questa Engineering Corp
Pt. Richmond, California

FIGURE NUMBER
1

PROJECT NUMBER
1307111H

FOR DISCUSSION PURPOSES ONLY

FIGURE BY	REVIEWED BY	DATE
BAU	LCD	8/1/13



Horizontal scale in feet

0 25 50

Vertical scale in feet

0 10 20

SPECTRUM GEOPHYSICS "Revealing The Subsurface"

2727 Croddy Way, Unit I
Santa Ana, CA 92704

(714) 435-1073 www.spectrum-geophysics.com

Seismic Refraction Transect - Line 1

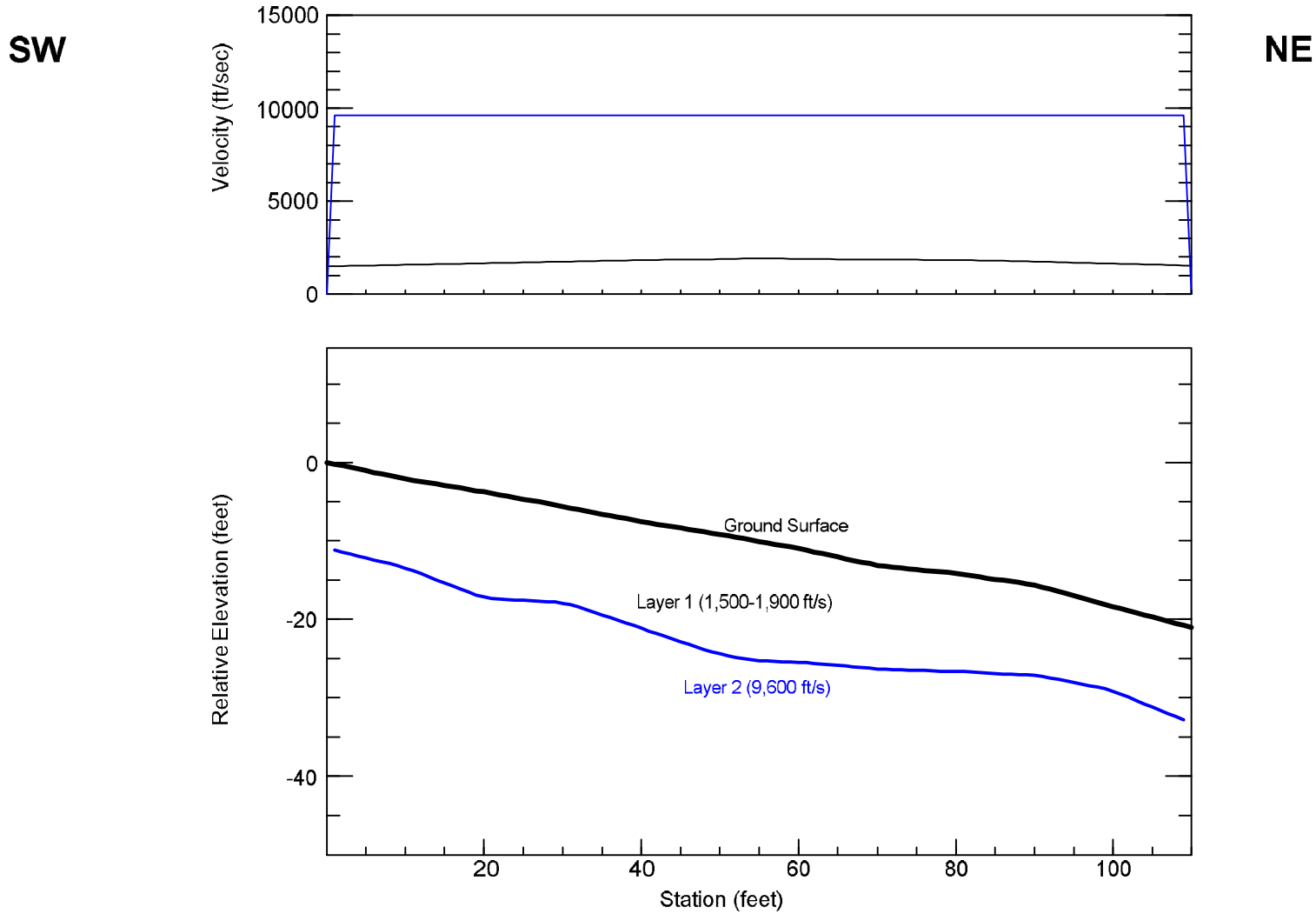
PROJECT: Geophysical Investigation, Agoura Hills, California

PREPARED FOR: Questa Engineering Corp, Pt. Richmond, California

HORIZONTAL SCALE	VERTICAL SCALE	FIGURE BY	REVIEWED BY	DATE
1 inch = 50 feet	1 inch = 20 feet	BAU	LCD	8/1/13

FIGURE NUMBER: 2

PROJECT NUMBER: 1307111H



Horizontal scale in feet

0 10 20

Vertical scale in feet

0 10 20

SPECTRUM GEOPHYSICS "Revealing The Subsurface"

2727 Croddy Way, Unit I
Santa Ana, CA 92704
(714) 435-1073 www.spectrum-geophysics.com

Seismic Refraction Transect - Line 2

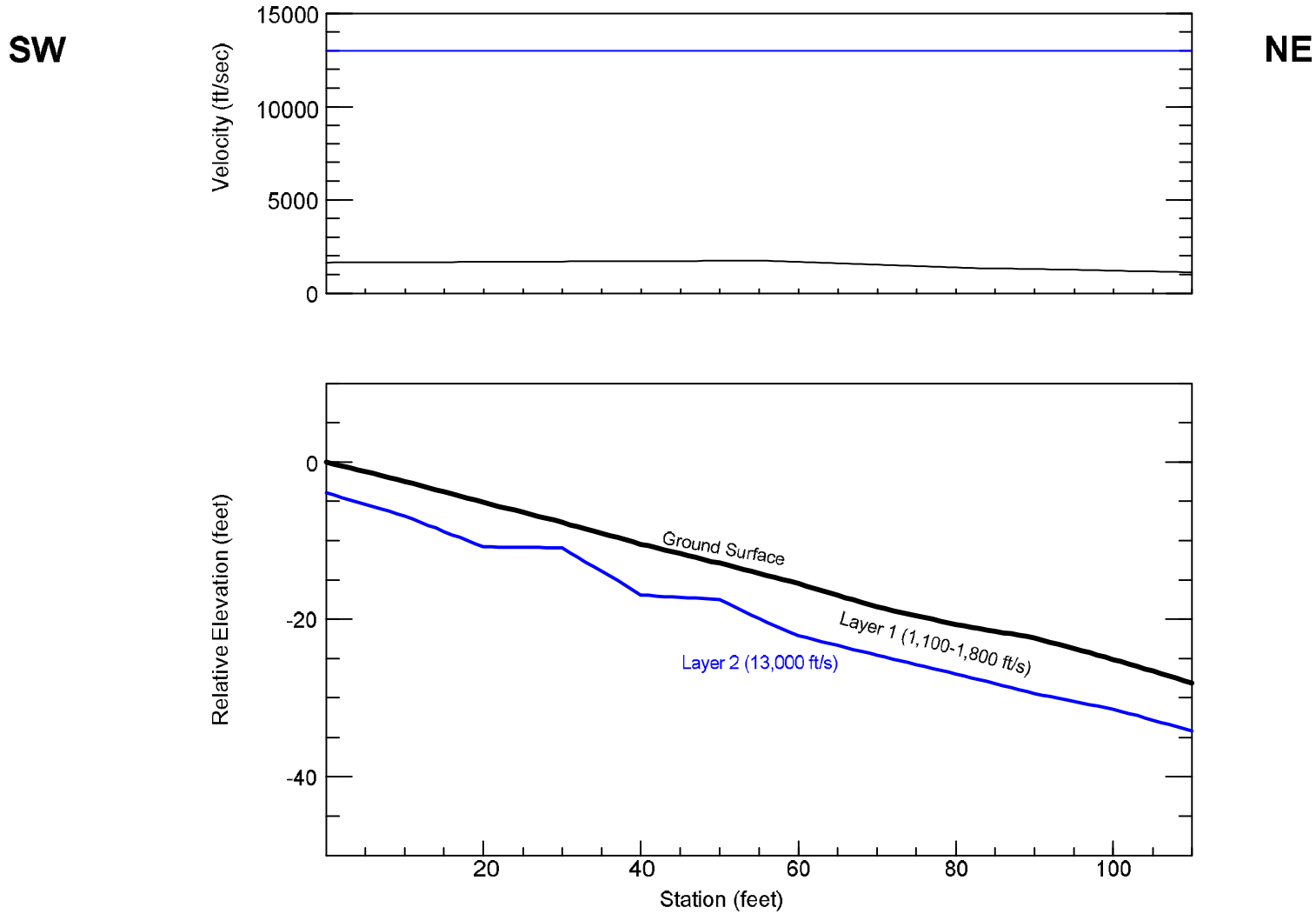
PROJECT: Geophysical Investigation, Agoura Hills, California

PREPARED FOR: Questa Engineering Corp, Pt. Richmond, California

HORIZONTAL SCALE	VERTICAL SCALE	FIGURE BY	REVIEWED BY	DATE
1 inch = 20 feet	1 inch = 20 feet	BAU	LCD	8/6/13

FIGURE NUMBER: 3

PROJECT NUMBER: 1307111H



Horizontal scale in feet

0 10 20

Vertical scale in feet

0 10 20

SPECTRUM GEOPHYSICS "Revealing The Subsurface"

2727 Croddy Way, Unit I
Santa Ana, CA 92704

(714) 435-1073 www.spectrum-geophysics.com

Seismic Refraction Transect - Line 3 - Revised

PROJECT: Geophysical Investigation
Agoura Hills, California

PREPARED FOR: Questa Engineering Corp
Pt. Richmond, California

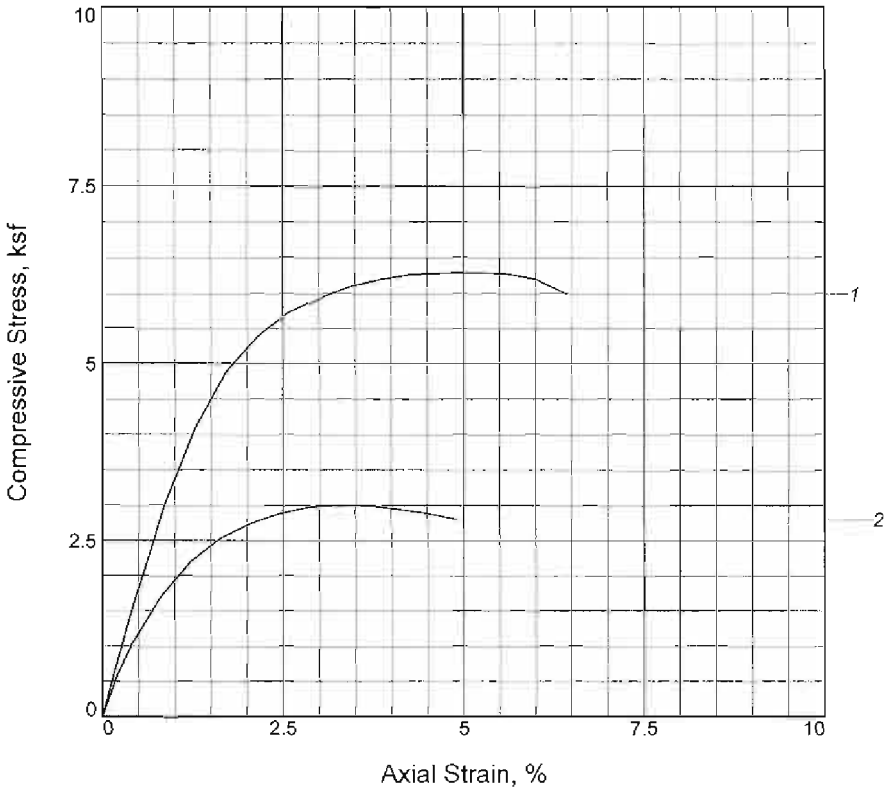
HORIZONTAL SCALE	VERTICAL SCALE	FIGURE BY	REVIEWED BY	DATE
1 inch = 20 feet	1 inch = 20 feet	BAU	LCD	8/8/13

FIGURE NUMBER: 4

PROJECT NUMBER: 1307111H

Appendix C

UNCONFINED COMPRESSION TEST



Sample No.	1	2		
Unconfined strength, ksf	6.29	3.00		
Undrained shear strength, ksf	3.14	1.50		
Failure strain, %	5.2	3.3		
Strain rate, in./min.	0.08	0.08		
Water content, %	27.6	35.0		
Wet density, pcf	116.6	112.6		
Dry density, pcf	91.4	83.4		
Saturation, %	88.1	92.5		
Void ratio	0.8446	1.0212		
Specimen diameter, in.	2.42	2.42		
Specimen height, in.	4.66	4.90		
Height/diameter ratio	1.93	2.03		

Description: See remarks.

LL =	**PL =**	**PI =**	**GS=** 2.70	**Type:** Mod.Cal.

Project No.: 13142
Date Sampled:

Remarks:
#1/ B-2 @ 6.5-7':V.stiff,mottled,brownish gray lean CLAY(CL)
#@/ B-2 @ 10.5-11':Very stiff,very dark gray FAT CLAY(CH)
Figure _____

Client: Questa Engineering Corp.

Project: Medea Creek

Location: B-2
Depth: 6.5-7'

UNCONFINED COMPRESSION TEST
Soil Mechanics Lab
Oakland, California

Tested By: MA

Corrosivity Tests Summary

CTL # 606-024 **Date:** 11/1/2013 **Tested By:** PJ **Checked:** PJ
Client: Questa Engineering Corp **Project:** Medea Creek **Proj. No:** 1300042
Remarks:

Sample Location or ID			Resistivity @ 15.5 °C (Ohm-cm)			Chloride	Sulfate		pH	ORP (Redox)		Sulfide	Moisture	
			As Rec.	Min	Sat.	mg/kg	mg/kg	%				Qualitative	At Test	Soil Visual Description
						Dry Wt.	Dry Wt.	Dry Wt.		E_H (mv)	At Test	by Lead	%	
Boring	Sample, No.	Depth, ft.	ASTM G57	Cal 643	ASTM G57	ASTM D4327	ASTM D4327	ASTM D4327	ASTM G51	ASTM G200	Temp °C	Acetate Paper	ASTM D2216	
BH-1	-	2.0-2.5'	-	-	1,352	<2	42	0.0042	7.5	524	22	-	22.1	Dark Olive Brown Sandy CLAY w/ Gravel
BH-2	-	3.0-3.5'	-	-	962	4	1,352	0.1352	7.6	535	22	-	20.8	Light Olive Brown Sandy CLAY
BH-3	-	2.5-8.0'	-	-	2,778	8	80	0.0080	7.7	544	22	-	21.3	Olive Clayey SAND w/ Gravel

Date: September 8, 2014
GDI #: 14.00103.0195

CITY OF AGOURA HILLS - GEOTECHNICAL REVIEW SHEET

To: Allison Cook

Project Location: Medea Creek, Agoura Hills, California.

Building & Safety #:

Geotechnical Report: Questa Engineering, Corporation, (2014), "*Medea Creek Restoration Project, Geotechnical Investigation Report, Agoura Hills, California*", Report Number 9427, Project Number: 1300042, dated May 16, 2014.

Plans: Questa Engineering, Corporation (2014), "*Medea Creek Restoration Project, 60% Design, Sheets 1 through 16,"* Project Number: 1300042, dated October 31, 2013.

Previous Reviews: None

FINDINGS

Geotechnical Report

☐ Acceptable as Presented

☒ Response Required

REMARKS

Questa Engineering, Corporation (QEC; consultant) provided a geotechnical report for the proposed Medea Creek Restoration Project, City of Agoura Hills, California. A discussion of the proposed development was not provided in the report. However, based on a brief review of the above-referenced plans as well as a review of the submitted report, we completed the review with an understanding that the proposed development includes demolishing an existing concrete channel, and constructing a pedestrian bridge and staircase, gravel-covered footpath, and paved driveway.

GeoDynamics, Inc. (GDI) reviewed the above-referenced report and plans from a geotechnical perspective for compliance with applicable codes, guidelines, and standards of practice. GDI performed the geotechnical review on behalf of the City of Agoura Hills. Based upon our review, the consultant should adequately respond to the following geotechnical report comments prior to approval of the project. Plan-Check comments should be addressed in Building & Safety Plan Check. A separate geotechnical submittal is not required for plan-check comments.

Planning/Feasibility Comments

1. The consultant should provide a complete description of the development proposed at the site.

2. The consultant should discuss, and evaluate as necessary, the impact of the proposed development on adjacent improvements/developments. The consultant should provide 111 statements in accordance with the County of Los Angeles, Manual for preparation of Geotechnical Reports. Mitigation measures should be recommended as necessary.

3. The consultant indicates that the underlying materials at the site are "potentially liquefiable", and estimates seismic settlement at about 1.5 inches and 1 inch respectively in the areas of the staircase and bridge. The consultant also indicates that "*Lateral spreading could occur in areas along the banks of Medea Creek during strong ground shaking following removal of the concrete channel armoring that exposes potentially*

liquefiable sands and silty sands to the ground surface." Based on the above, the consultant should address the following comments:

a) The consultant should provide calculations of liquefaction potential, seismic settlement, and lateral spreading for review. In liquefaction analyses, the consultant should assume the highest anticipated ground water level at the site, and utilize seismic parameters in accordance with the current edition of the City of Agoura Hills Building Code. Any other assumptions or correction factors should be discussed and outlined as appropriate.

b) The consultant should evaluate and account for the impact of liquefaction and related hazards on the proposed foundations. For example: liquefiable soils may not provide the anticipated skin friction, and liquefaction settlement may cause downdrag forces on piles that should be accounted for in the design. In addition, lateral spreading may mobilize lateral pressure on piles. Mitigation measures should be recommended as necessary.

4. The consultant should provide seismic parameters in accordance with the current edition of the California Building Code (UBC), and by adaption, the City of Agoura Hills Building Code.

Plan-Check Comments

1. The name, address, and phone number of the Consultant and a list of all the applicable geotechnical reports shall be included on the building/grading plans.
2. The grading plan should include the limits and depths of overexcavation for the road and flatwork areas as recommended by the Consultant.
3. The following note must appear on the grading and foundation plans: "*Excavations shall be made in compliance with CAL/OSHA Regulations*."
4. The following note must appear on the foundation plans: "*All foundation excavations must be observed and approved, in writing, by the Project Geotechnical Consultant prior to placement of reinforcing steel*."
5. Foundation plans and foundation details shall clearly depict the embedment material and minimum depth of embedment for the foundations.
6. Drainage plans depicting all surface and subsurface non-erosive drainage devices, flow lines, and catch basins shall be included on the building plans.
7. Final grading, drainage, and foundation plans shall be reviewed, signed, and wet stamped by the consultant.
8. Provide a note on the grading and foundation plans that states: "*An as-built report shall be submitted to the City for review. This report prepared by the Geotechnical Consultant must include the results of all compaction tests as well as a map depicting the limits of fill, locations of all density tests, outline and elevations of all removal bottoms, keyway locations and bottom elevations, locations of all subdrains and flow line elevations, and location and elevation of all retaining wall backdrains and outlets. Geologic conditions exposed during grading must be depicted on an as-built geologic map*."

If you have any questions regarding this review letter, please contact GDI at (805) 496-1222.

Respectfully Submitted,

GeoDynamics, INC.

Ali Abdel-Haq
Geotechnical Engineering Reviewer
GE 2308 (exp. 12/31/15)

Christopher J. Sexton
Engineering Geologic Reviewer
CEG 1441 (exp. 11/30/14)

Jennifer Haddow

From: Allison Cook <ACook@ci.agoura-hills.ca.us>
Sent: Wednesday, December 10, 2014 7:50 AM
To: Jennifer Haddow
Cc: Kelly Fisher; Syd Temple
Subject: FW: Medea Creek revised plan set and geotech study

Hi - Please see below. Thanks.

Allison Cook
Principal Planner
City of Agoura Hills
30001 Ladyface Court
Agoura Hills, CA 91301
T 818-597-7310 F 818-597-7352

From: Ali Abdel-Haq [mailto:ali@geodynamics-inc.com]
Sent: Tuesday, December 09, 2014 3:36 PM
To: Allison Cook
Subject: RE: Medea Creek revised plan set and geotech study

Hi Allison:

I reviewed the revised report, response report and plans. Based on my review, we need the consultant to make these two minor corrections prior to approval of the geotechnical report, in compliance with the City requirements:

1) The consultant needs to sign and stamp the response report;
2) As required in the September 8, 2014 review letter, the consultant should provide 111 statements in accordance with the County of Los Angeles, Manual for preparation of Geotechnical Reports. An example of such statement is provided below:
"*This statement is made in accordance with Section 111 of the County of Los Angeles Building Code. It is the opinion of this office, based on the findings of this investigation, provided our recommendations are followed and properly maintained, (1) the proposed development will be safe for its intended use against hazard from landslide, settlement or slippage and (2) the proposed grading and development will have no adverse effect on the stability of the site or adjoining properties. This statement should be provided at the end of the report.*"

I will be happy to contact the consultant and discussed the above with him if you so desire.

Thanks

Ali

From: Allison Cook [mailto:ACook@ci.agoura-hills.ca.us]
Sent: Monday, December 01, 2014 5:14 PM
To: Ali Abdel-Haq
Subject: FW: Medea Creek revised plan set and geotech study

Hi Ali - Could you please go to this link, where you will find the revised geotech report for the Medea Creek Restoration Project, including responses to your comments? Please let me know what you think. Thanks!

Allison Cook
Principal Planner
City of Agoura Hills
30001 Ladyface Court
Agoura Hills, CA 91301
T 818-597-7310 F 818-597-7352

From: Syd Temple [mailto:STemple@questaec.com]
Sent: Monday, December 01, 2014 4:57 PM
To: Kelly Fisher; Jennifer Haddow
Cc: Allison Cook
Subject: Medea Creek revised plan set and geotech study

https://www.dropbox.com/sh/if41gzdwi3ks4hg/AAD9uoG-KJuth6YgNJBXlVbGa?dl=0

I hope this works. Let me know if you cannot get these files. Thanks

Sydney Temple P.E.
Principal

QUESTA
ENGINEERING CORP
Suite 206
1220 Brickyard Cove Road
Richmond, CA 94807
(510) 236-6114 ext. 220

Appendix C

Biological Constraints Analysis Report

Rincon Consultants, Inc.
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Ventura, California 93003

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www.rinconconsultants.com

July 18, 2013
Project Number 13-00990

Sydney Temple, P.E.
Principal
Questa Engineering Corporation
1220 Brickyard Cove Road, Suite 206
Point Richmond, CA 94801-4171
stemple@questaec.com

Subject: Biological Constraints Analysis for the Medea Creek Restoration Project, Agoura Hills, Los Angeles County, California

Dear Mr. Temple:

Rincon Consultants, Inc. (Rincon) was retained by the City of Agoura Hills to provide a Biological Constraints Analysis for the Medea Creek Restoration Project, Agoura Hills, Los Angeles County, California. The purpose of this report is to identify potential "fatal flaws" or items associated with biological resources that may cause an exceptional cost or significant project delays, establish baseline conditions for purposes of CEQA and project permitting, and recommend further studies or mitigation measures, if any, that will be appropriate for the project.

PROJECT LOCATION AND DESCRIPTION

The Medea Creek Restoration project site (project site) is generally located within the City of Agoura Hills (City) in western Los Angeles County. The City of Agoura Hills is in the eastern Conejo Valley between the Simi Hills and the Santa Monica Mountains. The site is depicted in Township 1 North, Range 18 West of the U.S. Geographical Survey (USGS) Thousand Oaks 7.5-minute topographic quadrangle. The project site is specifically located between Canwood Street and Thousand Oaks Boulevard on the east side of Kanan Road. The project site includes an approximately 450 foot reach of Medea Creek and its associated access roads and right-of-way, located between Kanan Road and Chumash Park. Land uses surrounding the project site consist of residential single-family housing and Chumash Park to the east, Kanan Road and commercial mixed-use developments to the north, open space to the west, and a naturalized portion of Medea Creek to the south abutted by residential high-density housing development. The proposed activities will include removing the concrete-lined flood channel containing Medea Creek, reestablishing a native riparian corridor, and providing pedestrian connectivity from Chumash Park to Kanan Road.

METHODOLOGY

The Biological Resources Assessment for the proposed project consisted of a review of relevant literature followed by a field reconnaissance survey. The literature review included information on sensitive resource occurrences within a five mile buffer around the project site from the California Department of Fish and Wildlife (CDFW) California Natural Diversity Data Base (CNDDB), Biogeographic Information and Observation System (BIOS – www.bios.dfg.ca.gov), and U.S. Fish and Wildlife Service (USFWS) Critical Habitat Portal (http://criticalhabitat.fws.gov). Site plans provided by the client, aerial photographs, and topographic maps were also examined.

Rincon Senior Biologist, Julie Broughton and Biologist Lindsay Griffin, conducted field reconnaissance surveys to document existing site conditions and the potential presence of sensitive biological resources, including sensitive plant and wildlife species, sensitive plant communities, jurisdictional waters and wetlands, and habitat for nesting birds. The survey area included the project site, the adjacent open space parcel to the west of the project site, the shoulder associated with Kanan Road between Canwood Street and Thousand Oaks Boulevard, and adjacent portions of Chumash Park and the naturalized portions of Medea Creek. Existing biological conditions (e.g. vegetative communities, potential presence of sensitive species and/or habitats, and presence of potentially jurisdictional waters) within the project site and survey buffer were documented. The purpose of the surveys was to identify potential sensitive biological resources and constraints for the restoration project.

The potential presence of sensitive species is based on a literature review and field surveys designed to assess habitat suitability only. Definitive surveys to confirm the presence or absence of special-status species were not performed. Definitive surveys for sensitive plant and wildlife species generally require specific survey protocols requiring extensive field survey time to be conducted only at certain times of the year. The findings and opinions conveyed in this report are based on this methodology.

EXISTING SITE CONDITIONS

The field surveys were conducted on June 18, 2013, between the hours of 1200 and 1500, and July 1, 2013, between the hours of 1000 and 1200. Weather conditions during both surveys included an average temperature of 75 degrees Fahrenheit, with winds between 1 and 3 miles per hour and minimal cloud cover.

Medea Creek flows from under Kanan Road via a concrete-lined channel that continues south for approximately 500 feet until it transitions to a natural bottom channel covered by a dense native riparian vegetated canopy. The adjacent western parcel boundary is a hillside with native trees including Valley oak (*Quercus lobata*), Coast live oak (*Quercus agrifolia*), and California sycamore (*Platanus racemosa*). The remainder of the parcel is dominated by several alliances of coastal sage scrub habitat including *Eriogonum fasciculatum* Shrubland Alliance (California buckwheat scrub), *Opuntia littoralis* Shrubland Alliance (coast prickly pear scrub), *Salvia mellifera* Shrubland Alliance (black sage scrub), *Baccharis pilularis* Shrubland Alliance (coyote brush scrub), and interspersed with an herbaceous California semi-natural stands. Along the eastern side of the channel adjacent to the residential

housing are non-native landscape trees including myoporum (*Myoporum laetum*), palm trees (*Phoenix* sp.), and oleander (*Nerium oleander*).

Wildlife activity during the site visit was very low. California ground squirrel (*Otospermophilus beecheyi*) was observed on the hillside. Approximately six house finch (*Haemorhous mexicanus*) were observed perched on the chainlink fence on the west side of the channel. Three northern mockingbirds (*Mimus polyglottos*) were observed foraging in the coyote bush on the hillside. Western gull (*Larus occidentalis*) were observed flying overhead. One red-tailed hawk (*Buteo jamaicensis*) was observed perched on top of a coast live oak on the hillside. Two killdeer (*Charadrius vociferous*) and two black phoebe (*Sayornis nigricans*) were observed in the concrete-lined portion of the channel. One downy woodpecker (*Picoides pubescens*) was observed foraging in a sycamore tree (*Platanus occidentalis*).

SENSITIVE BIOLOGICAL RESOURCES DISCUSSION AND IMPACT ANALYSIS

The CNDDB has records for 11 sensitive plant species, 3 sensitive plant communities, and 10 sensitive wildlife species within the USGS topographic quadrangle that contains the project site. Sensitive plant and wildlife species typically have very specific habitat requirements and the majority of these species are not expected to occur on the project site or within the surrounding area. The following discusses those species with potential to occur on the project site.

Sensitive Plant Species. The project site within the open space hillside does contain suitable soil to sustain Lyon's pentachaeta; however, the species was not observed within anticipated impact areas on the project site. Although definitive surveys to confirm the presence or absence of rare plant species were not performed, Lyon's pentachaeta (*Pentachaeta lyonii*) was observed at two reference sites less than a mile from the project site and therefore, would be blooming on-site if the species was present. No effects to sensitive plant species are expected to occur from this project.

Sensitive Plant Communities. No sensitive plant communities were observed onsite. *Quercus agrifolia* Woodland Alliance (coast live oak woodland) is present on the north facing slopes. Valley oak is also found on the project site but are represented by only three individual trees. Seven of the oak trees located along the shoulder of Kanan Road, in addition to California sycamore, are a result of landscaping as determined by the presence of supportive tree stakes. Although native oak species are present, they do not form a sensitive community because they are not contiguous with the riparian canopy that occurs to the south of the parcel boundary. Native riparian vegetation is present to the south of the project boundary, within the naturalized portion of Medea Creek, and includes arroyo willow (*Salix lasiolepis*), California sycamore and black cottonwood (*Populus trichocarpa*). Construction effects would occur at the northern fringe of this riparian habitat, but in the long term, effects would be beneficial.

Sensitive Wildlife Species. The CNDDB contains several records for sensitive wildlife species within the vicinity of the project site, many of which are associated with the Las Virgenes Creek. The project site is channelized and not suitable for most species of wildlife.

Marginally suitable habitat for western pond turtle (*Emys marmorata*) occurs within the naturalized section of Medea Creek, south of the project site. This species typically prefers larger areas of suitable habitat with basking sites, sandy banks, and nearby upland soils suitable for egg laying. As the project site lacks larger pools, sandy banks, and suitable upland habitat, this species is not expected to occur onsite except potentially as a transitional individual moving between suitable habitat locations. Western pond turtle was not observed onsite during surveys. Therefore, minimal effects to sensitive wildlife species are expected to occur from this project.

Nesting Birds. The California Fish and Game Code (CFGC) Section 3503 and the Migratory Bird Treaty Act (MBTA) protect native birds and their nests. No nests or breeding/nesting behavior such as courtship displays, copulation, vegetation or food carries, presence of fledglings, or territorial displays (e.g. singing or aggression) was observed during the survey. No evidence of raptor nesting was observed during the site visits; however, one red-tailed hawk was observed perched on top of a coast live oak. However, suitable nesting habitat occurs within and directly adjacent to the project site. Therefore, the project has the potential to affect nesting birds if construction occurs during the nesting season.

Jurisdictional Drainages and Wetlands. Although channelized, Medea Creek is subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), Los Angeles Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW). As the project includes restoration and creation of wetlands, it will have long-term beneficial impacts by creating wetlands. However, restoration will also have temporary impacts on jurisdictional waters, and as such is subject to permits from the agencies listed above.

Protected Trees. The *City of Agoura Hills Appendix A- Oak Tree Preservation Guidelines* prescribes avoiding impacts to all oak trees unless compelling reasons justify the removal of such trees. Valley oak and coast live oak, both protected species, were found on the project site. Although project activities are not proposed in areas where these trees occur, final design plans could require the encroachment of or removal of trees. Should the project impact protected trees, an oak tree permit may be needed pursuant to the provisions of sections 9657 through 9657.5 of the City Zoning Ordinance.

CONCLUSIONS AND RECOMMENDATIONS

The project site does not contain suitable habitat for sensitive plant species, sensitive wildlife or sensitive plant communities where project impacts are anticipated to occur. Therefore, impacts to these sensitive resources as a result of the proposed project are not expected to occur and no further actions with respect to these resources are recommended unless project impacts extend beyond what is currently anticipated.

Nesting Birds. The project site and adjoining area contains habitat suitable for nesting birds. If project activities will occur during the avian nesting season (typically February to September), a survey of the project site and surrounding area for active nests should be conducted by a qualified biologist 1 to 2 weeks prior to construction. If active nest(s) are located, an appropriate buffer shall be established surrounding the nest(s) and shall be

flagged for avoidance. The avoidance buffer shall be determined by the monitoring biologist based upon the species nesting and the activity being conducted. Alternatively, construction within the buffer area may be conducted at the discretion of a qualified biological monitor. The biologist shall monitor the active nest(s) during initial disturbance activities and/or development activities to determine if the recommended avoidance buffers are adequate and that the nests are not being stressed or jeopardized

Jurisdictional Drainages and Wetlands. A Section 404 permit of the Clean Water Act will be required from the ACOE for alteration of Medea Creek. A water quality certification will be required from the RWQCB. Additionally, a Streambed Alteration Agreement will be required from the CDFW. Compliance with the requirements of the appropriate ACOE, CDFW, and RWQCB permits and implementation of any mitigation therein, will reduce impacts to wetlands to a less than significant level.

Protected Trees. If project activities will impact any oak tree, regardless of the size of the tree, a permit from the City of Agoura Hills Department of Planning and Community Development is required. Encroachment, cutting, pruning, the physical removal or relocation of a tree or causing of the death of a tree through damaging, poisoning or other direct or indirect action shall constitute an impact. The protected zone of an oak tree is defined in the *City of Agoura Hills Appendix A- Oak Tree Preservation Guidelines* as the point five (5) feet outside of the dripline that extends inwards to the trunk of the tree and shall be less than fifteen (15) feet from the trunk of an oak tree.

Please do not hesitate to contact Rincon Consultants if you have any questions regarding this biological constraints analysis or the above recommendations.

Sincerely,
RINCON CONSULTANTS, INC.

Lindsay Griffin
Associate Biologist

Lacrissa Davis, MESM
Principal

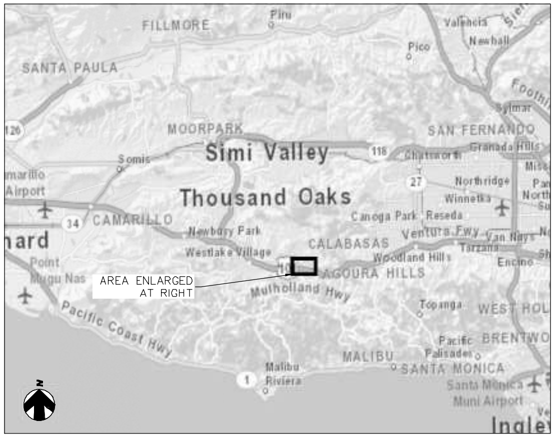
Nancy Fox-Fernandez, MS
Biologist/Project Manager

Appendix D

Preliminary Construction Drawings

MEDEA CREEK RESTORATION PROJECT

CITY OF AGOURA HILLS



AREA MAP

N.T.S.

VICINITY MAP

N.T.S.

PRELIMINARY CONSTRUCTION QUANTITIES:

EARTHWORK CUT: 5,000 CY
EARTHWORK FILL: 5,000 CY
OFFHAUL: 750 CY CONCRETE RUBBLE
IMPORT: 2,000 CY RIPRAP;

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4. DEMOLITION PLAN
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6. SEWER PROTECTION PLAN
7. CHANNEL FEATURES PLAN & PROFILE
8. CHANNEL CROSS SECTIONS
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11. PLANTING PLAN
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13. CONSTRUCTION DETAILS 1
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S1. GENERAL STRUCTURAL PLAN
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DETAIL DRAWING DESIGNATION

X / XX — DETAIL NO. / SHEET NO.

GENERAL NOTES

1. **DESIGN INTENT:** THESE PLANS AND SPECIFICATIONS REPRESENT THE DESIGN INTENT OF QUESTA ENGINEERING CORPORATION (THE ENGINEER), AS APPROVED BY THE OWNER, CITY OF AGOURA HILLS. THE CONTRACTOR IS RESPONSIBLE FOR ALL ITEMS SHOWN ON THESE PLANS AND SPECIFICATIONS AND SHALL BE RESPONSIBLE FOR ANY DEVIATIONS FROM THESE PLANS AND ASSOCIATED RISK AND EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING A COPY OF THE APPROVED PLANS AND SPECIFICATIONS AND ANY ADDENDA AT THE JOB SITE AT ALL TIMES. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY CITY OF PASADENA OF ANY UNFORESEEN CIRCUMSTANCES OR CONDITIONS THAT WOULD ALTER THESE PLANS AND SPECIFICATIONS FOR APPROVAL OF MODIFICATIONS TO THE INTENDED DESIGN.

2. **BASE MAP:** THE PROPOSED IMPROVEMENTS SHOWN ON THESE DRAWINGS ARE SUPERIMPOSED ON A BASE MAP. THIS BASE MAP IS COMPILED FROM AERIAL AND GROUND SURVEYS, AND OTHER DATA AS MADE AVAILABLE TO THE ENGINEER, WHO SHALL NOT BE HELD LIABLE FOR CHANGES, INACCURACIES, OMISSIONS OR OTHER ERRORS ON THESE DOCUMENTS. THE COMPOSITE BASE MAP IS PROVIDED AS AN AID ONLY AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THESE DOCUMENTS AND INCORPORATING/INTEGRATING ALL CONSTRUCTION AS REQUIRED TO ACCOMMODATE THE SAME. NONE OF THE INCLUDED DRAWINGS DEPICT A BOUNDARY SURVEY ALTHOUGH A PARTIAL ALTA SURVEY WAS PERFORMED ALONG A PORTION OF THE UP ROW. BOUNDARY LINES SHOWN ARE APPROXIMATE AND FOR INFORMATIONAL PURPOSES ONLY.

3. **DISCREPANCIES:** IN THE EVENT THAT SUBGRADE OBSTRUCTIONS ARE ENCOUNTERED OR DISCREPANCIES ARE FOUND BETWEEN THE DRAWINGS AND FIELD CONDITIONS, NOTIFY ENGINEER OR CITY OF AGOURA HILLS FOR DIRECTIONS. DO NOT PROCEED WITH THE WORK WITHOUT DIRECTION FROM THE ENGINEER.

4. **PRECONSTRUCTION MEETING:** A PRECONSTRUCTION MEETING ATTENDED BY THE CONTRACTOR, CITY OF AGOURA HILLS REPRESENTATIVE, AND OTHERS AS APPROPRIATE, WILL BE HELD WITHIN FIFTEEN (15) DAYS OF AWARD OF CONTRACT TO DISCUSS THE WORK. SUBMIT ALL REQUIRED DOCUMENTS, REQUESTS, AND PROPOSALS AT THIS MEETING FOR DISCUSSION.

5. **UTILITIES:** CONTRACTOR SHALL NOTIFY ALL PUBLIC AND PRIVATE UTILITY COMPANIES IN THE PROJECT AREA A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR MUST INVESTIGATE AND VERIFY THE LOCATION OF ANY EXISTING UTILITIES WITHIN THE PROJECT AREA. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY, LOCATE, AND PROTECT ALL UNDERGROUND UTILITIES. ANY UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE CONSIDERED TENTATIVE AND APPROXIMATIONS AND THEREFORE, NO WARRANTY EXPRESSED OR IMPLIED IS MADE AS TO THE COMPLETENESS OR CORRECTNESS OF THEIR LOCATION. THE UTILITY COMPANIES ARE THOUGHT TO BE MEMBERS OF THE UNDERGROUND SERVICE ALERT (U.S.A.) ON-CALL PROGRAM. THE CONTRACTOR SHALL NOTIFY U.S.A. 72-HOURS IN ADVANCE OF PERFORMING EXCAVATION WORK AT 811 FROM 7:00 AM TO 5:00 PM, MONDAY THROUGH FRIDAY. EXISTING PUBLIC UTILITIES SHALL BE KEPT IN SERVICE AT ALL TIMES. UTILITIES THAT INTERFERE WITH THE WORK TO BE PERFORMED SHALL BE PROTECTED AS REQUIRED BY CITY OF AGOURA HILLS AND ALL OTHER AFFECTED ENTITIES. DAMAGE TO UTILITIES SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE CITY OF AGOURA HILLS AND TO THE SATISFACTION OF THE ENGINEER AND OWNER. POTHOLING IS REQUIRED. ANY EXCAVATION WITHIN FIVE (5) FEET OF THE EXISTING GAS TRANSMISSION PIPE SHALL BE DUG BY HAND IN THE PRESENCE OF UTILITY INSPECTOR.

6. **RESOURCE PROTECTION:** THE CONTRACTOR IS ADVISED OF THE PRESENCE OF SENSITIVE RESOURCES LOCATED NEAR PROJECT WORK AREAS. THE TRAIL ALIGNMENT, FENCING, STAGING AREAS AND ALL OTHER PROJECT FACILITIES HAVE BEEN CAREFULLY LOCATED TO MINIMIZE DISTURBANCE OF SENSITIVE RESOURCES. THE LIMITS OF WORK ARE SHOWN ON THE DRAWINGS. ALL CONTRACTOR ACTIVITIES, INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION ACTIVITIES, VEHICLE MAINTENANCE, AND MATERIALS AND EQUIPMENT STORAGE AND STAGING, MUST BE STRICTLY CONFINED TO THE WORK AREAS SHOWN ON THE DRAWINGS. THE LIMITS OF WORK WILL BE CAREFULLY LOCATED IN THE FIELD BY THE CONTRACTOR AND ENGINEER OF RECORD, AND ALL WORK LIMIT AREAS WILL BE PROTECTED BY STRAW WATTLES, CONSTRUCTION BARRIER FENCING, OR SILT FENCING AS SHOWN ON THE DRAWINGS.

7. **BIOLOGICAL AND CULTURAL RESOURCE MONITOR:** CITY OF AGOURA HILLS WILL PROVIDE A QUALIFIED BIOLOGICAL/ARCHEOLOGICAL MONITOR THAT WILL INITIALLY REVIEW SITE CONSTRUCTION PROTOCOLS WITH ALL CONSTRUCTION CONTRACTOR EMPLOYEES AT A PRE-CONSTRUCTION MEETING THAT WILL BE SPECIFICALLY HELD ON RESOURCE PROTECTION. EACH EMPLOYEE ASSIGNED TO THIS PROJECT MUST PARTICIPATE IN THIS PRE-CONSTRUCTION MEETING AND DISCUSSION OF ADJACENT SENSITIVE RESOURCES, AND SIGN A STATEMENT INDICATING THAT THEY HAVE READ AND UNDERSTOOD THE PROTOCOLS AND AGREE TO ADHERE TO THEM. SIGNIFICANT BREACHES OF PROTOCOL AND FAILURE TO ADEQUATELY PROVIDE THE DEGREE OF RESOURCE PROTECTION REQUIRED BY THIS PROJECT WILL RESULT IN THE ISSUANCE OF A STOP WORK ORDER BY THE ENGINEER OR BY THE MONITOR. CITY OF AGOURA HILLS PROVIDED MONITOR WILL CAREFULLY INSPECT ALL WORK AREAS FOR THE PRESENCE OF WILDLIFE OR CULTURAL RESOURCES PRIOR TO INSTALLATION OF PROTECTIVE BARRIER FENCING AND FIELD FENCING, AND PRIOR TO INITIATION OF CONSTRUCTION EACH DAY. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY PENALTIES AND ALL REPAIRS AND MITIGATIONS IMPOSED DUE TO BREACH OF PROTOCOL AND UNAUTHORIZED INTRUSION INTO SENSITIVE RESOURCE AREAS.

8. **CONTRACTOR RESPONSIBILITY:** BY ENTERING INTO THIS CONTRACT WITH CITY OF AGOURA HILLS, THE CONTRACTOR AGREES TO HAVING EXAMINED THE SITE, COMPARING THE SITE CONDITIONS WITH THE DRAWINGS AND SPECIFICATIONS AND HAS CAREFULLY EXAMINED ALL OF THE CONTRACT DOCUMENTS AND IS SATISFIED AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. NO ALLOWANCE SHALL BE MADE SUBSEQUENTLY ON BEHALF OF THE CONTRACTOR DUE TO FAILURE TO BE ACQUAINTED WITH THE CONDITIONS OF THE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH ALL CONSTRUCTION OPERATIONS. CONTRACTOR SHALL PROTECT ALL EXISTING ON-SITE AND OFF-SITE IMPROVEMENTS AGAINST DAMAGE RESULTING FROM OPERATIONS. RESPONSIBILITY EXTENDS TO THE CONTRACTOR'S WORKERS, SUBCONTRACTORS AND OTHERS PROVIDING SERVICES. CONTRACTOR SHALL REPAIR AND/OR REPLACE DAMAGE AT THEIR OWN EXPENSE AND TO THE SATISFACTION OF THE ENGINEER AND CITY OF AGOURA HILLS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD CITY OF AGOURA HILLS AND THE ENGINEER (QUESTA ENGINEERING CORPORATION) HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FROM LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF CITY OF AGOURA HILLS OR THE ENGINEER. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

9. **JOB SITE CONDITIONS:** CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY, TRAFFIC CONTROL, ACCESS TO AND FROM ADJOINING DRIVEWAYS AND STREETS, AND ANY LANE CLOSURES. TRASH GENERATED BY THIS WORK (CONSTRUCTION DEBRIS, PAPER, BOTTLES, CIGARETTES, ETC) SHALL BE REMOVED ON A DAILY BASIS. CONTRACTOR SHALL CONTROL DUST AT ALL TIMES WITH WATER.

10. **SAFETY AND TRAFFIC CONTROL:** ALL WORK SHALL BE IN COMPLIANCE WITH APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS AS SET FORTH BY THE FEDERAL DEPARTMENT OF LABOR AND/OR THE STATE OF CALIFORNIA AND CITY OF RICHMOND. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CALTRANS MANUAL OF TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE OF WORK ZONES. ALL SIGNS SHALL BE APPROPRIATELY CONSTRUCTED WITH REFLECTIVE MATERIAL ON A BACKING OF METAL OR FABRIC (NO WOOD OR PLASTIC ALLOWED) AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION TO PROVIDE PROPER VISIBILITY, PER SECTION 12 OF THE CALTRANS SPECIAL PROVISIONS. THE CONTRACTOR SHALL MAINTAIN REASONABLE ACCESS TO ALL ROADWAYS DURING CONSTRUCTION

11. **SPECIFICATIONS:** REFER TO THE SPECIFICATIONS THAT ARE A PART OF THESE CONTRACT DOCUMENTS. COMPLY WITH ALL REGULATIONS AND CODES GOVERNING WORK PERFORMED UNDER THIS CONTRACT. REFER TO CALTRANS STANDARD PLANS AND SPECIFICATIONS AS REQUIRED.

12. **MISCELLANEOUS:** WRITTEN DIMENSIONS ALWAYS TAKE PRECEDENCE OVER SCALED DIMENSIONS IF THERE IS A CONFLICT. THE CONTRACTOR SHALL CONTACT CITY OF AGOURA HILLS TO OBTAIN ADDITIONAL CLARIFICATION. NO DEVIATION OR SUBSTITUTION SHALL BE ALLOWED WITHOUT OBTAINING PRIOR WRITTEN APPROVAL FROM CITY OF AGOURA HILLS AND THE ENGINEER.

13. **GEOTECHNICAL REPORT:** QUESTA ENGINEERING CORPORATION. 1220 BRICKYARD COVE ROAD, POINT RICHMOND, CA 94807. (510) 236 - 6114

MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

QUESTA ENGINEERING CORP.
Civil
Environmental
& Water Resources
(510) 236-6114
FAX (510) 236-2423
questa@questaec.com
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

REGISTERED PROFESSIONAL ENGINEER SIDNEY A. TEMPLE No. 59695 EXPIRES 12-31-15 CIVIL STATE OF CALIFORNIA

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TITLE SHEET AND DRAWING INDEX

AGOURA HILLS, LOS ANGELES COUNTY

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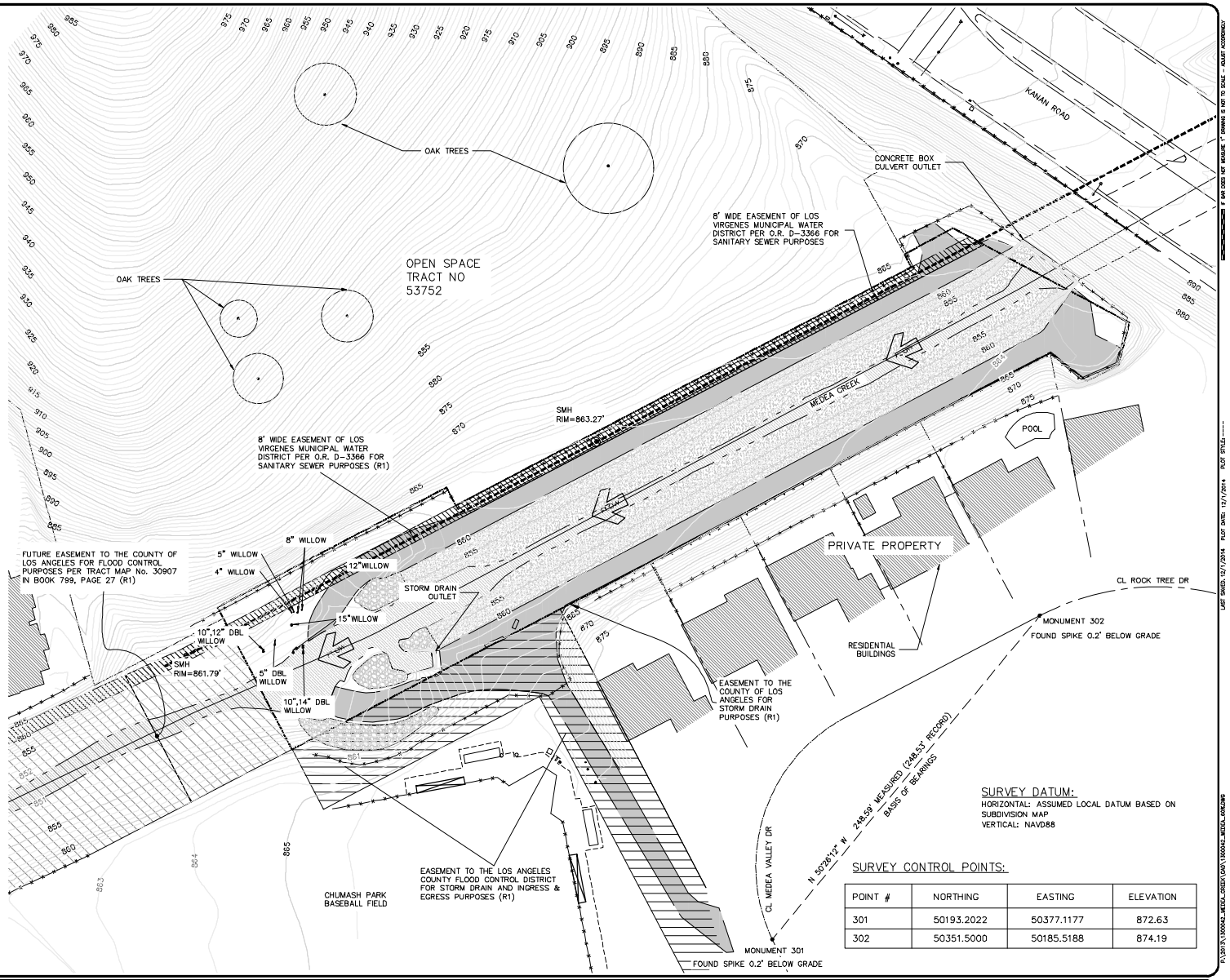
LEGEND

- EXISTING ROCK REVETMENT
- SUMMER TIME FLOW EXTENT
- ASPHALT ACCESS ROAD
- CONCRETE CHANNEL
- EASEMENTS
- EXISTING FENCE
- EXTENT OF LA COUNTY FLOOD CONTROL PROPERTY
- OTHER PARCEL BOUNDARIES
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED SILT/BIO FENCE
- TEMPORARY SECURITY FENCE
- TEMPORARY DIVERSION PIPE



0 30' 60'
(1" = 30')

N

SURVEY DATUM:

HORIZONTAL: ASSUMED LOCAL DATUM BASED ON SUBDIVISION MAP
VERTICAL: NAVD88

SURVEY CONTROL POINTS:

POINT #	NORTHING	EASTING	ELEVATION
301	50193.2022	50377.1177	872.63
302	50351.5000	50185.5188	874.19

MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

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REGISTERED PROFESSIONAL ENGINEER No. 59696 12-31-15 EXPIRES CIVIL STATE OF CALIFORNIA

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EXISTING CONDITIONS - PLAN VIEW

AGOURA HILLS, LOS ANGELES COUNTY

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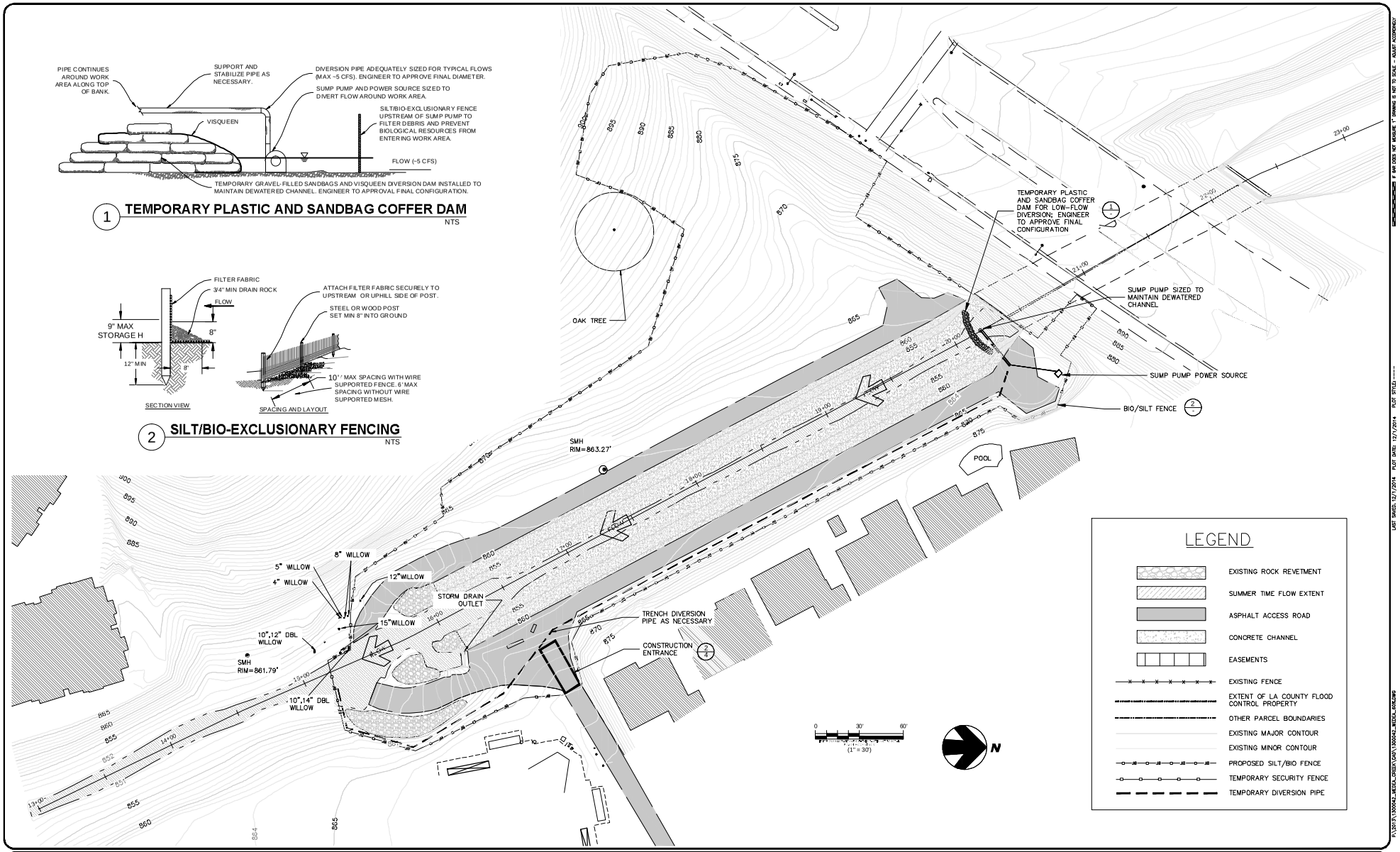

MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

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REGISTERED PROFESSIONAL ENGINEER No. 59696 12-31-15 EXPIRES CIVIL STATE OF CALIFORNIA

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DEWATERING and EROSION BMPS

AGOURA HILLS, LOS ANGELES COUNTY

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Date: 2014-11-25
Sheet: 3 OF 23

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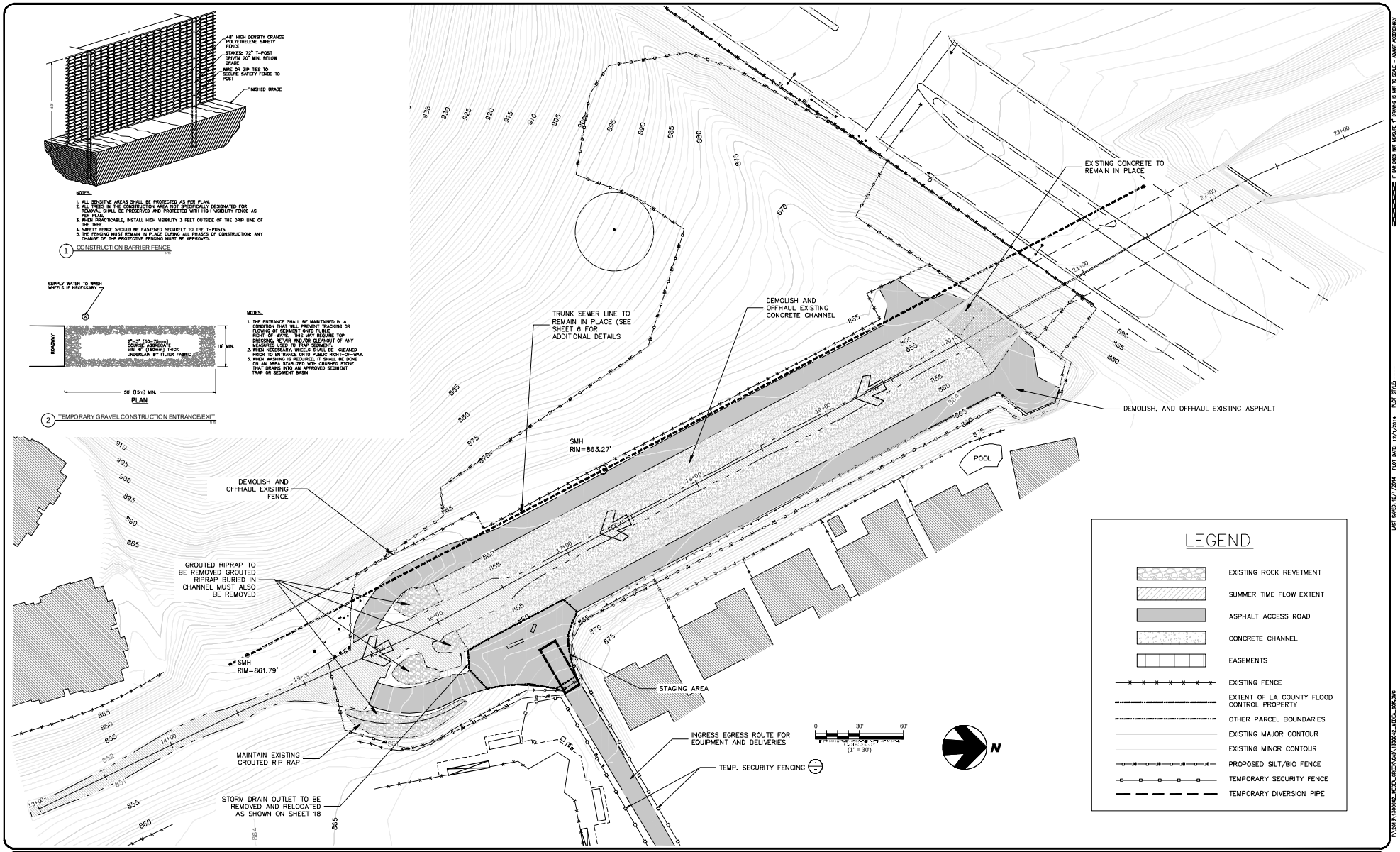

IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE - ADJUST ACCORDINGLY

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MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

QUESTA ENGINEERING CORP.
Civil Environmental & Water Resources
(510) 236-6114
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questa@questaec.com
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

REGISTERED PROFESSIONAL ENGINEER STEVEN A. TOMPKINS No. 59696 12-31-15 EXPIRES CIVIL STATE OF CALIFORNIA

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Drawn: JM
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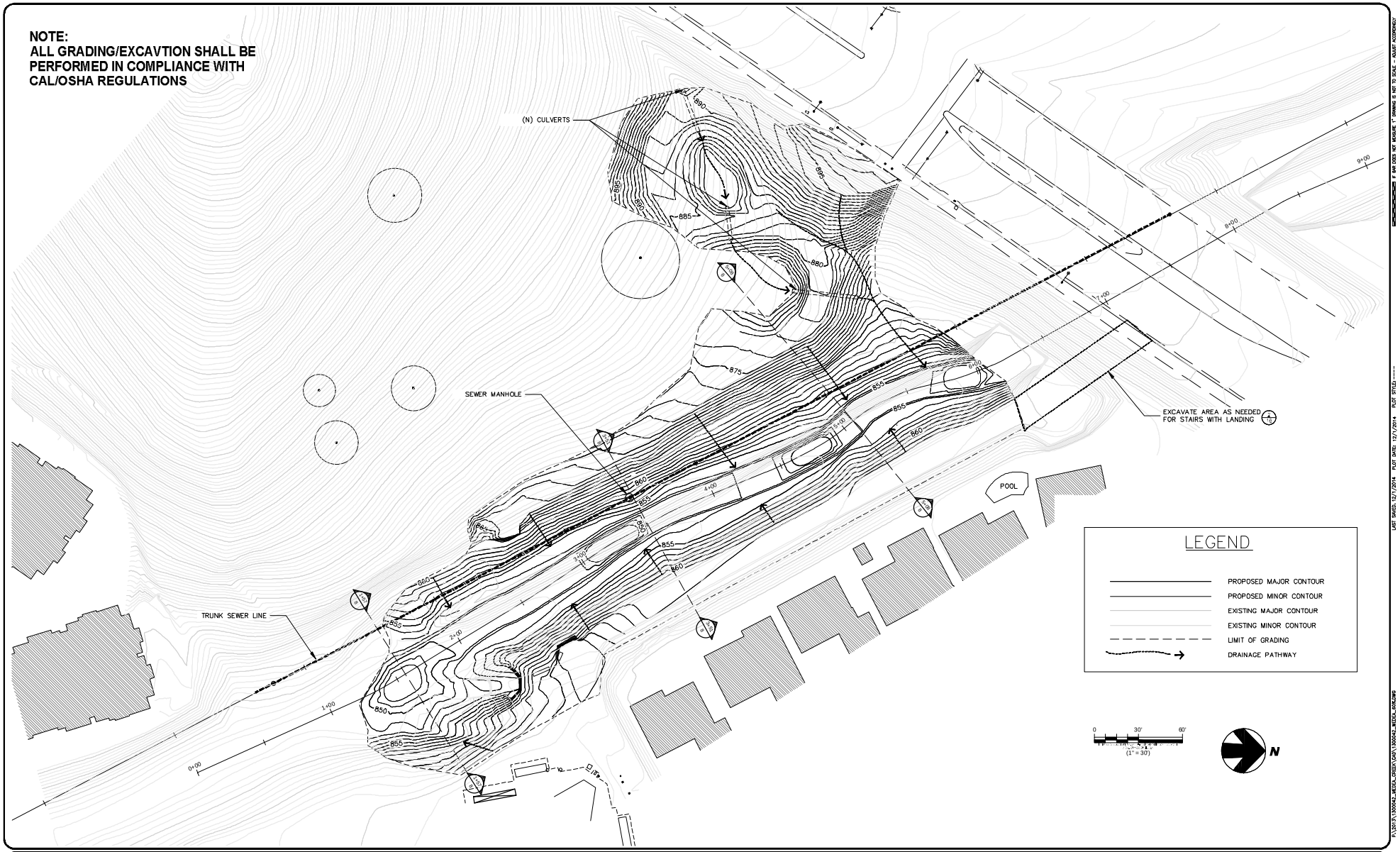
DEMOLITION and STAGING

AGOURA HILLS, LOS ANGELES COUNTY

Size: D
Project: 1300042
Scale: AS NOTED
Date: 2014-11-25
Sheet: 4 OF 23

NOTE:
ALL GRADING/EXCAVTION SHALL BE PERFORMED IN COMPLIANCE WITH CAL/OSHA REGULATIONS



MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

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REGISTERED PROFESSIONAL ENGINEER No. 59690 12-31-15 EXPIRES STATE OF CALIFORNIA

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Appr'd: ST

GRADING AND DRAINAGE PLAN

AGOURA HILLS, LOS ANGELES COUNTY

Size: D
Project: 1300042
Scale: AS NOTED
Date: 2014-11-25
Sheet: 5 OF 23

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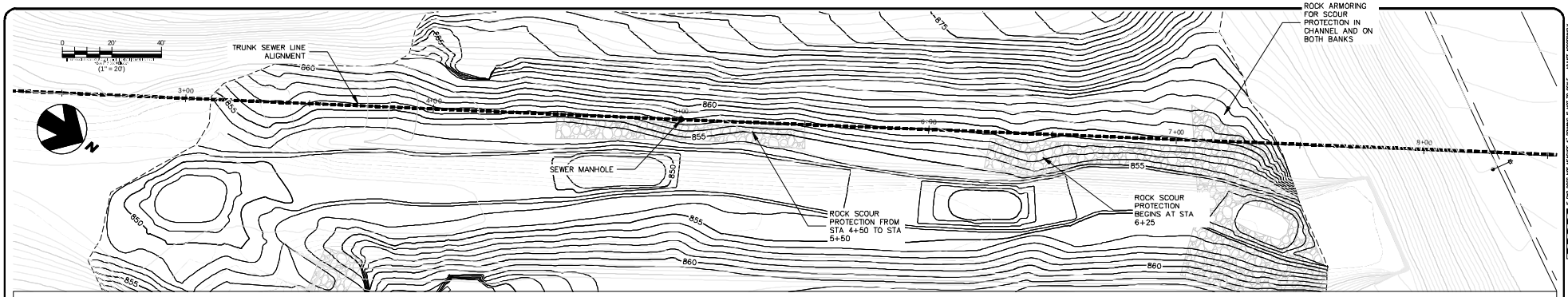
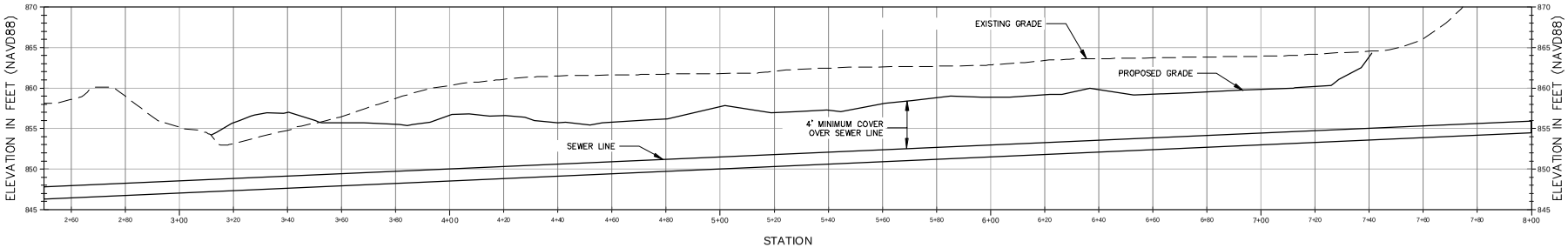
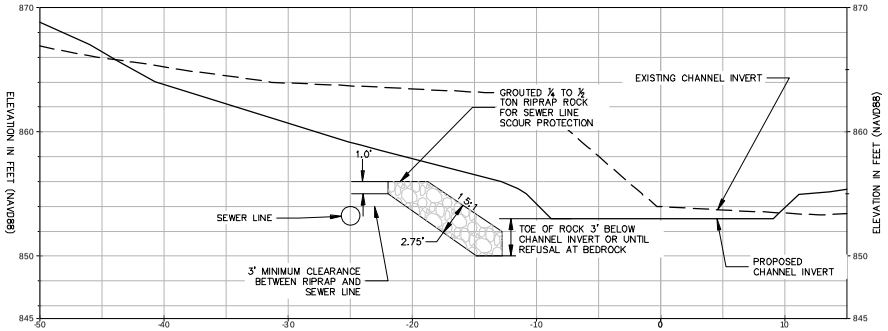


SEWER LINE PLAN VIEW



SEWER LINE PROFILE



TYPICAL SEWER LINE PROTECTION CROSS SECTION

NOTES:

CONTRACTOR SHALL VIDEO SEWER MAIN FOLLOWING PROJECT COMPLETION TO INSURE THAT THE LINE WAS NOT DAMAGED DURING CONSTRUCTION.

MEDEA CREEK RESTORATION

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REGISTERED PROFESSIONAL ENGINEER STUART A. TEMPLE No. 59695 12-31-15 CIVIL STATE OF CALIFORNIA

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SEWER LINE PROTECTION PLAN

AGOURA HILLS, LOS ANGELES COUNTY

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Sheet: 6 OF 23

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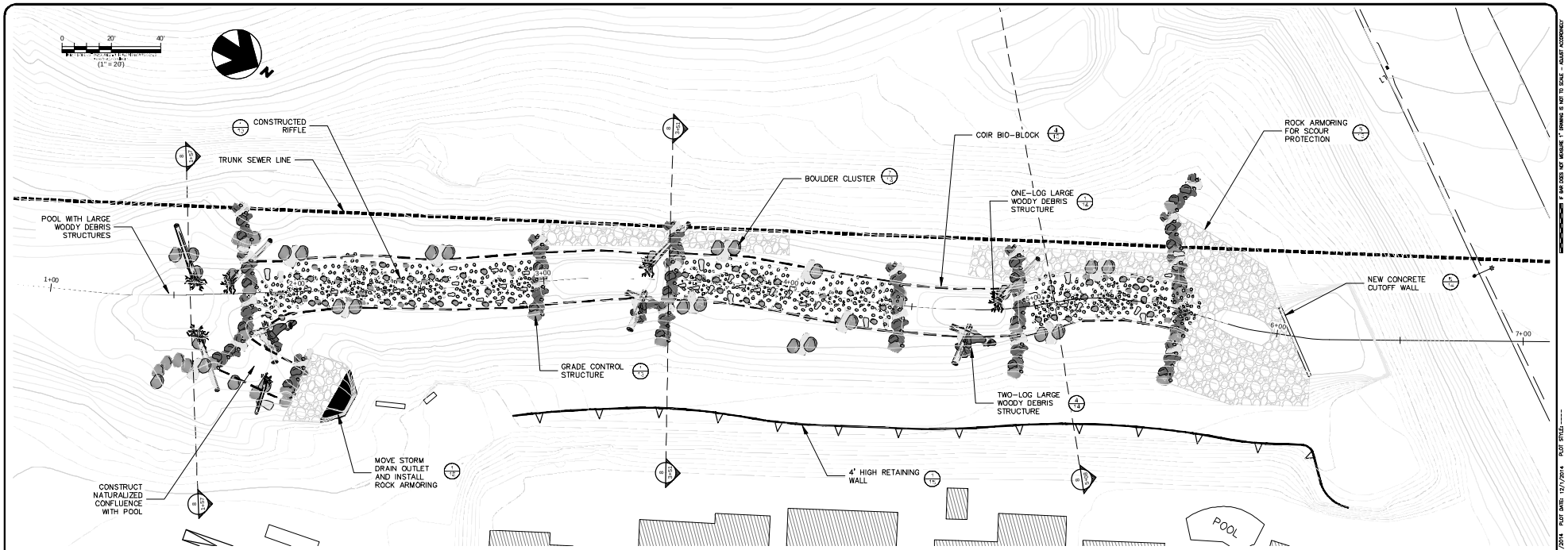
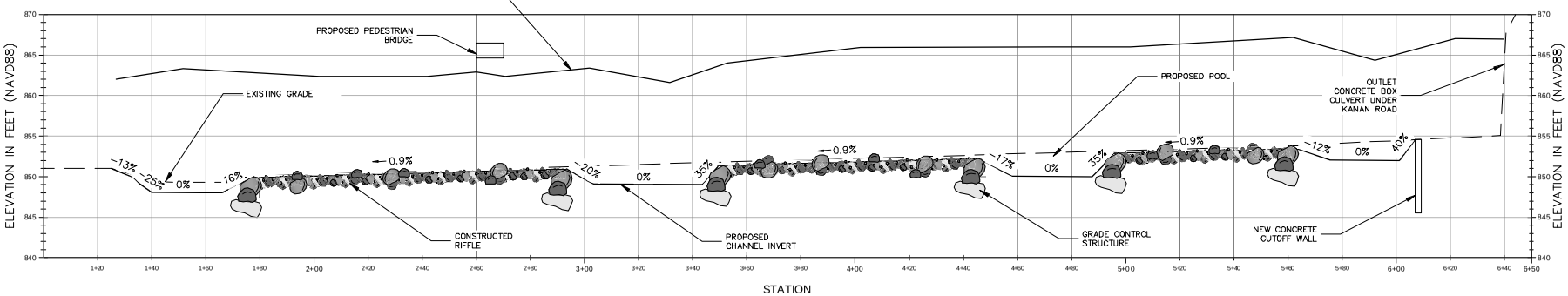


CHANNEL PROFLE



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REGISTERED PROFESSIONAL ENGINEER No. 59696 12-31-15 EXPIRES CIVIL STATE OF CALIFORNIA

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CHANNEL FEATURES PLAN & PROFILE

AGOURA HILLS, LOS ANGELES COUNTY

Size: D
Project: 1300042
Scale: AS NOTED
Date: 2014-11-25
Sheet: 7 OF 23

IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE - ADJUST ACCORDINGLY

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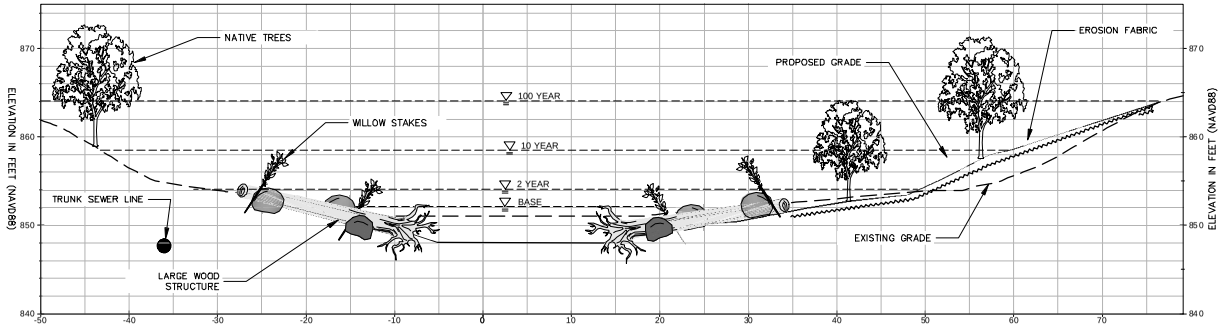
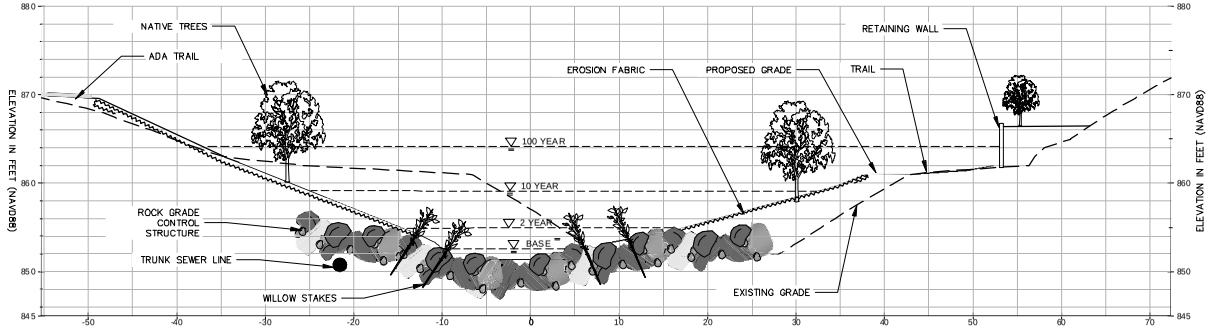
NOTE:
ALL SECTIONS LOOKING UPSTREAM

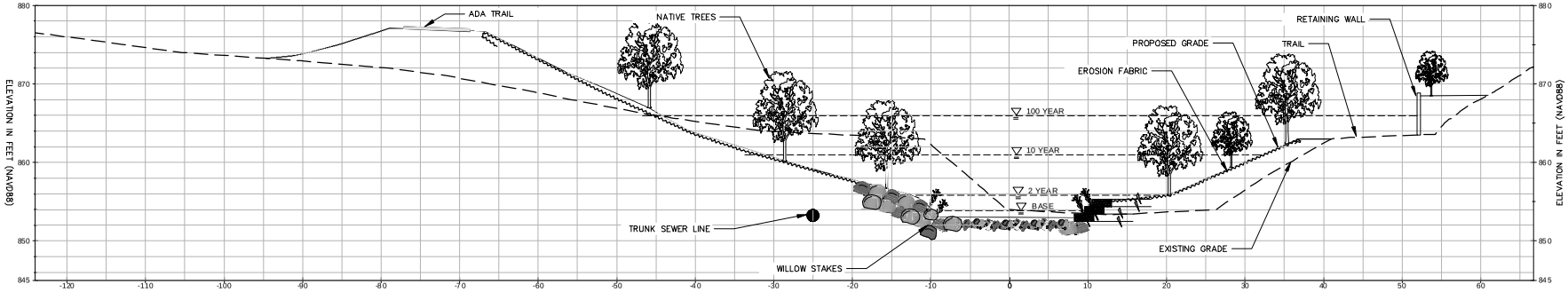
STA 1+57



STA 3+51



STA 5+08



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REGISTERED PROFESSIONAL ENGINEER No. 59696 12-31-15 CIVIL STATE OF CALIFORNIA

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PROPOSED CHANNEL SECTIONS

AGOURA HILLS, LOS ANGELES COUNTY

Size: D
Project: 1300042
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Date: 2014-11-25
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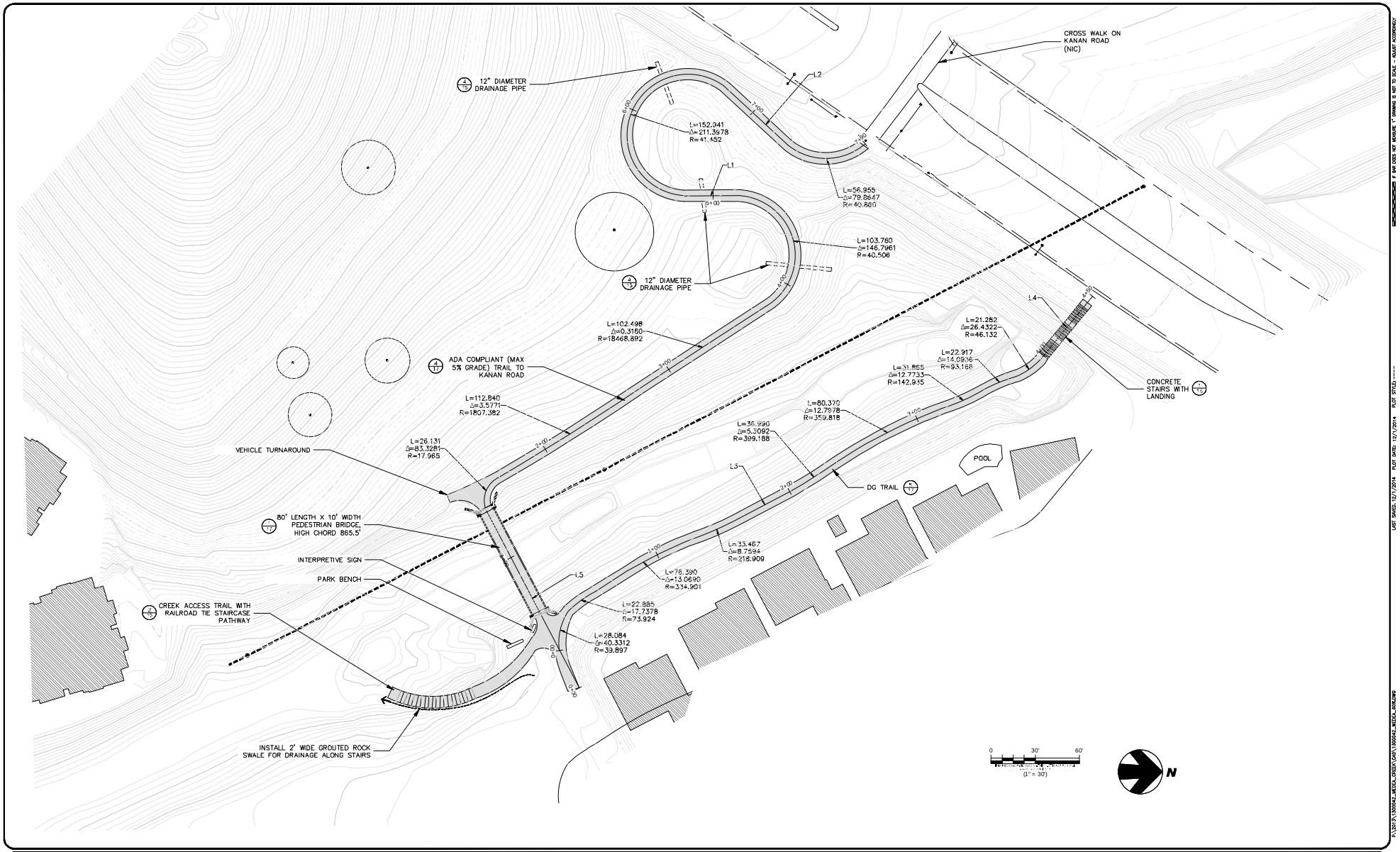

MEDEA CREEK RESTORATION

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PUBLIC ACCESS FEATURES

AGOURA HILLS, LOS ANGELES COUNTY

Size: D
Project: 1300042
Scale: AS NOTED
Date: 2014-11-25
Sheet: 9 OF 23

IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE – ADJUST ACCORDINGLY
LAST SAVED: 12/1/2014 PLOT DATE: 12/1/2014 PLOT STYLE: ----
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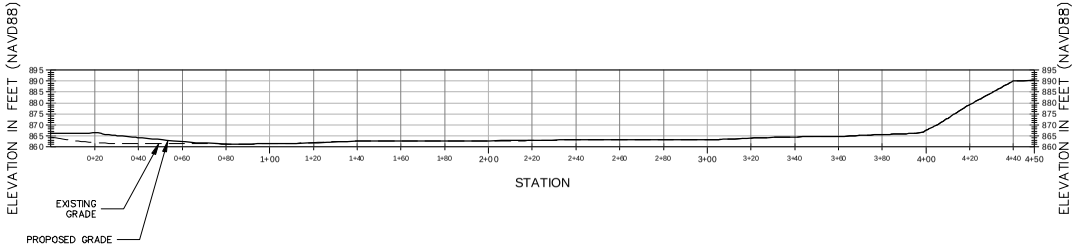
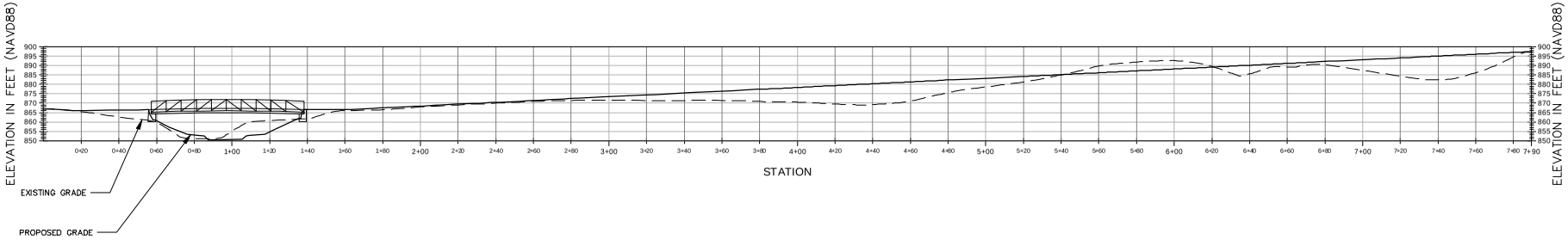
LINE TABLE				
LINE	LENGTH	BEARING	START (N,E)	END (N,E)
L5	137.30	S62° 21' 30.75"W	(50072.25,50231.12)	(50008.55,50109.49)
L1	37.50	S00° 09' 38.04"E	(50180.85,49896.02)	(50143.36,49896.12)
L2	59.71	N42° 43' 19.71"E	(50170.62,49821.11)	(50214.48,49861.62)
L3	39.86	N27° 55' 31.76"W	(50181.07,50115.79)	(50216.29,50097.12)
L4	55.40	N50° 24' 10.78"W	(50386.54,50007.32)	(50421.85,49964.63)





MEDEA CREEK RESTORATION

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TRAIL PROFILES

AGOURA HILLS, LOS ANGELES COUNTY

Size: D
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Date: 2014-11-25
Sheet: 10 OF 23

IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE – ADJUST ACCORDINGLY

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PLANT LEGEND

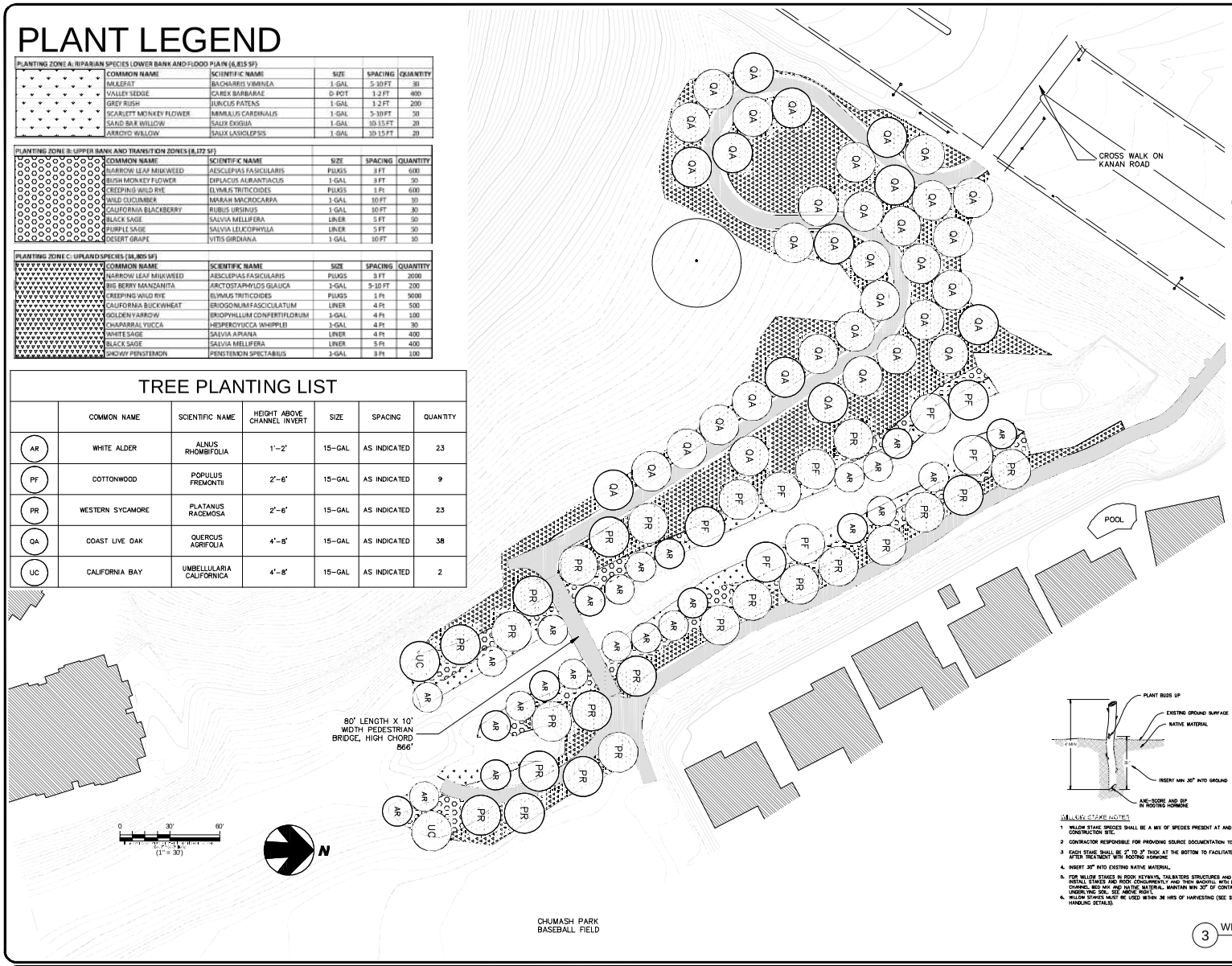
PLANTING ZONE A: RIPARIAN SPECIES LOWER BANK AND FLOOD PLAIN (6,815 SF)				
COMMON NAME	SCIENTIFIC NAME	SIZE	SPACING	QUANTITY
MULEFAT	BACHARRIS VIMINEA	1-GAL	5-10 FT	30
VALLEY SEDGE	CAREX BARBARAE	D-POT	1-2 FT	400
GREY RUSH	JUNCUS PATENS	1-GAL	1-2 FT	200
SCARLETT MONKEY FLOWER	MIMULUS CARDINALIS	1-GAL	5-10 FT	50
SAND BAR WILLOW	SALIX EXIGUA	1-GAL	10-15 FT	20
ARROYO WILLOW	SALIX LASIOLEPSIS	1-GAL	10-15 FT	20

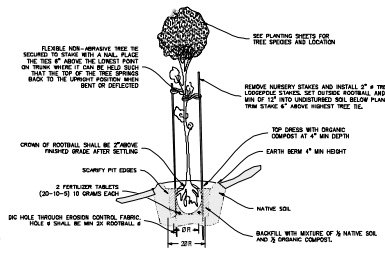
PLANTING ZONE B: UPPER BANK AND TRANSITION ZONES (8,172 SF)				
COMMON NAME	SCIENTIFIC NAME	SIZE	SPACING	QUANTITY
NARROW LEAF MILKWEED	AESCLEPIAS FASCICULARIS	PLUGS	3 FT	600
BUSH MONKEY FLOWER	DIPLACUS AURANTIACUS	1-GAL	3 FT	50
CREEPING WILD RYE	ELYMUS TRITICOIDES	PLUGS	1 Ft	600
WILD CUCUMBER	MARAH MACROCARPA	1-GAL	10 FT	30
CALIFORNIA BLACKBERRY	RUBUS URSINUS	1-GAL	10 FT	30
BLACK SAGE	SALVIA MELLIFERA	LINER	5 FT	50
PURPLE SAGE	SALVIA LEUCOPHYLLA	LINER	5 FT	50
DESERT GRAPE	VITIS GIRDIANA	1-GAL	10 FT	10

PLANTING ZONE C: UPLAND SPECIES (38,805 SF)				
COMMON NAME	SCIENTIFIC NAME	SIZE	SPACING	QUANTITY
NARROW LEAF MILKWEED	AESCLEPIAS FASCICULARIS	PLUGS	3 FT	2000
BIG BERRY MANZANITA	ARCTOSTAPHYLOS GLAUCA	1-GAL	5-10 FT	200
CREEPING WILD RYE	ELYMUS TRITICOIDES	PLUGS	1 Ft	5000
CALIFORNIA BUCKWHEAT	ERIOGONUM FASCICULATUM	LINER	4 Ft	500
GOLDEN YARROW	ERIOPYHLLUM CONFERTIFLORUM	1-GAL	4 Ft	100
CHAPARRAL YUCCA	HESPEROYUCCA WHIPPLEI	1-GAL	4 Ft	30
WHITE SAGE	SALVIA APIANA	LINER	4 Ft	400
BLACK SAGE	SALVIA MELLIFERA	LINER	5 Ft	400
SHOWY PENSTEMON	PENSTEMON SPECTABILIS	1-GAL	3 Ft	100

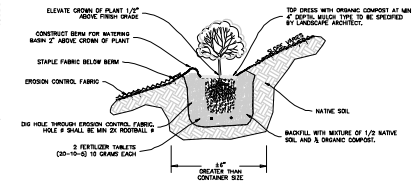
TREE PLANTING LIST

	COMMON NAME	SCIENTIFIC NAME	HEIGHT ABOVE CHANNEL INVERT	SIZE	SPACING	QUANTITY
AR	WHITE ALDER	ALNUS RHOMBIFOLIA	1'–2'	15–GAL	AS INDICATED	23
PF	COTTONWOOD	POPULUS FREMONTII	2'–6'	15–GAL	AS INDICATED	9
PR	WESTERN SYCAMORE	PLATANUS RACEMOSA	2'–6'	15–GAL	AS INDICATED	23
QA	COAST LIVE OAK	QUERCUS AGRIFOLIA	4'–8'	15–GAL	AS INDICATED	38
UC	CALIFORNIA BAY	UMBELLULARIA CALIFORNICA	4'–8'	15–GAL	AS INDICATED	2

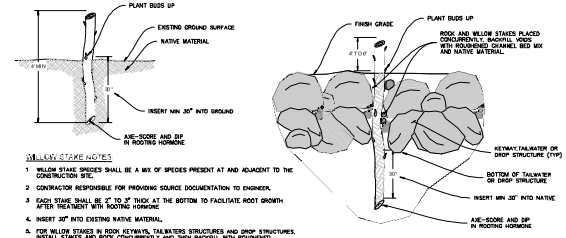




1 TREE (10 GALLON+ SIZE) PLANTING
NOT TO SCALE



2 SHRUB AND TREE PLANTING - SLOPES
NOT TO SCALE



WILLOW STAKE NOTES

1. WILLOW STAKE SPECIES SHALL BE A MIX OF SPECIES PRESENT AT AND ADJACENT TO THE CONSTRUCTION SITE.
2. CONTRACTOR RESPONSIBLE FOR PROVIDING SOURCE DOCUMENTATION TO ENGINEER.
3. EACH STAKE SHALL BE 2" TO 3" THICK AT THE BOTTOM TO FACILITATE ROOT GROWTH AFTER TREATMENT WITH ROOTING HORMONE
4. INSERT 30" INTO EXISTING NATIVE MATERIAL.
5. FOR WILLOW STAKES IN ROCK KEYWAYS, TAILWATERS STRUCTURES AND DROP STRUCTURES. INSTALL STAKES AND ROCK CONCURRENTLY AND THEN BACKFILL WITH ROUGHENED CHANNEL BED MIX AND NATIVE MATERIAL. MAINTAIN MIN 30" OF CONTACT WITH NATIVE SOIL. DO NOT ABOVE RIGHT.
6. WILLOW STAKES MUST BE USED WITHIN 36 HRS OF HARVESTING (SEE SPECIFICATIONS FOR HANDLING DETAILS).

3 WILLOW STAKES
NOT TO SCALE

MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

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REGISTERED PROFESSIONAL ENGINEER No. 59080 12-31-15 EXPIRES CIVIL STATE OF CALIFORNIA

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PLANTING PLAN

AGOURA HILLS, LOS ANGELES COUNTY

Size: D
Project: 1300042
Scale: AS NOTED
Date: 2014-2-25
Sheet: 11 OF 23

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IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE – ADJUST ACCORDINGLY

IRRIGATION LEGEND

STANDARD SYMBOL	DESCRIPTION	MANUFACTURER	MODEL # (if applicable)	COMMENTS	DETAIL (see sheet 10)
	Irrigation Trench - Mainline	Sch. 40 PVC for 2" & less		24" below fin. grade	1
	Irrigation Trench - Lateral line	Sch. 40 PVC for line 1" & smaller		18" below fin. grade	1
	Sleeves	Class 315 PVC		24"/18" below fin. grade	1
	Quick-Coupling Valve w/ Swing Joint (in box)	Hunter	HQ5LRC w/ HSJ-1		4
	Quick-Coupling Valve Box	Carson	910 Lockable	10" Round box w/ lid	4
	Dripline Tubing W/ Built in Emitters	Hunter	PLD-04 - 18 - 1K	Extend from lateral PVC	--
	Dripline Tubing	Hunter	PLD-BLNK	Extend from lateral PVC and connect to emitter*	2
	Back Flow Preventor	--	---		2
	Gate Valve (in box)	Nibco	T-113		1
	Gate Valve Box	Carson	910 Lockable		3
	Remote Control Valve (in box)	Hunter	ICZ-101 w/ Node 100 Controller		1
	Remote Control Valve Box	Rainbird	Valve box with cover : Rainbird VB-STD		1

* Emitters not shown on plan

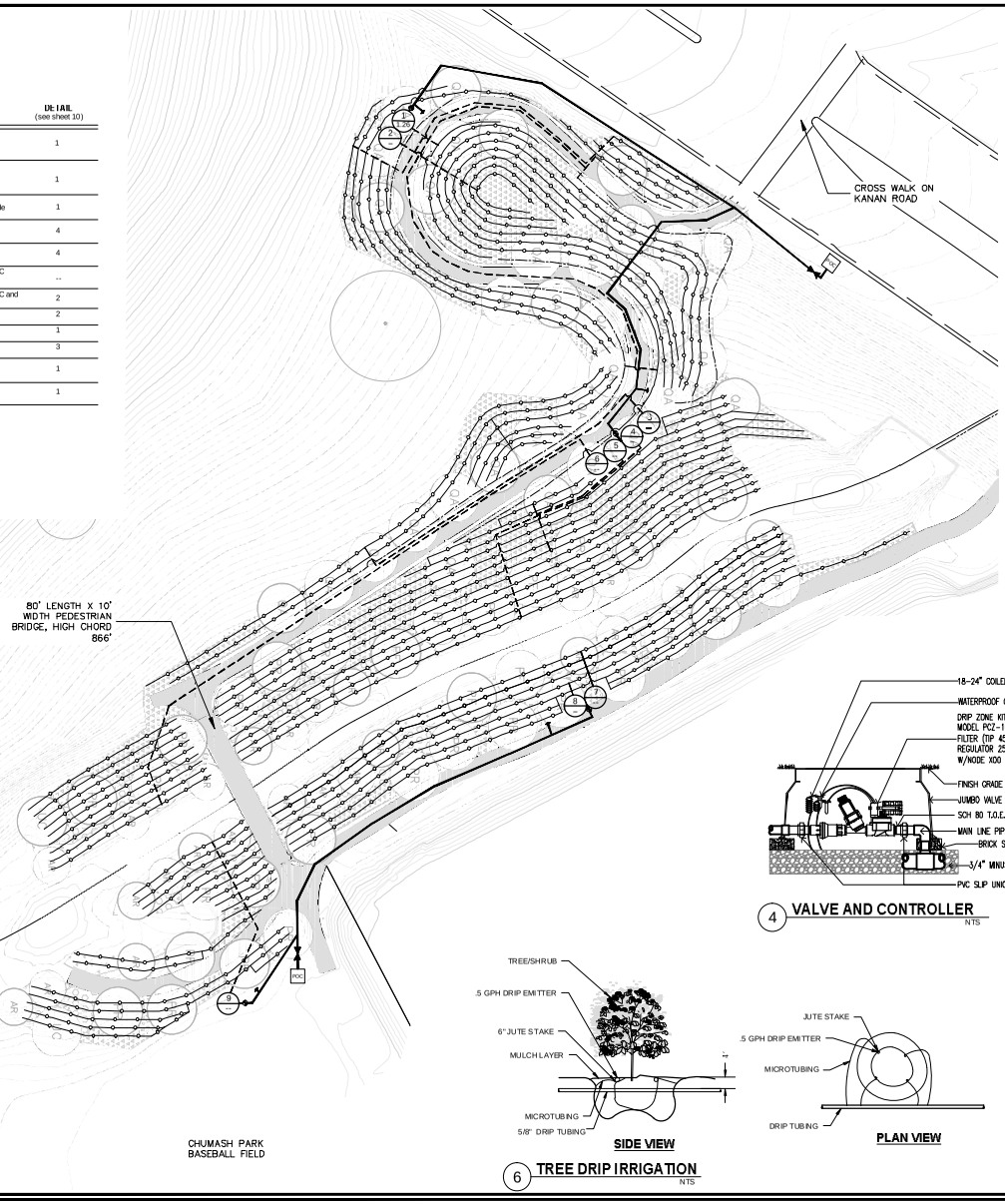
1 — STATION

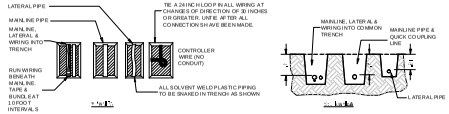
-- — GALLONS/MIN

POC — POINT OF CONNECTION

IRRIGATION NOTES:

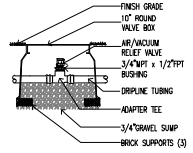
1. These irrigation drawings are diagrammatic and indicate the work to be installed. All piping, valves, and other irrigation components may be shown within paved areas for graphic clarity only and are to be installed within planting areas. Due to the scale of the drawings, it is not possible to indicate all offsets, fittings, sleeves, conduit, and other items which may be required. In the event of field discrepancy with contract documents, contact Engineer install in accordance with Specifications. Notify and coordinate irrigation contract work with applicable contractors for the location and installation of pipe, conduit or sleeves through or under walls, paving and structures before construction. In the event these notifications are not performed, the contractor assumes full responsibility for required revisions.
2. Irrigation pipe and wire crossing beneath hardscape surfaces shall be contained within sleeving. Sleeving size shall be a minimum of two times the aggregate diameter of all pipes contained within sleeve.
3. Contractor shall be responsible for minor changes in the irrigation layout due to obstructions not shown on the irrigation drawings such as utilities, water lines, signs, electrical enclosures, etc.
4. The intent of this irrigation system is to provide the minimum amount of water required to sustain good plant health.
5. It is the responsibility of the contractor to program the irrigation controller(s) to provide the minimum amount of water needed to sustain good plant health. This includes making adjustments to the program for seasonal weather changes, plant material, water requirements and climate.
6. Install controller per manufacturer's recommendations including wire and wire connections.
7. Irrigation control wires: solid copper with UL approval for direct burial in ground.
8. Do not trench within the dripline of trees unless approved by the City. Where it is necessary to excavate adjacent to existing trees, use caution to avoid injury to trees and tree roots. Excavate by hand, in areas where two (2) inch and larger plant roots occur.
9. Remote control valve box locations, as shown, are diagrammatic. Install in planting areas. Contractor to verify and locate point of connection to existing water main in field. Install per manufacturer's instructions in valve box. Adjust to supply sufficient irrigation for optimal plant growth.
10. Flush and adjust system for optimum performance and optimum operating pressure for each control zone.
11. Locate bubblers/emitters on uphill side of plant where applicable.
12. System is designed for operating water pressure 40 PSI. The contractor shall verify water pressure prior to construction. Report any difference between the water pressure indicated on the drawings and the actual pressure reading at the irrigation point of connection to the Engineer.
13. Pipe sizing shown on the drawings is typical. As changes in layout occur during construction the size may need to be adjusted accordingly.
14. Unsized lateral line piping located downstream of 1" piping shall be 3/4" typical.
15. Do not willfully install the irrigation system when it is obvious in the field that wind conditions, obstructions, grade differences, or differences in the area's dimensions exist that might not have been considered in the design. Bring such differences to the attention of the engineer. In the event that this notification is not performed, contractor shall assume full responsibility for all necessary revisions.
16. Install check valves on lateral lines as needed to prevent low head drainage.



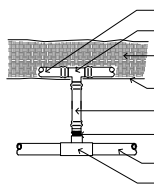


NOTES:
1. SLEEVE BELOW ALL HARDSCAPE ELEMENTS WITH CLASS 315 PVC TWICE THE DIAMETER OF THE PIPE OR WIRE BUNDLE WITHIN BURIAL DEPTH FOR SLEEVES BELOW FINISHED GRADE ARE AS FOLLOWS:
   - 42 INCH MINIMUM UNDER THOROUGHFARE
   - 24 INCH MINIMUM UNDER PLANTER AREA
   - 24 INCH MINIMUM UNDER PARKING LOT
   - 18 INCH MINIMUM UNDER SIDEWALK
   - 36 INCH MINIMUM UNDER TWIN FC CIRCLES (RESIDENTIAL AREAS)
2. ALL SLEEVE BELOW HARDSCAPE SHALL EXTEND 24 INCHES BEYOND HARD SURFACES EDGES.
3. FOR PIPE AND WIRE BURIAL DEPTHS, SEE SPECIFICATIONS.
4. SCH 40 PVC FOR MAINLINE 2 INCHES OR SMALLER.
5. CLASS 315 PVC FOR MAINLINE 2½ INCHES AND LARGER.
6. CLASS 200 PVC FOR 2 INCH LATERAL LINES AND SMALLER.
7. SCH 40 PVC FOR QUICK COUPLING LINE 1 INCH MIN TO 2 INCH MAXIMUM
8. TRENCH BACKFILL SHALL BE NATIVE MATERIAL, COMPACT TO 90% MINIMUM, RELATIVE COMPACTION
9. REFER TO CITY STANDARD DETAIL LSD-14 FOR ALL MATERIALS

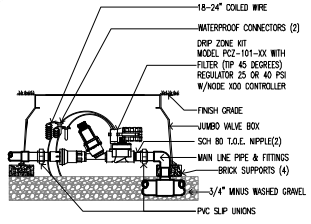
1 **TRENCHING**
NTS



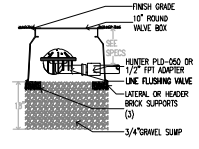
2 **AIR VACUUM RELEASE VALVE**
NTS



3 **LATTERAL LINE TO DRIPLINE CONNECTION**
NTS

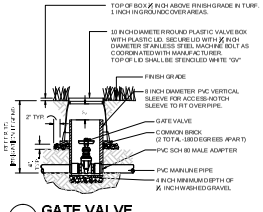


4 **VALVE AND CONTROLLER**
NTS



5 **LINE FLUSH VALVE**
NTS

6 **TREE DRIP IRRIGATION**
NTS



7 **GATE VALVE**
NTS

MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

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IRRIGATION PLAN

AGOURA HILLS, LOS ANGELES COUNTY

Size D | Project 1300042
Scale: AS NOTED
Date: 2014-2-25
Sheet: 12 OF 23

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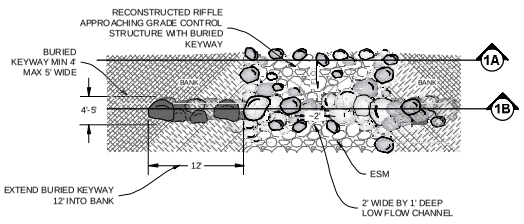
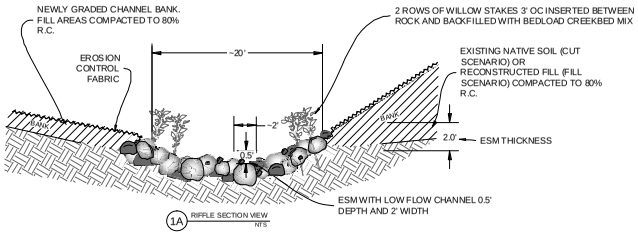
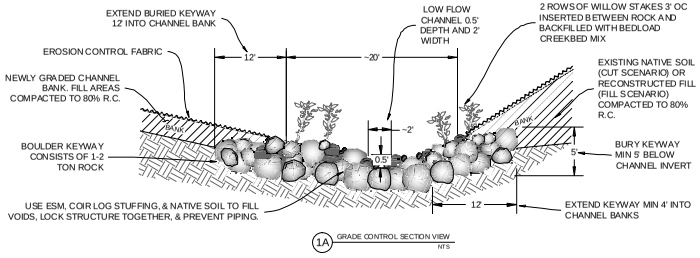
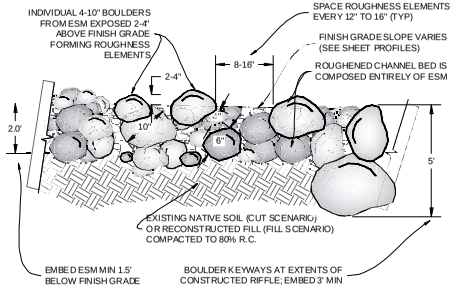






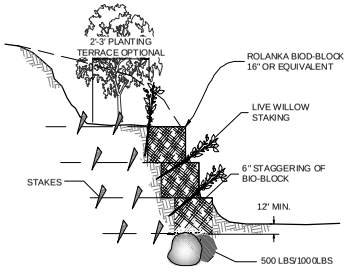
1 CONSTRUCTED RIFFLE AND GRADE CONTROL STRUCTURE PLAN AND SECTIONS

NTS



2 CONSTRUCTED RIFFLE AND GRADE CONTROL PROFILE

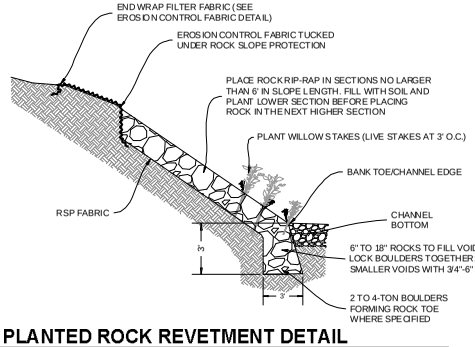
NTS



NOTE: KEY IN BIO-BLOCK UPSTREAM AND DOWNSTREAM EXTENT WITH BOULDER CLUSTER OR LARGE WOOD STRUCTURE

4 BANK STABILIZATION COIR BIO-BLOCK DETAIL

NTS



5 PLANTED ROCK REVETMENT DETAIL

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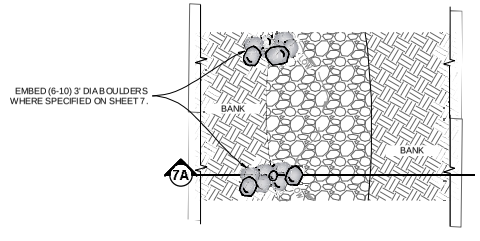

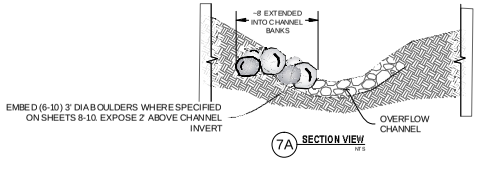

NOTE: WHERE SHOWN ON THE PLANS, INCORPORATE ONE LOG INTO BOULDER CLUSTER PER SHEET 10 DETAILS 4 & 5

7 BOULDER CLUSTER DETAIL

NTS

FEATURE	ROCK SIZE	ROCK WEIGHT AND VOLUME
BOULDERS CLUSTER	½ - 3 TON, 18" - 65"	TOTAL: 35 CY; 70 TN
ANCHOR BOULDERS FOR LWD	2 - 4 TON, 40" - 72"	TOTAL: 45 CY; 90 TN
RSP CULVERT OUTLETS	½ - 3 TON, 18" - 54"	TOTAL: 470 CY; 940 TN
SEWER LINE ARMORING	½ - 1 TON, 12" - 30"	TOTAL: 180 CY; 360 TN
CONSTRUCTED RIFFLE	SEE "ESM" DESCRIPTION AT RIGHT	TOTAL: 480 CY; 960 TN
GRADE CONTROL STRUCTURE	½ - 4 TON, 18" - 72"	TOTAL: 750 CY; 1500 TN

ENGINEERED STREAMBED MATERIAL (ESM)*

SIZE (INCHES)	%PASSING
D84	15"-18"
D50	10"
D30	6"
D16	1"
D0	SAND

*ESM SHALL CONTAIN A MIN OF 10% AND MAX OF 15% NATIVE ON-SITE SOIL

6 ROCK SIZING AND VOLUMES

NTS

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CONSTRUCTION DETAILS 1

AGOURA HILLS, LOS ANGELES COUNTY

Size: D
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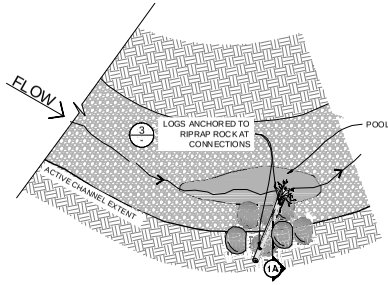
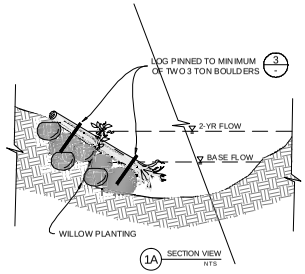
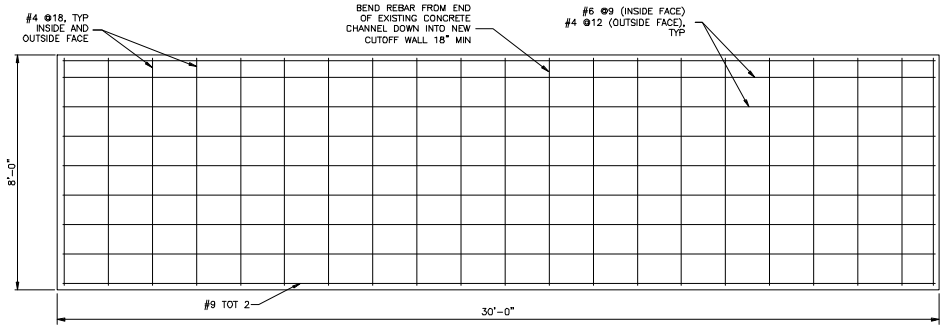




1 ROCK REVETMENT ENHANCEMENT LARGE WOOD STRUCTURE

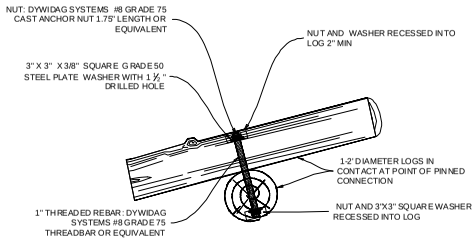
NTS



NOTES:
1. CUTOFF WALL THICKNESS = 1'
2. 2" MINIMUM COVER ON ALL REBAR
3. ALL STRUCTURAL EXCAVATION SHALL BE

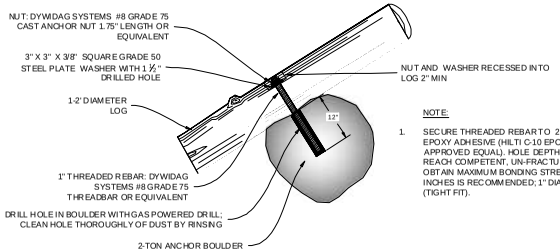
5 CUTOFF WALL DETAILS

NTS



2 LOG-LOG ANCHORING

NTS

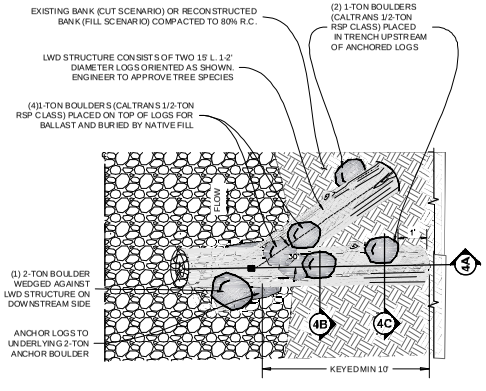


NOTE:

1. SECURE THREADED REBAR TO 2 TON BOULDER USING EPOXY ADHESIVE (HILTI C-10 EPOXY CARTRIDGES, OR APPROVED EQUAL). HOLE DEPTH MUST BE SUFFICIENT TO REACH COMPETENT, UN-FRACTURED ROCK IN ORDER TO OBTAIN MAXIMUM BONDING STRENGTH. A MINIMUM OF 12 INCHES IS RECOMMENDED; 1" DIAMOND-TIPPED DRILL (TIGHT FIT).

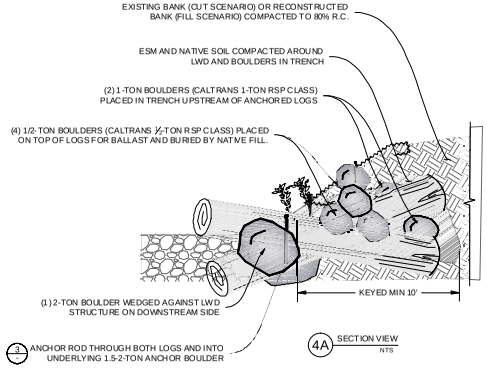
3 LOG-BOULDER ANCHORING

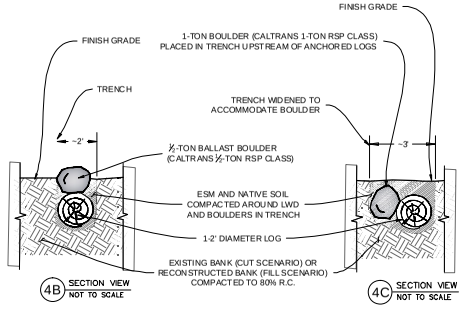
NTS



4 2-LOG LARGE WOOD STRUCTURE

NTS





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MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

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CONSTRUCTION DETAILS 2

AGOURA HILLS, LOS ANGELES COUNTY

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Date: 2014-11-25
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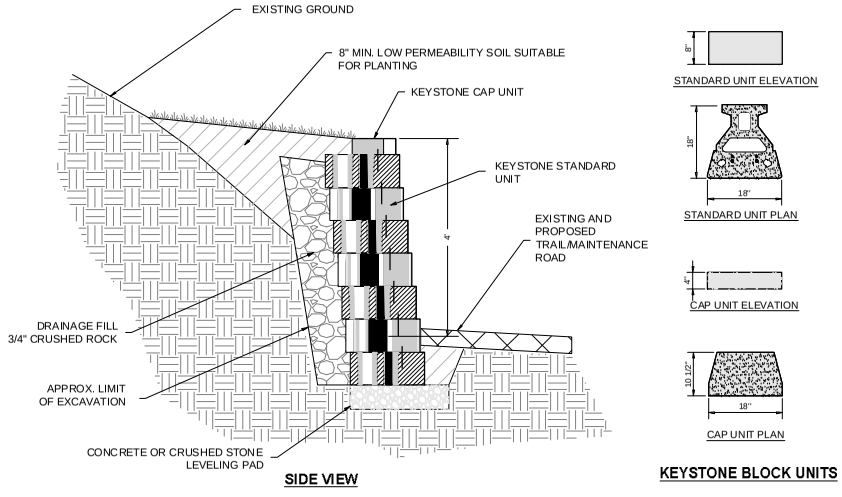
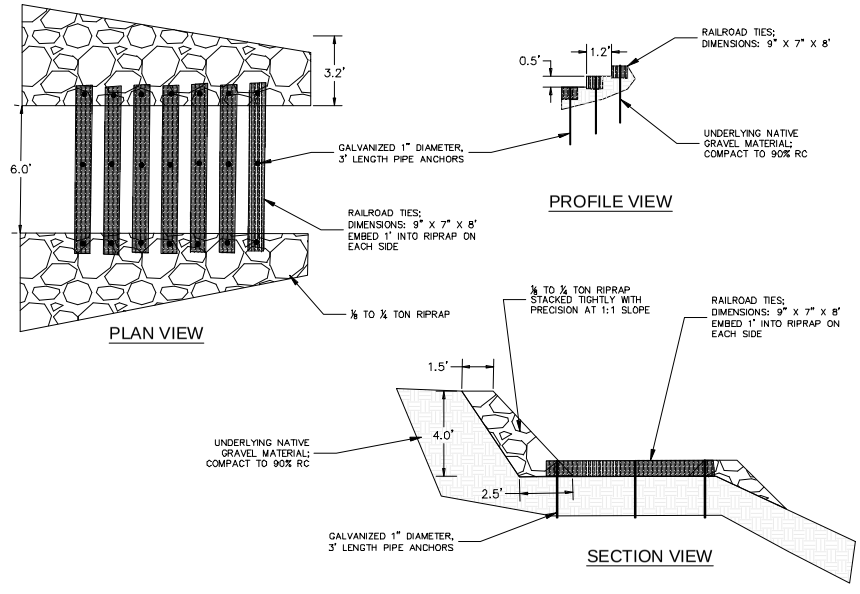


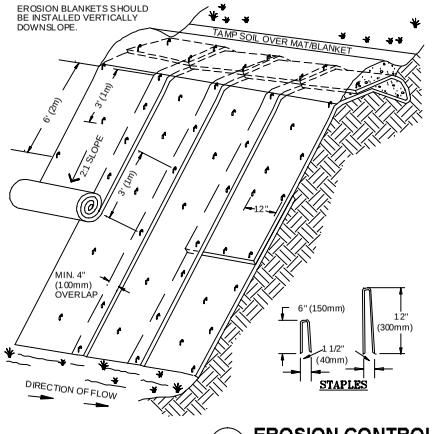
1 KEYSTONE RETAINING WALL

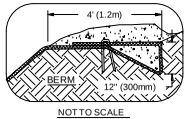
NTS



2 TRAIL STEPS

NTS



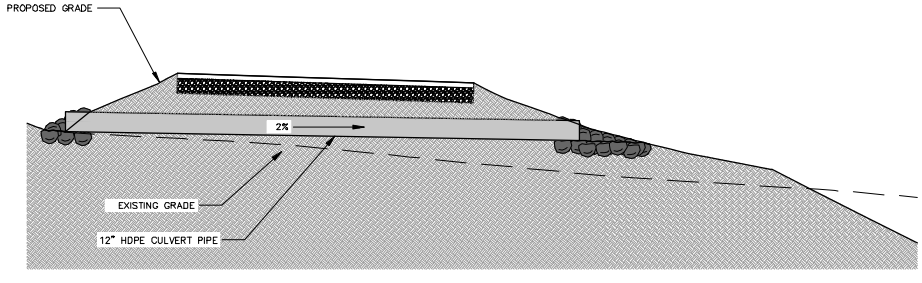


EROSION BLANKETS & TURF REINFORCEMENT MATS SLOPE INSTALLATION

NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/ BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

3 EROSION CONTROL FABRIC

NTS



4 CULVERT SECTION

NTS

MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

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CONSTRUCTION DETAILS 3

AGOURA HILLS, LOS ANGELES COUNTY

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Sheet: 15 OF 23

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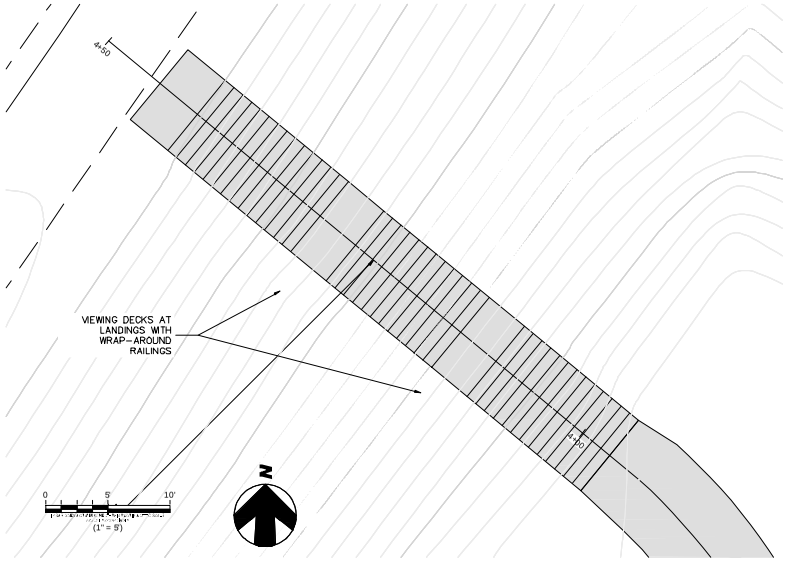
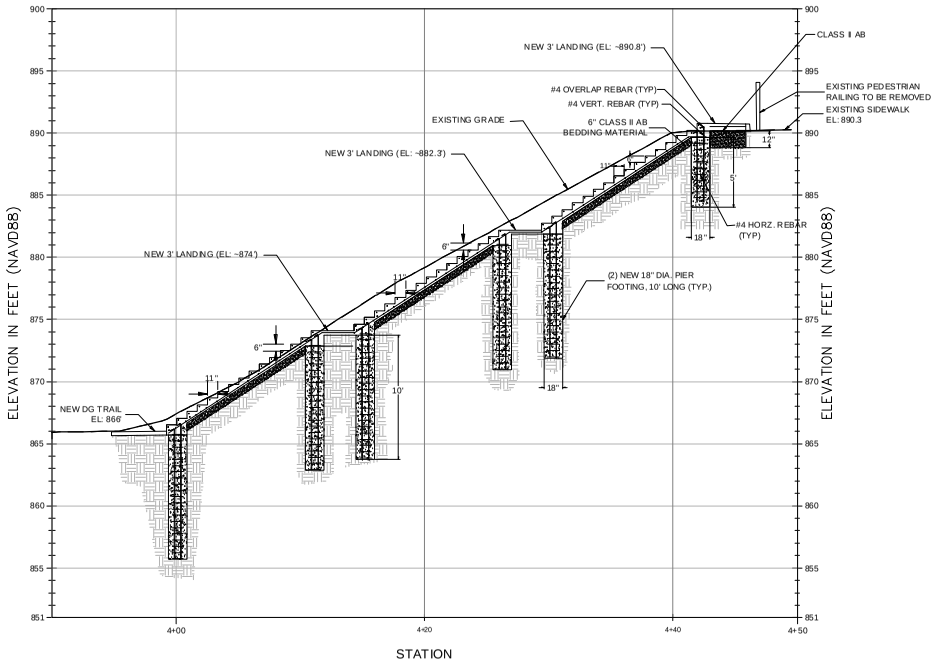
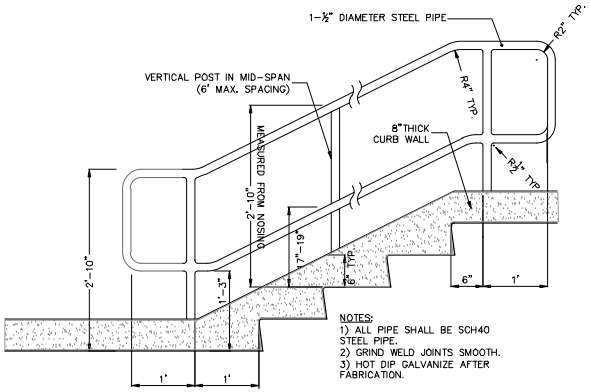


1 STAIRS - PLAN VIEW



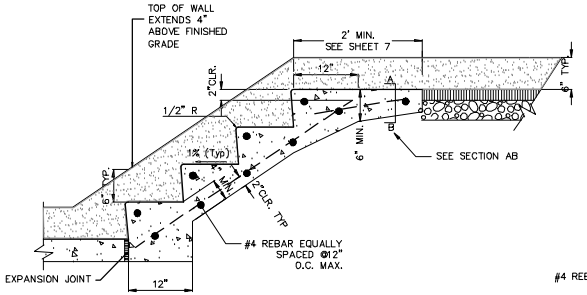
2 STAIRS - PROFILE VIEW



NOTES:
1) ALL PIPE SHALL BE SCH40 STEEL PIPE.
2) GRIND WELD JOINTS SMOOTH.
3) HOT DIP GALVANIZE AFTER FABRICATION.

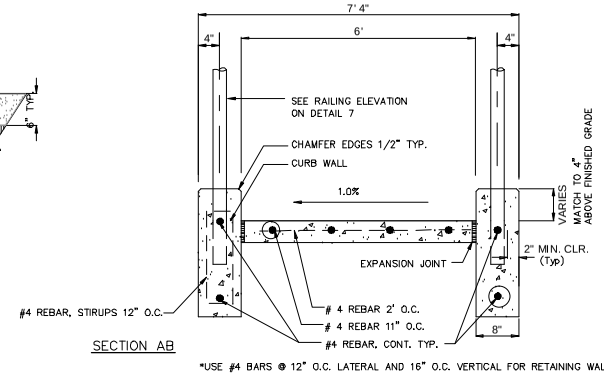
3 STAIRS - RAILING DETAIL

NTS



4 STAIRS - STEP CONSTRUCTION DETAIL

NTS



*USE #4 BARS @ 12" O.C. LATERAL AND 16" O.C. VERTICAL FOR RETAINING WALL SIDE

5 STAIRS - CROSS SECTION DETAIL

NTS

*ALL FOUNDATION EXCAVATIONS MUST BE OBSERVED AND APPROVED IN WRITING BY PROJECT GEOTECHNICAL CONSULTANT PRIOR TO PLACEMENT OF REINFORCING STEEL

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CITY OF AGOURA HILLS

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CONSTRUCTION DETAILS 4

AGOURA HILLS, LOS ANGELES COUNTY

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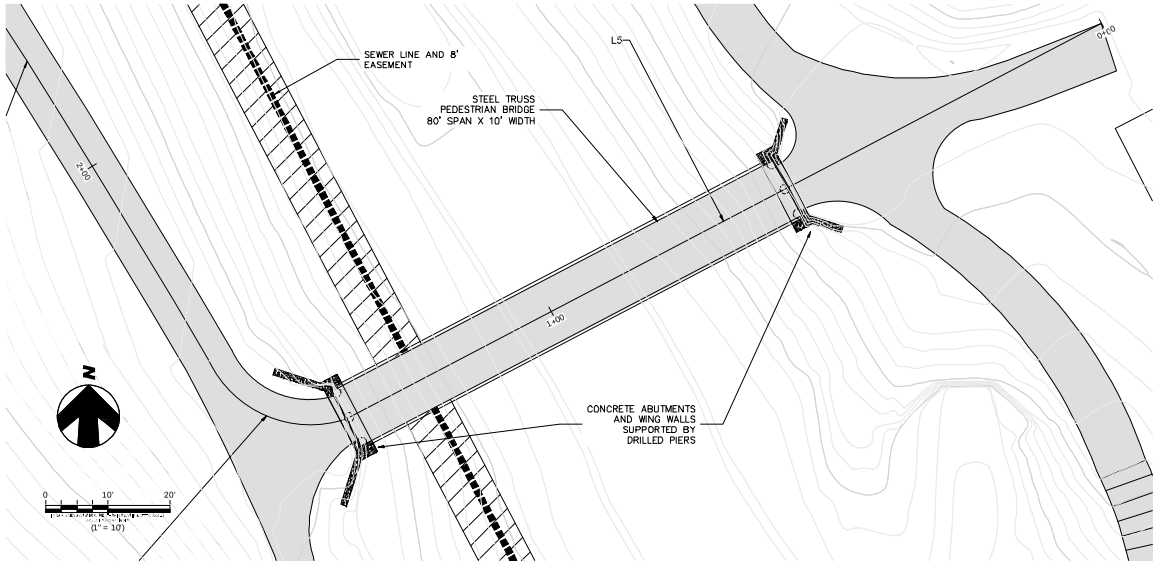
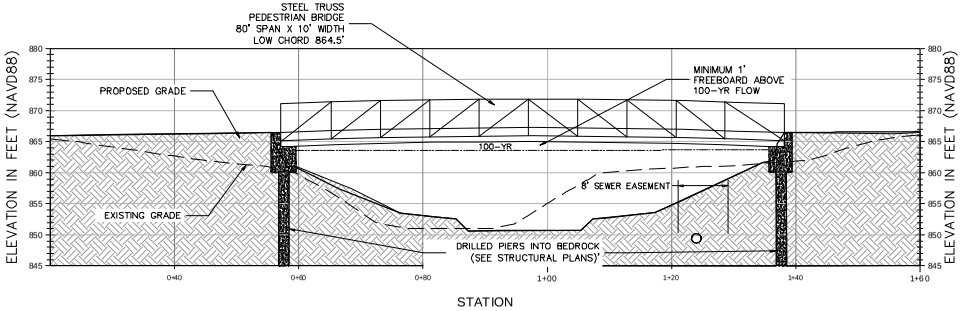
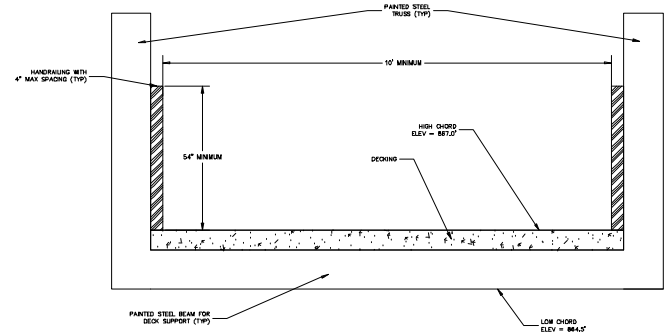


1 BRIDGE - PLAN VIEW



3 TRAIL PROFILE AT PEDESTRIAN BRIDGE

NTS



2 BRIDGE CROSS SECTION

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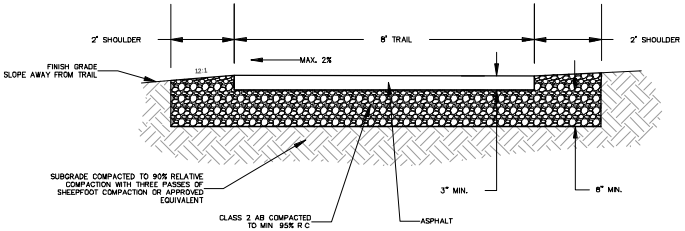

4 ASPHALT TRAIL SECTION

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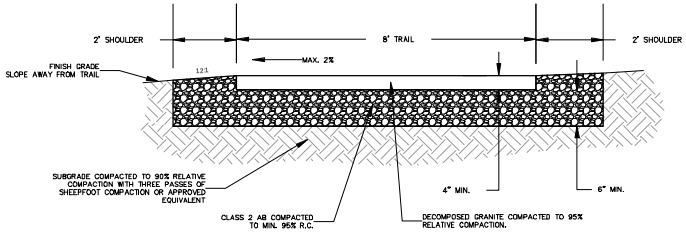

5 DECOMPOSED GRANITE TRAIL SECTION

NTS

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MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

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CONSTRUCTION DETAILS 5

AGOURA HILLS, LOS ANGELES COUNTY

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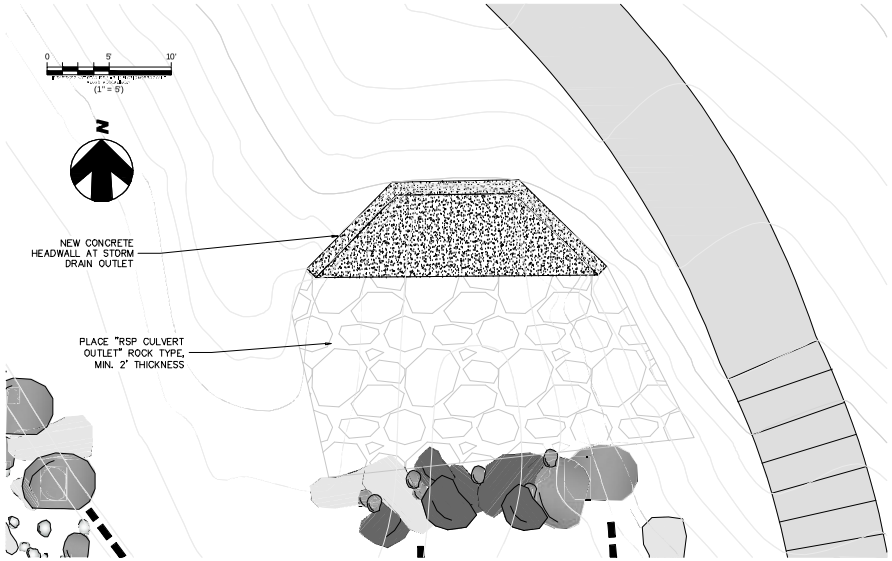
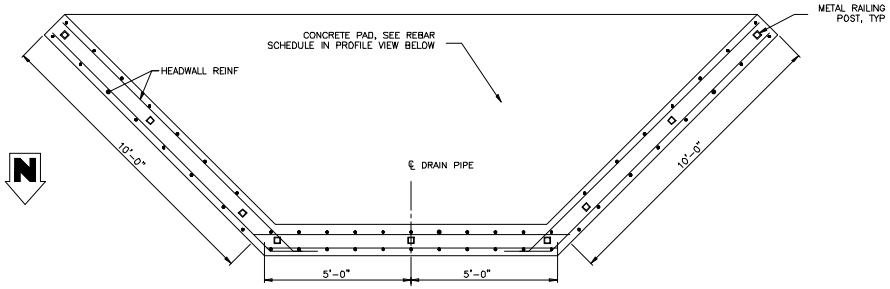
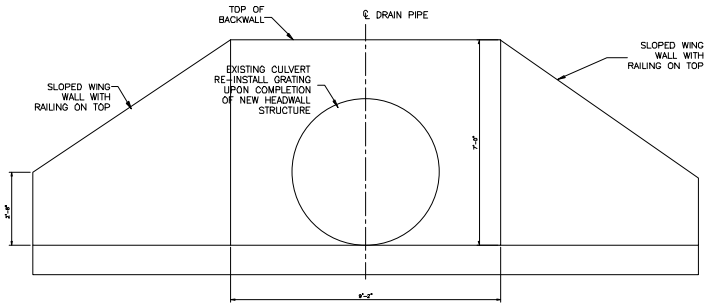


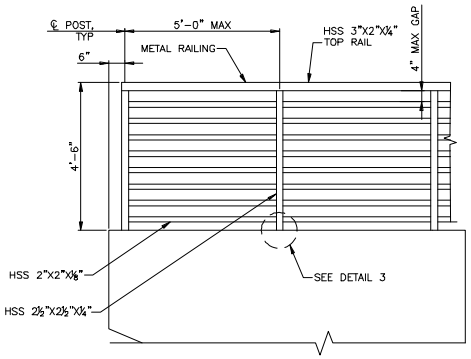
1 **STORM DRAIN OUTFLOW - OVERVIEW**



4 **STORMDRAIN OUTLET PLAN VIEW DETAIL**

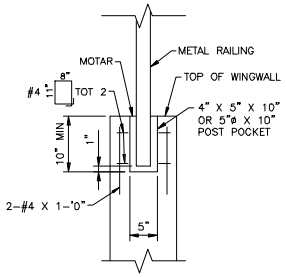


5 **STORMDRAIN CROSS SECTION DETAIL**



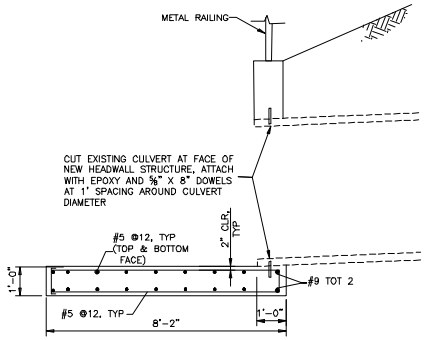
2 **METAL RAILING (TYP)**

NTS



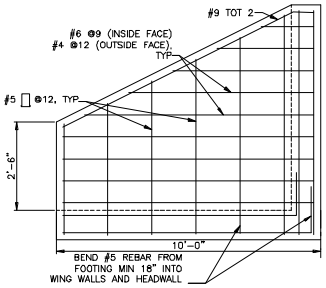
3 **RAILING CONNECTION (TYP)**

NTS



6 **STORMDRAIN PROFILE VIEW DETAIL**

NTS



7 **STORMDRAIN HEADWALL REBAR SCHEDULE**

NTS

60% DESIGN NOT FOR CONSTRUCTION

MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

QUESTA ENGINEERING CORP.
Civil Environmental & Water Resources
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807
(510) 236-6114 FAX (510) 236-2423 questa@questaeng.com

Sht:	Rev:	Date:	By:	Description:	Appr'd:

Design: ST/JM
Drawn: JM
Checked: ST
Appr'd: ST

STORM DRAIN OUTLET DETAILS

AGOURA HILLS, LOS ANGELES COUNTY

Size: D
Project: 1300042
Scale: AS NOTED
Date: 2014-11-25
Sheet: 18 OF 23

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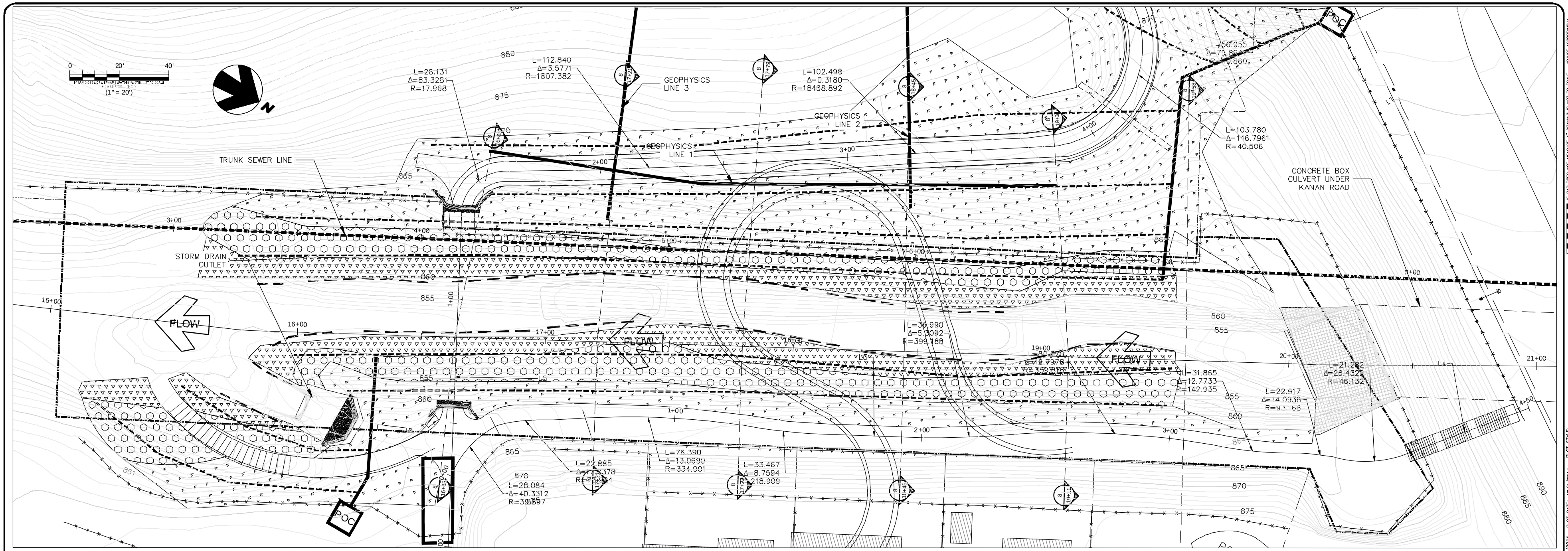
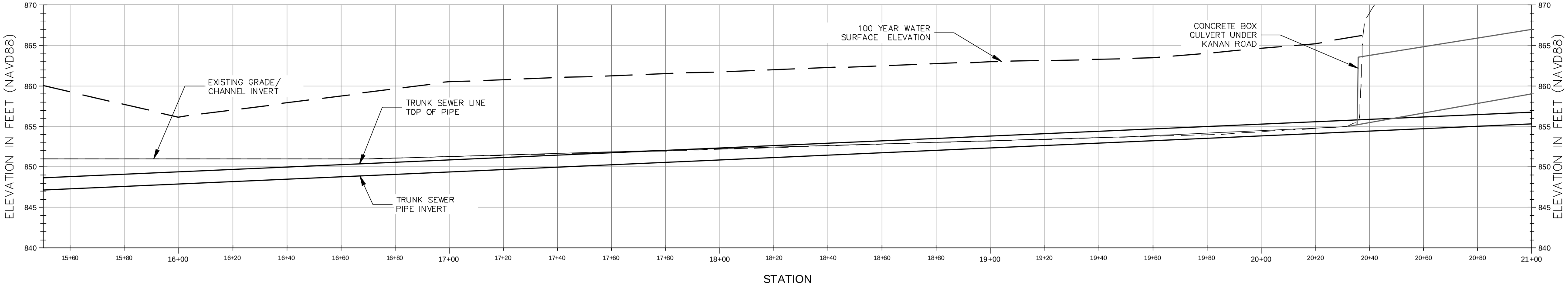
LAST SAVED: 12/1/2014 PLOT DATE: 12/1/2014 PLOT STYLE: ----

IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE – ADJUST ACCORDINGLY



35% DESIGN
NOT FOR CONSTRUCTION

EXISTING CHANNEL AND SEWER LINE PROFILE



MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

QUESTA ENGINEERING CORP.
Civil
Environmental
& Water Resources
(510) 236-6114
FAX (510) 236-2423
questa@questaec.com
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

Sht	Rev:	Date:	By:	Description:	App'd:

Design:	ST/JM
Drawn:	JM
Checked:	ST
Appr'd:	ST

EXISTING CONDITIONS PLAN & PROFILE WITH SEWER LINE

AGOURA HILLS, LOS ANGELES COUNTY

Size	D
Project	1300042
Scale:	AS NOTED
Date:	2014-11-25
Sheet:	3 OF 23

LAST SAVED: 12/1/2014 PLOT DATE: 12/1/2014 PLOT STYLE: ----
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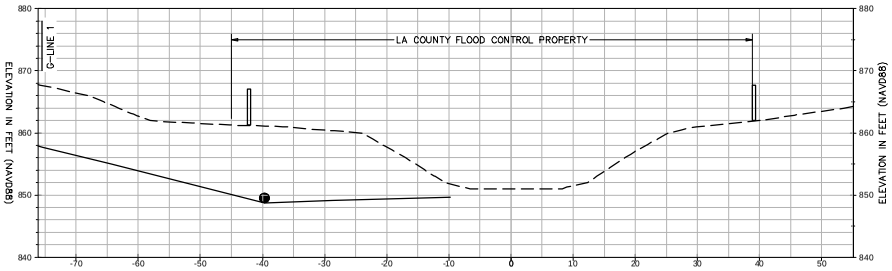
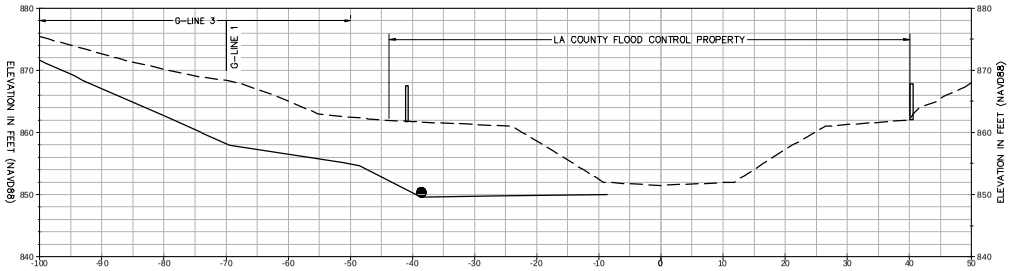
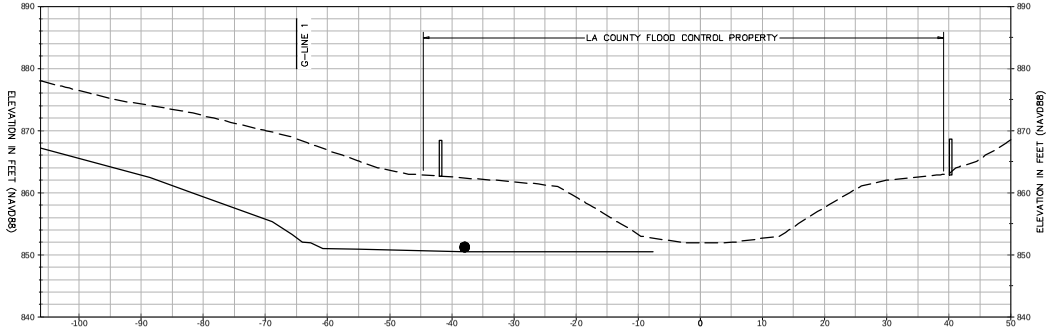
STA 16+63



STA 17+21



STA 17+79

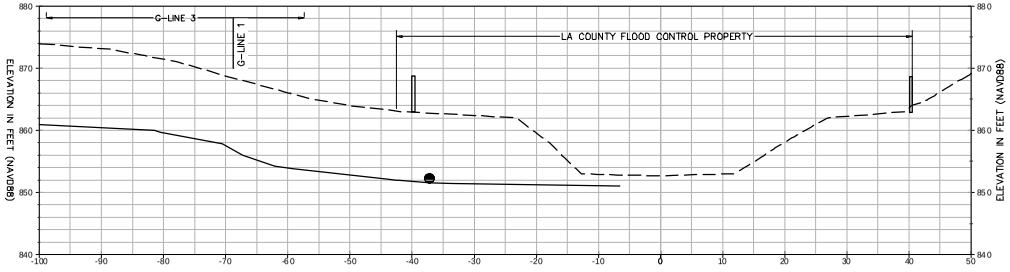


LEGEND

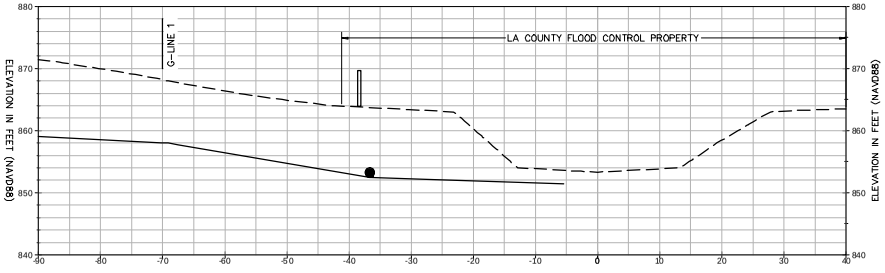
- EXISTING GROUND SURFACE
- BEDROCK CONTACT
- 18" DIAMETER TRUNK SEWER LINE
- EXISTING FENCE LINE

35% DESIGN
NOT FOR CONSTRUCTION

STA 18+45



STA 19+11



IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE – ADJUST ACCORDINGLY

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MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

QUESTA ENGINEERING CORP.
Civil Environmental & Water Resources
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807
(510) 236-6114 FAX (510) 236-2423 questa@questaec.com

REGISTERED PROFESSIONAL ENGINEER No. 59690 12-31-15 EXPIRES STATE OF CALIFORNIA

Sht:	Rev:	Date:	By:	Description:	Appr'd:

Design: ST/JM
Drawn: JM
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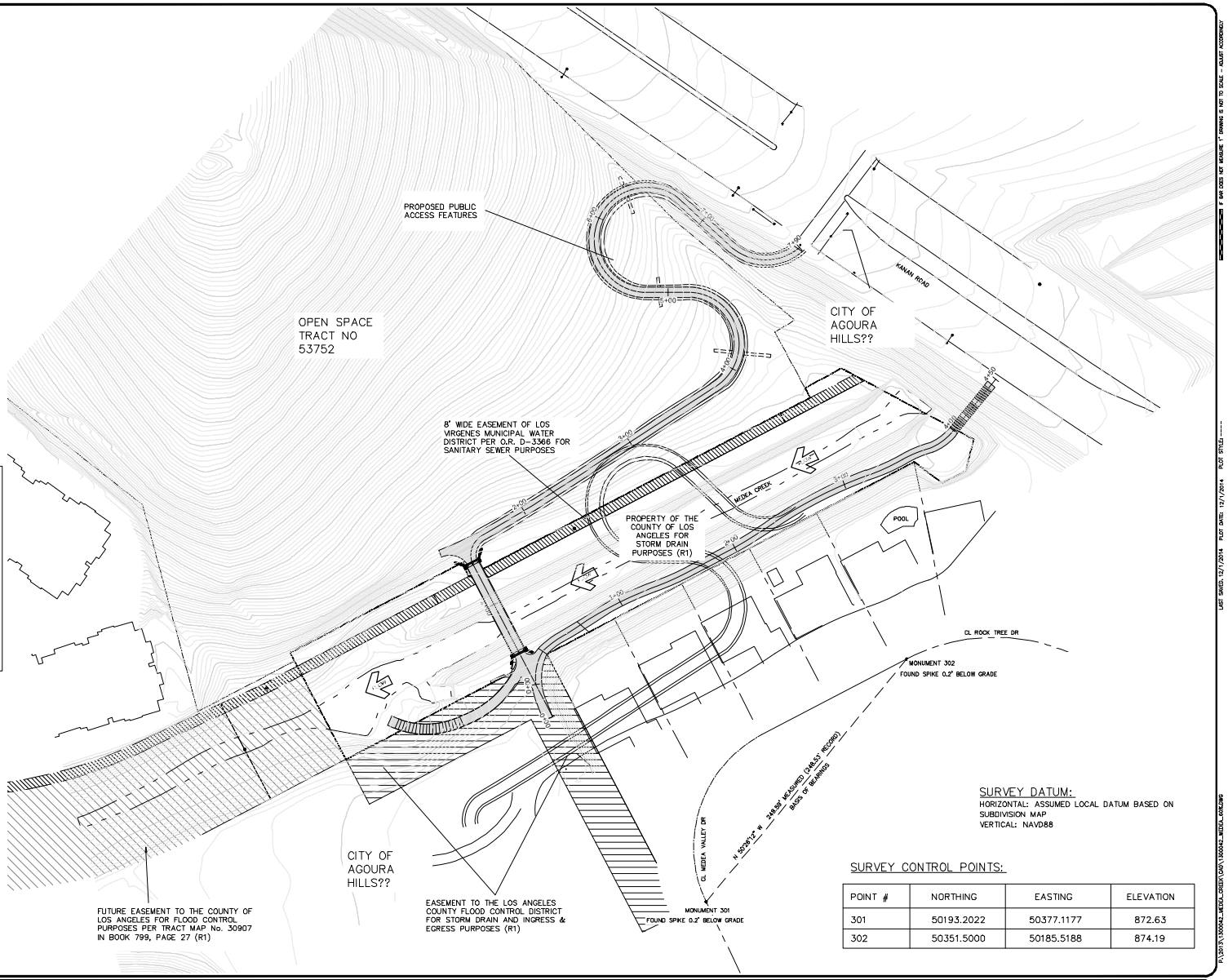
Appr'd: ST

EXISTING CHANNEL SECTIONS - BEDROCK AND SEWER LINE

AGOURA HILLS, LOS ANGELES COUNTY

Size: D
Project: 1300042
Scale: AS NOTED
Date: 2014-11-25
Sheet: 4 OF 23



LEGEND

- EASEMENTS
- EXTENT OF LA COUNTY FLOOD CONTROL PROPERTY
- OTHER PARCEL BOUNDARIES
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR

0 30' 60'
(1" = 30')

N

SURVEY DATUM:

HORIZONTAL: ASSUMED LOCAL DATUM BASED ON SUBDIVISION MAP
VERTICAL: NAVD88

SURVEY CONTROL POINTS:

POINT #	NORTHING	EASTING	ELEVATION
301	50193.2022	50377.1177	872.63
302	50351.5000	50185.5188	874.19

60% DESIGN
NOT FOR CONSTRUCTION

MEDEA CREEK RESTORATION

CITY OF AGOURA HILLS

QUESTA ENGINEERING CORP.
Civil Environmental & Water Resources
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807
(510) 236-6114
FAX (510) 236-2423
questa@questaeng.com

REGISTERED PROFESSIONAL ENGINEER No. 59696 12-31-15 EXPIRES CIVIL STATE OF CALIFORNIA

Sht.	Rev.	Date:	By:	Description:	Appr'd.

Design: ST/JM
Drawn: JM
Checked: ST
Appr'd: ST

PARCEL OWNERSHIP MAP

AGOURA HILLS, LOS ANGELES COUNTY

Size: D
Project: 1300042
Scale: AS NOTED
Date: 2014-11-25
Sheet: XX OF 23

LAST SAVED: 12/1/2014 PLOT DATE: 12/1/2014 PLOT STYLES: ----
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IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE - ADJUST ACCORDINGLY

Appendix E

Responses to Comments on the Draft IS-MND

RESPONSES to COMMENTS on the DRAFT IS-MND

This section includes comments received during the circulation of the Draft Initial Study and Mitigated Negative Declaration (IS-MND) for the Medea Creek Restoration Project (SCH# 2015011008) and responses to those comments.

The IS-MND was circulated for a 30-day public review period that began on January 15, 2015 and concluded on February 16, 2015. The City received three (3) comment letters on the IS-MND. The commenter and the page number on which each commenter's letter appears are listed below.

Letter No. and Commenter	Page No.
1. State Clearinghouse - Office of Planning Research	RTC-2
2. Molly Vrazilek	RTC-5
3. Mary Wiesbrock, Chair, Save Open Space	RTC-9
4. County of Los Angeles Fire Department	RTC-11

The comment letters and responses follow. Each comment letter has been numbered sequentially and each separate issue raised by the commenter, if more than one, has been assigned a number. The responses to each comment identify first the number of the comment letter, and then the number assigned to each issue (Response 1.1, for example, indicates that the response is for the first issue raised in comment Letter 1).

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

Letter 1

CITY OF AGOURA HILLS
2015 FEB 17 PM 1:27
CITY CLERK

February 10, 2015

Allison Cook
City of Agoura Hills
30001 Ladyface Court
Agoura Hills, CA 91301

Subject: Madea Creek Restoration Project
SCH#: 2015011008

Dear Allison Cook:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on February 9, 2015, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2015011008
Project Title Madea Creek Restoration Project
Lead Agency Agoura Hills, City of

Type MND Mitigated Negative Declaration

Description The project consists of naturalizing a portion of Medea Creek for aesthetic and biological habitat purposes, and improving pedestrian connections in the area. Naturalization consists of removing about 425 linear feet of concrete channel and construction of a natural channel stabilized with native vegetation, boulders and log structures. The project would provide pedestrian connectivity from Kanan Road through a vacant parcel to the west of Medea Creek to Chumash Park east of Medea Creek via a footbridge.

Lead Agency Contact

Name Allison Cook
Agency City of Agoura Hills
Phone 818 597 7310 **Fax**
email
Address 30001 Ladyface Court
City Agoura Hills **State** CA **Zip** 91301

Project Location

County Los Angeles
City Agoura Hills
Region
Lat / Long
Cross Streets Kanan Road, between Canwood Street and Thousand Oaks Blvd
Parcel No. 2048-007-900, -004, 901
Township **Range** **Section** **Base**

Proximity to:

Highways Hwy 101
Airports
Railways
Waterways Medea Creek
Schools Agoura HS
Land Use Open Space - Deed Restricted; Park, Freeway Corridor, Drainage, Open Space - Restricted

---

Project Issues Aesthetic/Visual; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Growth Inducing; Landuse; Cumulative Effects

---

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Wildlife, Region 5; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Office of Emergency Services, California; Resources, Recycling and Recovery; California Highway Patrol; Caltrans, District 7; Air Resources Board; Regional Water Quality Control Board, Region 4; Native American Heritage Commission; State Lands Commission

---

Date Received 01/09/2015 **Start of Review** 01/09/2015 **End of Review** 02/09/2015

Note: Blanks in data fields result from insufficient information provided by lead agency.

Letter 1

COMMENTER: State Clearinghouse – Office of Planning and Research

DATE: February 10, 2015

Response 1

The commenter confirms that the IS-MND was circulated for a period of 30 days and that no state agencies submitted comments on the proposed project. The commenter acknowledges that the City complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

This comment is noted and no response is necessary.

From: molly vrazilek
Sent: Monday, January 26, 2015 10:36 AM
To: Allison Cook
Subject: Madea Creek Restoration Project

Letter 2

Dear Allison,

This E-mail is a follow up to our phone conversation. As stated, I am very concerned with increased foot traffic, increased drug and graffiti activities.
Agoura High School students and local workers often cut thru Chumash Park . This activity causes increased noise and loitering. On several occasions we
had to contact the local police to alert them of possible drug activity that occurs behind our house under the bridge.

I understand that you would like to allow for walking trails, but as this project becomes a reality, it will also increase the negative/crime in our back yard.
I spoke with several neighbors who have similar concerns.

As a long time residence of Agoura Hills, I have been pleased with the City's response to my and my neighbors input and concerns I am hoping this will remain.

Thank you in advance

Molly Vrazilek
5505 Rock Tree Drive
Agoura Hills,

Letter 2

COMMENTER: Molly Vrazilek

DATE: January 26, 2015

Response 2

The commenter expresses concern regarding the potential for increased foot traffic in proximity to her property (5505 Rock Tree Drive) as a result of the proposed project.

As noted by the commenter and discussed in the IS-MND, an informal trail is currently present along the edge of the existing fence behind the back yards of the residential parcels adjacent to the east side of the channel (off Medea Valley Drive and Rock Tree Drive). The informal trail connects Chumash Park to Kanan Road. This trail is unimproved, consisting of a dirt surface with steep gradients. See **Photos 1 through 4** below.

Photo 1: View of the informal trail on the east side of the Medea Creek corridor facing southeast near when Medea Creek crosses under Kanan Road.

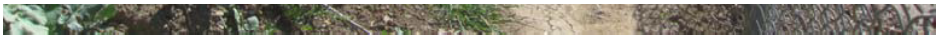


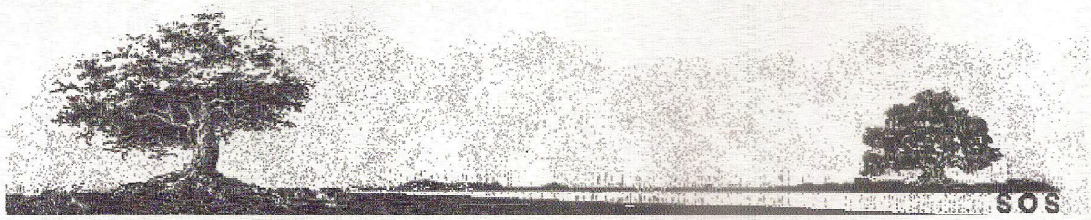
Photo 2: View of the informal trail on the east side of the Medea Creek corridor facing southeast near the rear of 5505 and 5503 Rock Creek Drive.

Photo 3: View of the informal trail on the east side of the Medea Creek corridor facing northwest near the rear of 5500 Medea Valley Drive.

Photo 4: View of the informal trail on the east side of the Medea Creek corridor facing northeast near the rear of 5515 and 5505 Rock Creek Drive.

The proposed project would replace the informal trail with a surfaced trail. Unlike the current informal trail, the surfaced trail would be separated from the adjacent residential properties by a four-foot retaining wall and landscaped buffer. In addition, the proposed project would provide an ADA-compliant trail on the western portion of the site (on the other side of the creek), which would provide pedestrians an additional point of access to Kanan Road to what is currently available Therefore, foot traffic would be split between the two trails, and would be buffered from the existing homes by a wall and landscaping.

The commenter also indicates her concern that increased foot traffic could bring "increased drug and graffiti activities," noise, loitering and crime. As noted above, the existing trail near the residences would be made more formal, which could have the result of making the area more visible and therefore discouraging loitering and unwanted activities. The improved trail would be separated from the homes by a retaining wall and landscape buffers providing more privacy to the homes. The addition of a trail on the other side of the creek may also deflect some foot traffic away from the area of the homes by providing an alternate route. It should be noted that the homes as well as the creek, existing trail to be improved and proposed new trail are located adjacent to Chumash Park, which can accommodate a large number of people and serves as a site for many recreation activities and public events. The development of an improved trail and a new trail related to this project is not expected to significantly increase noise and traffic above that currently existing in the general area. Police protection services will continue to be provided to this site, and the IS-MND for the project indicates that no significant impact to such services is expected.



Save Open Space ✧ P. O. Box 1284 ✧ Agoura, CA 91376

Letter 3

February 14, 2015

Comments: Media Creek Restoration Project

Allison Cook, Principal Planner
City of Agoura Hills
Planning and Development

Dear Allison:

Save Open Space (SOS) is on record for supporting naturalization of all the creeks in Agoura Hills and pedestrian/bicycle pathways along them. (General Plan comments) SOS has two suggestions for this Media Creek Restoration Project:

1) Add ramp alongside the stairway to Kanan. This ramp would be for bicyclists and the handicapped.
2) Along the northern side of the Annandale condos add a trail to intersect with the trail that already goes around the Chumash ball-field. This northern side is the least steep side with a gentle slope. This enables Annandale II condos to have easy access to this Media Creek Restoration Project.

Thank you for all your work on this wonderful project for Media Creek and our hikers, pedestrians and bicyclists!

Mary Wiesbrock

Mary Wiesbrock, Chair SOS

Letter 3

COMMENTER: Mary Wiesbrock, Chair, Save Open Space

DATE: February 14, 2015

Response 3

The commenter indicates her support for the proposed project and offers two suggestions for the project design. These are as follows:

1) Add ramp alongside the stairway to Kanan Road for bicyclists and handicapped users.
2) Along the northern side of the Annandale condos add a trail to intersect with the trail that currently is located around the edge of the Chumash ball-field.

The commenter's support for the proposed project is noted. Note that the slope on the eastern side of the project site where the stairs would connect the pedestrian pathway to Kanan Road precludes provision of an ADA-compliant ramp. However, an ADA compliant trail is provided as part of the proposed project and could also be used by cyclists. The proposed 12-foot wide ADA compliant trail on the west side of the channel would connect Kanan Road to Chumash Park via a pedestrian bridge. See Sheet 9 of the preliminary construction drawings included in Appendix D for further detail.

The Annandale condos are located at the southeast corner of East Thousand Oaks Boulevard and Kanan Road. Pedestrian and bicycle access from the Annandale condos to the project site is currently available via the residential streets in the surrounding area; Rock Tree Drive, Agoura Glen Drive and Medea Valley Drive. These lightly travelled, residential streets provide direct access to Chumash Park for pedestrians and cyclists from the Annandale condos.

COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294

CITY OF AGOURA HI
2015 FEB 19 PM 3:50
CITY CLERK

DARYL L. OSBY
FIRE CHIEF
FORESTER & FIRE WARDEN

Letter 4

February 3, 2015

Allison Cook, Principal Planner
City of Agoura Hills
Planning Department
30001 Ladyface Court
Agoura Hills, CA 91301

Dear Ms. Cook:

NOTICE OF AVAILABILITY, NOTICE OF INTENT TO ADOPT AN INITIAL STUDY/MITIGATED NEGATIVE DECLARATION, "MEDEA CREEK RESTORATION PROJECT," IT CONSISTS OF NATURALIZING A PORTION OF MEDEA CREEK FOR AESTHETIC BIOLOGICAL HABITAT PURPOSES, AND IMPROVING PEDESTRIAN CONNECTIONS IN THE AREA, IT'S BETWEEN CANWOOD STREET AND THOUSAND OAKS BOULEVARD, AGOURA HILLS (FFER 201500016)

The Notice of Availability, Notice of Intent to Adopt an Initial Study/Mitigated Negative Declaration has been reviewed by the Planning Division, Land Development Unit, Forestry Division, and Health Hazardous Materials Division of the County of Los Angeles Fire Department. The following are their comments:

PLANNING DIVISION:

1. We have no comments at this time. 4.1

LAND DEVELOPMENT UNIT:

1. The County of Los Angeles Fire Prevention Land Development Unit has no objection to the Medea Creek Restoration Project. 4.2

SERVING THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY AND THE CITIES OF:

AGOURA HILLS	CALABASAS	DIAMOND BAR	HIDDEN HILLS	LA MIRADA	MALIBU	POMONA	SIGNAL HILL
ARTESIA	CARSON	DUARTE	HUNTINGTON PARK	LA PU NTE	MAYWOOD	RANCHO PALOS VERD S	SOUTH EL MONTE
AZUSA	C RRITOS	EL MONTE	INDUSTRY	LAKEWOOD	NORWALK	ROLLING HILLS	SOUTH GATE
BALDWIN PARK	CLAREMONT	GARDENA	INGLEWOOD	LANCASTER	PALMDALE	ROLLING HILLS ESTATES	TEMPLE CITY
BELL	COMMERCE	GLENDORA	IRWINDALE	LAWNDALE	PALOS VERDES ESTATES	ROSEMEAD	WALNUT
BELL GARDENS	COVINA	HAWAIIAN GARDENS	LA CANADA FLINTRIDGE	LOMITA	PARAMOUNT	SAN DIMAS	WEST HOLLYWOO
BELLFLOWER	CUDAHY	HAWTHORNE	LA HABRA	LYNWOOD	PICO RIVERA	SANTA CLARITA	WESTLAKE VILLAG
BRADBURY							WHITTIER

2. Should any questions arise regarding subdivision, water systems, or access, please contact the County of Los Angeles Fire Department's Land Development Unit's Inspector Nancy Rodeheffer at (323) 890-4243.

3. The County of Los Angeles Fire Department's Land Development Unit appreciates the opportunity to comment on this project. 4.2 cont.

FORESTRY DIVISION – OTHER ENVIRONMENTAL CONCERNS:

1. The statutory responsibilities of the County of Los Angeles Fire Department's Forestry Division include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for Very High Fire Hazard Severity Zones or Fire Zone 4, archeological and cultural resources, and the County Oak Tree Ordinance. 4.3

HEALTH HAZARDOUS MATERIALS DIVISION:

1. The Health Hazardous Materials Division has no objection to the proposed project. 4.4

If you have any additional questions, please contact this office at (323) 890-4330.

Very truly y rs,

KEVIN T. JOHNSO , ACTING CHIEF, FORESTRY DIVISION
PREVENTION SERVICES BUREAU

KTJ:ad

Letter 4

COMMENTER: County of Los Angeles Fire Department

DATE: February 3, 2015

Response 4.1

The commenter states that the Planning Division has no comment at this time.

This comment is noted and no response is necessary.

Response 4.2

The commenter states that the Land Development Unit has no objection to the proposed project. The commenter goes on to provide contact information for questions regarding subdivision, water systems or access.

This comment is noted and no response is necessary.

Response 4.3

The commenter states that the statutory responsibilities of the County of Los Angeles Fire Department's Forestry Division include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for Very High Fire Hazard Severity Zones or Fire Zone 4, archaeological and cultural resources and the County Oak Tree Ordinance.

This information is noted. No comments on the analysis contained in the environmental documentation were provided; therefore, no further response is necessary.

Response 4.4

The commenter states that the Health and Hazardous Materials Division has no objection to the proposed project.

This comment is noted and no response is necessary.

Appendix F

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PROGRAM

The Final Initial Study-Mitigated Negative Declaration identifies the mitigation measures that will be implemented to reduce the impacts associated with the Medea Creek Restoration Project. The California Environmental Quality Act (CEQA) was amended in 1989 to add Section 21081.6, which requires a public agency to adopt a monitoring and reporting program for assessing and ensuring compliance with any required mitigation measures applied to proposed development.

As stated in Section 21081.6 of the Public Resources Code,

> ... the public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment.

Section 21081.6 provides general guidelines for implementing mitigation monitoring programs and indicates that specific reporting and/or monitoring requirements, to be enforced during project implementation, shall be defined as part of adopting a mitigated negative declaration.

The mitigation monitoring table lists those mitigation measures that may be included as conditions of approval for the project. To ensure that the mitigation measures are properly implemented, a monitoring program has been devised which identifies the timing and responsibility for monitoring each measure. The City of Agoura Hills Public Works Department will have the responsibility for implementing the measures, and the various City of Agoura Hills departments will have the primary responsibility for monitoring and reporting the implementation of the mitigation measures.

Medea Creek Restoration Project - Final Initial Study/Mitigated Negative Declaration
Mitigation Monitoring and Reporting Plan

Mitigation Measure		Responsible Department	Monitoring Action	Implementation Schedule	Verification of Completion	
					Check Box	Date
Biological Resources						
BIO-1	**Roosting Bats:** Prior to removal of trees on site, a focused bat survey shall be conducted of trees planned for removal by a City approved bat biologist. Bat species should be determined to be absent or excluded from roost locations prior to tree removal. If exclusion is necessary, it shall be done by the City approved biologist during the non-breeding season (October 1 to March 31) and using CDFW-recommended methods. During the maternity season (April 1 to September 30), prior to tree removal a City approved biologist shall determine if an active maternity roost is present. If an active maternity roost is present in a tree planned for removal, the tree shall not be removed until the roost is vacated and juveniles have fledged, as determined by the City approved biologist. If an active maternity roost is identified in a tree planned for removal, or if a roost of non-breeding bats is identified, then replacement roosting habitat, such as bat boxes, shall be provided within the project site at a location to be determined by a City approved biologist. The replacement roosting habitat to be provided shall be species appropriate. Any replacement roosting habitat shall be established prior to removal of roosting habitat.	Planning and Community Development Department	Confirm surveys are conducted by the approved bat biologists prior to tree removal Confirm that replacement roosting habitat is in place prior to tree removal, if required	Prior to tree removal as needed throughout construction activities		
BIO-2	**Nesting Birds:** To the extent feasible, the City of Agoura Hills shall not remove or otherwise disturb vegetation, prepare the site, or conduct any other construction related activities within the work areas to avoid impacts to breeding and/or nesting birds from February 1 through September 1, the recognized breeding, nesting and fledging season for raptor and bird species. If such activities in the work areas during the breeding and nesting season cannot be avoided, then prior to any ground or vegetation disturbing activities, the City shall have a qualified biologist/ornithologist acceptable to the City Environmental	Planning and Community Development Department	Pre-construction surveys by qualified biologist	No more than one week prior to ground or vegetation disturbing activities (Sept 1 – Feb 1)		

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	Analyst conduct a survey of all breeding and nesting habitats within the work areas and vicinity within one (1) week of construction or vegetation clearing activities. The extent of the survey buffer area surrounding the site shall be established by the biologist to ensure that direct and indirect effects to nesting/breeding birds are avoided.					
	A report discussing the results of the bird survey shall be submitted for review by the City Environmental Analyst prior to any vegetation removal, site preparation or construction activity. If active nests are found within the survey area, activities within a 300-foot radius (500 feet for raptors) shall not be allowed until an appropriate buffer can be established. Limits of construction to avoid a nest site shall be established in the field with flagging and stakes or construction fencing. Activities within the buffer area shall be postponed or halted at the discretion of a biological monitor until the nest is vacated and juveniles have fledged, and there is no evidence of a second attempt at nesting.	Planning and Community Development Department	Reporting	Pre-construction following completion of surveys, if nesting birds are present		
	If a state or federally listed species is found, the CDFW, and the USFWS, when applicable, shall be notified within 24 hours of the sighting, and construction work shall not occur until concurrence has been received that operations may proceed. The biologist shall record the results of the recommended protective measures described above to document compliance with applicable state and federal laws pertaining to the protection of native birds, and provide the documentation to the City's Environmental Analyst.	Planning and Community Development Department	Consultation with resource agencies	Pre-construction – following completion of surveys if nesting birds are present and as necessary throughout construction activities		

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BIO-3	**Oak Protective Measures:** For the five (5) native oak trees on the western side of the channel, close to the proposed ADA trail, the following preservation measures shall be complied with and prominently listed on the construction and grading plans: a. Prior to the start of any mobilization or construction activities on the site, the oak trees shall be fenced at the edge of the protected zone in strict accordance with Article IX, Appendix A, Section V.C.1.1 of the City of Agoura Hills Oak Tree Preservation and Protection Guidelines. The City Oak Tree Consultant shall approve the fencing location subsequent to installation and prior to the start of any mobilization or work on the site. b. No work is permitted within the fenced area. The fencing shall remain in place until permission to remove it is granted by the City Oak Tree Consultant. c. No vehicles, equipment, materials, spoil or other items shall be used or placed within the protected zone of any oak tree at any time, except as specifically required to complete the approved work. d. No pruning of live wood shall be permitted unless specifically authorized by the City Oak Tree Consultant. Any pruning operations shall be consistent with ANSI A300 Standards – Part 1 Pruning and the most recent edition of the International Society of Arboriculture Best Management Practices for Tree Pruning. e. No herbicides shall be used within one hundred feet (100') of the dripline of any oak tree unless the program is first reviewed and endorsed by the City Oak Tree Consultant.	Public Works Department	Plan check – ensure oak tree protection is included in plans At start of construction activities - ensure oak tree fencing is in place	Final Design First day of construction		

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Cultural Resources						
CR-1	**Archaeological/Paleontological Monitoring:** Archaeological/ Paleontological monitoring of all project related ground disturbing activities of sediments that appear to be in a primary context shall be conducted by a qualified archaeologist and/or paleontologist approved by the City Environmental Analyst. Archaeological monitoring is required until excavation is complete or until a soil change to a culturally sterile formation is achieved. Paleontological monitoring is required until excavation is complete or until ground disturbance is no longer occurring within the Topanga or Monterey Formations. Determination of these conditions shall be at the discretion of a qualified archaeologist and/or paleontologist. Archaeological monitoring shall be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983). Paleontological monitoring shall be performed by a paleontologist meeting the Society of Vertebrate Paleontology's Paleontological Resource Monitor (SVP 2010). A cross-trained monitor meeting both of these requirements may also be used. The qualified archaeologist/paleontologist may reduce or stop monitoring dependent upon observed conditions. If archaeological/paleontological resources are encountered during ground-disturbing activities, the City Environmental Analyst shall be notified immediately, and work shall stop within a 100-foot radius until a qualified archaeologist or paleontologist (as applicable) has assessed the nature, extent, and potential significance of any remains under CEQA. In the event such resources are determined to be significant, appropriate actions to mitigate impacts shall be implemented. Depending on the nature of the find, mitigation could involve avoidance, documentation, or	Planning and Community Development Department	Construction manager shall monitor the site for evidence of archaeological or paleontological resources.	On-site monitoring shall occur during all grading activities.		

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	other appropriate actions to be determined by a qualified archaeologist/paleontologist consistent with CEQA (PRC Section 21083.2), in consultation with the City's Environmental Analyst.					
CR-2	**Unanticipated Discovery of Human Remains:** The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the City's Environmental Analyst and the Los Angeles County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native America Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification who will then help determine what course of action should be taken in dealing with the remains.	Planning and Community Development Department	All on-site grading or other site disturbance shall be suspended in the event human remains are unearthed.	This measure shall be implemented as directed by the County Coroner and/or Native American Heritage Commission (NAHC).		
Geology and Soils						
GEO-1	**Geotechnical Report Recommendations.** Compliance with the recommendations included in the Geotechnical Investigation Report (2014) undertaken at the site shall be required. These recommendations include design requirements for the pedestrian bridge footings, stair foundations and seismic design criteria. The City of Agoura Hills Public Works Department shall review and approve all final plans for the proposed project to confirm compliance with these and any other geotechnical design requirements.	Public Works Department	Plan check – ensure recommendation s are included in plans	Final Design		

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Hazards and Hazardous Materials						
HAZ-1	**Hazardous Materials Plan**: A Hazardous Materials Plan shall be prepared for the proposed project. This plan may be incorporated in the SWPPP for the project. The Hazardous Materials Plan shall be approved by the City Environmental Analyst prior to the issuance of a grading permit, or start of construction, whichever occurs first, and be provided to the project construction team/contractor and printed on the construction plans. The Hazardous Materials Plan shall include the following provisions: • Measures for containing hazardous materials, such as accidental fuel spills. • No construction equipment shall be left overnight in the creek channel. • All refueling and/or maintenance of heavy equipment shall take place at a minimum of 50 feet away from the top of bank of the creek channel. • All personnel, contractors and subcontractors shall comply with all applicable standards and conditions set forth by the Regional Water Quality Control Board.	Public Works Department	SWPPP review	Prior to start of construction		
Noise						
N-1	**Construction Noise:** The following measures should be implemented, where feasible: • Construction equipment, fixed or mobile, should be equipped with properly operating and maintained mufflers and other state required noise attenuation devices. • All property owners and occupants located within 300 feet of the project site should be sent a notice, at least 15 days prior to commencement of construction, regarding the construction schedule of the project. All notices should indicate the dates and duration of construction activities, as	Public Works Department	Planning and Community Development Department shall ensure notification is sent to neighbors Construction manager shall	Notification to be sent at 15 days prior to start of construction Daily for noise reduction		

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	well as provide a contact name and telephone number where residents can inquire about the construction process and register complaints. • During construction, stationary construction equipment should be placed such that emitted noise is directed away from sensitive noise receivers. • Construction staging areas should be located to maximize the distance from sensitive receptors (neighboring residences).		confirm on a daily basis that all required noise reduction measures are in place	measures		