COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: January 23, 2019

TO: Planning Commission

FROM: Planning Staff

SUBJECT: EXECUTIVE SUMMARY: Consideration of a Coastal Development Permit and Grading Permit, and certification of a Mitigated Negative Declaration, to permit the stabilization and restoration of an approximately 800 linear foot section of Corinda de los Trancos Creek in the unincorporated Half Moon Bay area of San Mateo County. This project is appealable to the California Coastal Commission.

County File Number: PLN2018-00127 (Questa Engineering)

PROPOSAL

The applicant is proposing to stabilize and restore an 800-foot section of Corinda de los Trancos (CDLT) Creek to correct bank failures which threaten the Ox Mountain Landfill access road and the adjacent Lemos Farm property. The project will disturb 40,300 square feet (0.93 acres) of riparian area and will entail reconstructing the channel bed, the west bank of the channel, and select sections of the east bank. Fill will be used to raise the creek bed, creating a wider channel, and the east bank will be filled to create a stable, more gradual slope. The design includes habitat and grade control features such as eight Pool Complexes, 250 feet of Steep Cascades and 6,660 square feet of flood plain. Numerous large woody debris structures will be created from the 37 native trees (primarily Eucalyptus and Alders) removed for grading. Lastly, the project will increase the Ordinary High Water area by 4,875 square feet.

Upon completion of grading activities, an extensive re-vegetation and irrigation plan will be implemented. The goal is to develop a solid canopy which quickly provides shade and cover for aquatic and amphibian species. The slopes will be seeded and covered with biodegradable erosion control fabric; and in the late fall will undergo extensive replanting of both canopy trees and a native understory. The immediate channel bank and bank toes will be extensively staked with locally collected willow poles. Alder trees will also be planted in this zone. Three other planting zones are identified: Riparian, Mid-Slope, and Upper-Slope. The riparian zone will be replanted with willow and alders. The mid bank zone will include understory plants as well as canopy trees. The upper bank zone will be planted with more drought-tolerant, dry-soil-loving canopy trees and understory.

RECOMMENDATION

That the Planning Commission certify the Mitigated Negative Declaration and approve the Coastal Development Permit and Grading Permit, County File PLN 2018-00127, by making the required findings and adopting conditions of approval as listed in Attachment A.

SUMMARY

Corinda de los Trancos (CDLT) Creek runs north and south draining the Ox Mountain Landfill before flowing under Highway 92 at a location 1.8 miles east of the intersection with Highway 1. The creek is bordered to the west by the Lemos Farm and to the east by the Ox Mountain Landfill access road. Due to the positioning of CDLT, current bank failures threaten both the landfill access road and the Lemos Farm property.

The geomorphology of CDLT has been affected by a number of activities. Historically, road building and agricultural activities likely encroached on the riparian corridor narrowing the channel. More recently, the expansion of the Ox Mountain Landfill beginning in the early 1990s has led to significant increases in storm flow runoff and reduced the sediment input to the channel. Bedload sediment input has been drastically reduced due to the construction of a large sediment control pond at the base of the landfill. This pond effectively traps bedload size material interrupting the delivery of larger size sediment which leads to a lack of channel armoring and subsequent down cutting pressure.

To remedy this situation, the applicant is proposing to construct a series of grade control structures within the channel, as well as re-shaping and armoring of the creek's banks. The proposed project will have some temporary, significant, impacts on the creek and surrounding habitat. However, mitigation measures have been proposed by Staff which will minimize these temporary impacts to a less than significant level. With these measures, Staff believes the project conforms to the County's General Plan and LCP. If the project is not initiated, Staff believes permanent, significant impacts on the creek, the surrounding habitat, and the Pilarcitos Creek watershed will continue to occur. Currently, the creek is physically degrading and this trend is not likely to change without intervention.

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COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: January 23, 2019

TO: Planning Commission

FROM: Planning Staff

SUBJECT: Consideration of a Coastal Development Permit, pursuant to Section 6328.4 of the County Zoning Regulations, and a Grading Permit, pursuant to Section 9238 of the County Ordinance Code, and certification of a Mitigated Negative Declaration pursuant to the California Environmental Quality Act, to permit the stabilization and restoration of an approximately 800 linear foot section of Corinda de los Trancos Creek in the unincorporated Half Moon Bay area of San Mateo County. This project is appealable to the California Coastal Commission.

County File Number: PLN2018-00127 (Questa Engineering)

PROPOSAL

The applicant is proposing to stabilize and restore an 800-foot section of Corinda de los Trancos (CDLT) Creek to correct bank failures which threaten the Ox Mountain Landfill access road and the adjacent Lemos Farm property. The project will disturb 40,300 square feet (0.93 acres) of riparian area and will entail reconstructing the channel bed, the west bank of the channel, and select sections of the east bank. Fill will be used to raise the creek bed, creating a wider channel, and the east bank will be filled to create a stable, more gradual slope. The design includes habitat and grade control features such as eight Pool Complexes, 250 feet of Steep Cascades and 6,660 square feet of flood plain. Numerous large woody debris structures will be created from the thirty-seven (37) native trees (primarily Eucalyptus and Alders) removed for grading. Lastly, the project will increase the Ordinary High Water area by 4,875 square feet.

Upon completion of grading activities, an extensive re-vegetation and irrigation plan will be implemented. The goal is to develop a solid canopy which quickly provides shade and cover for aquatic and amphibian species. The slopes will be seeded and covered with biodegradable erosion control fabric; and in the late fall will undergo extensive replanting of both canopy trees and a native understory. The immediate channel bank and bank toes will be extensively staked with locally collected willow poles. Alder trees will also be planted in this zone. Three other planting zones are identified: Riparian, Mid-Slope, and Upper-Slope. The riparian zone will be replanted with willow and alders. The mid bank zone will include understory plants as well as canopy trees. The upper bank zone will be planted with more drought-tolerant, dry-soil-loving canopy trees and

understory. See the “Detailed Project Description” section below for additional project components.

RECOMMENDATION

That the Planning Commission certify the Mitigated Negative Declaration and approve the Coastal Development Permit and Grading Permit, County File PLN 2018-00127, by making the required findings and adopting conditions of approval as listed in Attachment A.

BACKGROUND

Report Prepared By: Michael Schaller, Senior Planner, Telephone 650/363-1849

Applicant: Questa Engineering (Syd Temple)

Owners: Republic Services (Ox Mountain Landfill) and Bob Lemos

Location: 12320 Highway 92, Half Moon Bay (Ox Mountain Landfill)

APNs: 056-360-040 and 056-360-330

Existing Zoning: PAD/CD (Planned Agricultural District/Coastal District) and RM-CZ (Resource Management – Coastal Zone)

General Plan Designation: Open Space Rural and Agriculture Rural

Williamson Act: Neither parcel is under a Williamson Act Contract.

Existing Land Use: The project site is bordered by the Lemos Christmas Tree Farm to the west and the access road for Ox Mountain Landfill to the east. The landfill itself lies to the north of the project site and Highway 92 defines the southern boundary of the project site.

Flood Zone: The project site is in Flood Zone A (areas with 1% annual chance of flooding) as defined by FEMA (Community Panel Number 06081C0260E, dated October, 16, 2012).

Environmental Evaluation: An Initial Study and Mitigated Negative Declaration were prepared for this project and circulated from November 17, 2018 to December 17, 2018. See Section B of this report for further discussion.

Setting: Corinda de los Trancos (CDLT) Creek runs north and south draining the Ox Mountain Landfill before flowing under Highway 92 at a location 1.8 miles east of the intersection with Highway 1. The creek is bordered to the west by the Lemos Farm and to the east by the Ox Mountain Landfill access road. Due to the positioning of CDLT,

current bank failures threaten both the landfill access road and the Lemos Farm property.

The geomorphology of CDLT has been affected by a number of activities. Historically, road building and agricultural activities likely encroached on the riparian corridor narrowing the channel. More recently, the expansion of the Ox Mountain Landfill beginning in the early 1990s has led to significant increases in storm flow runoff and reduced the sediment input to the channel. Bedload sediment input has been drastically reduced due to the construction of a large sediment control pond at the base of the landfill. This pond effectively traps bedload size material interrupting the delivery of larger size sediment which leads to a lack of channel armoring and subsequent down cutting pressure.

The channel throughout most of the project reach is vegetated with eucalyptus, willow, alder, and shrubs that provide bank stability as long as the bed elevation is not altered significantly. There are numerous cases of active bank failures along CDLT where mature riparian vegetation is falling into the creek and causing debris jams, channel movement, and further exacerbation of the bank erosion and incision problems.

Vegetation and Wildlife: CDLT Creek supports fragmented mature riparian woodland consisting of alders and willows. The upper slopes of the canyon (outside of the landfill) are dominated by coastal scrub/chaparral and grassland. The chaparral plant community is dominated by coyote brush, California sage, and sticky monkey flower. Portions of the western slope of the canyon consist of Douglas fir woodland. The agricultural fields operated by Mr. Lemos are currently used to grow pumpkins, cut flowers, and Christmas trees. The chaparral vegetation provides a food source for seed-eating species such as California quail, dark-eyed junco, western harvest mouse, and black-tailed deer. The Douglas-fir stands provide a food source for dark-eyed junco. In addition, these woodlands provide nesting habitat for a variety of birds including Swainson's thrush, brown creeper and raptors such as red-tailed hawk and great horned owl.

Riparian Woodland: Riparian woodland vegetation lines the bottom two-thirds of the deeply incised CDLT Creek channel. Dominant plant species within the riparian zone include eucalyptus, willow and red alder which form a dense canopy along the majority of the channel. Understory vegetation consists of Californian blackberry, California black current, thimbleberry, bracken fern, western sword fern, and stinging nettle. The CDLT Creek corridor provides habitat for a variety of wildlife including opossum, striped skunk, California meadow vole, black tailed deer, raccoon, and brush rabbit.

Listed Species: The USFWS endangered and threatened species list for the Half Moon Bay quadrangle includes twenty-five federally listed animals. The California Natural Diversity Database (CNDDB) for the quadrangle includes records for five additional California Species of Special Concern including three animals and two plants. Twenty-five species from these two lists have no potential to occur within the project area due to

lack of suitable habitat. These twenty-five species will not be affected by the proposed project.

The five species that may occur or may be affected by the proposed project include:

a. Present/High Potential: California Red-legged frog

b. Moderate Potential: San Francisco garter snake, San Francisco dusky footed woodrat

c. Low Potential: Monarch butterfly, Central California Coastal Steelhead (known to occur only downstream in Pilarcitos Creek)

The primary species of concern for this project is the California Red legged frog which was observed in CDLT Creek during channel stabilization work located approximately ½ mile upstream from the proposed project (CNDDB 2013).

Detailed Project Description

The proposed project will affect an 800-foot reach of Corinda de Los Trancos Creek (CLT Creek) and disturb 40,300 square feet (0.93 acres) of riparian area. The project will entail reconstructing the channel bed, the west bank of the channel, and select sections of the east bank. Fill will be used to raise the creek bed, creating a wider channel, and the east bank will be filled to create a stable, more gradual slope. The design includes habitat and grade control features such as eight Pool Complexes, 250 feet of Steep Cascades and 6,660 square feet of flood plain. Numerous large woody debris structures will be created from the 37 native trees removed for grading. Lastly, the project will increase the Ordinary High Water area by 4,875 square feet.

Access: A permanent access road will be installed on the northern bank (landfill side) and a temporary staging area and construction access will be established on the Lemos side of the creek channel. The creek will be accessed during construction through three points; one at the lower and two at the upper end of the project reach (See Attachment C, Sheet 3). These access points will allow for efficient maneuvering of large equipment into or out of the site in a continuous path. Fill and rock materials will be transported from the upper landfill to the creek channel along the existing land fill haul road.

Temporary Creek Flow Diversion: Flow in CLT Creek will be temporarily diverted around the project site during construction through one or two, six-inch plastic drain pipes. The diversion will begin upstream of the impacted portion of the channel and will re-enter the creek approximately 50 feet downstream of the lowest channel structure. A sandbag coffer dam and pump will be placed upstream of the project area (See Attachment C, Sheet 2). The diversion pipe will be routed around the construction zone discharging into a temporary energy dissipater in creek. The outfall will include a sand bag coffer dam to control runoff, rocks to disperse energy of the redirected water and

silt fencing backed with straw bales to prevent construction sediment from entering the creek.

Silt and Exclusion Fencing: A combination silt fence and biologic exclusionary fencing will surround the entire project site. All of the grading and disturbance will be confined to the existing site plan and will be within the exclusion fencing for the project. The fencing will provide a barrier to frogs or other species from accessing the site during construction. Silt fences will be used to confine soil loss and will be repositioned at the completion of the project construction and used in the winterization of the site.

Dust Control Measures: During clearing, grading, grubbing, and filling activities associated with project construction dust may be generated, particularly under dry conditions. Dust control measures such as water trucks will be used several times a day on the project's dirt haul and access roads to stabilize soil from wind erosion, and reduce dust generated by the construction traffic.

Vegetation Clearing and Tree Removal: The existing vegetation will be cleared within the project area which extends approximately 60 to 80 feet bank to bank for grading and channel reconstruction. The vegetation clearing area is shown on Attachment C, Sheet 4. The channel reconstruction will result in the loss of 37 trees with diameters greater than 12 inches, primarily Eucalyptus and Alders.

Grading: The design plan is to place approximately 6,000 cubic yards of fill within the channel bed raising it between 0 and 8 feet and restoring a natural 2-3% gradient. The adjacent slopes vertical or near vertical eroding channel banks will be reconstructed into stable bank slopes. The channel will be reconstructed into a new complex channel that includes rock steps, pools, riffles and runs, woody debris, and boulder cascades. All of the rock and fill will come from landfill sources less than a mile away. The size classes will be sorted and screened so that appropriate mixes of silts, sands, cobles and boulders are attained. The proposed grading and new channel profile are shown on Attachment C, Sheet 5.

Channel Bank Reconstruction: There are numerous occurrences of ongoing bank erosion creating vertical, unstable creek banks throughout the project reach. These are often associated with areas of incision. The applicant is proposing to raise the channel bed and reduce bank heights. With bank heights reduced, new fill slopes will be shorter, allowing more channel bottom area for enhancement. Approximately 800 linear feet of bank is proposed to be reconstructed. Rock grade controls and biotechnical bank toe protection with planted willow will be utilized throughout the project site. Cross sections of the proposed bank reconstruction are shown on Attachment C, Sheet 6.

Channel Bed Reconstruction: The channel elevation through the project reach currently drops 32 feet in 800 feet with an average slope of four percent. Under natural conditions, channels in this type of high gradient stream would be composed of bedrock, course cobble, or a series of vertical drops created with boulders and/or large wood. No bedrock or boulders are evident within the channel reach and existing cobble

and woody debris provide only occasional grade control. Therefore, installation of rock weirs are proposed to create individual channel segments with lower slopes in the context of the overall project reach. Additionally, the channel will be reconstructed with a rocky substrate that will resist transport. Fish do not inhabit the project reach so there is no limit on vertical drop heights.

Eighteen grade control rock steps are proposed. Some of these structures are boulder cascades, others are weirs with accompanying pools and riffles. All of the structures were designed to provide vertical bed control, stabilize the channel, provide various types of aquatic habitat and mimic bed forms that could be found in high gradient coastal streams. It is essential that these structures be keyed deeply into the banks and channel so that flow does not "flank" or go under the structures. The proposed grade control configuration is detailed on Attachment C, Sheets 7 & 8. Engineered Stream Material (ESM) and biodegradable Coir material will be placed behind the grade control structures to fill voids and prevent piping. This channel bed configuration is shown on Attachment C, Sheets 9 and 10.

The natural bed of CLT is sand based and easily mobilized, rendering it an inadequate base for armoring. In order to provide a long term stable bed, the project will reconstruct the base of the channel bed with an Engineered Streambed Mix (ESM). This mix is designed to be relatively immobile in events less than the 25-year flow. A sand layer will be placed to bury most of this rock substrate and reestablish the natural sand bed creek but in a much more stable configuration. The details of this bed mix are shown on Attachment C, Sheet 10.

Re-vegetation Plan: The project incorporates an extensive re-vegetation and irrigation plan. The goal is to develop a solid canopy which quickly provides shade and cover for aquatic and amphibian species. The slopes will be seeded and covered with biodegradable erosion control fabric; and in the late fall will undergo extensive replanting of both canopy trees and a native understory. The immediate channel bank and bank toes will be extensively staked with locally collected willow poles. Alder trees will also be planted in this zone. Three other planting zones are identified: Riparian, Mid-Slope, and Upper-Slope. The riparian zone will be replanted with willow and alders. The mid bank zone will include understory plants as well as canopy trees. The upper bank zone will plant with more drought-tolerant, dry-soil-loving canopy tree and understory. Please see Attachment C, Sheet 11 for the planting list and location of the planting zones.

DISCUSSION

A. KEY ISSUES

1. Conformance with the General Plan

Staff has reviewed the project for conformance with all applicable General Plan Policies. The policies applicable to this project include the following:

a. Chapter 1 - Vegetative, Water, Fish and Wildlife Resources

The proposed project will have some significant, temporary, impacts on the creek and surrounding habitat. However, mitigation measures have been proposed by Staff which will minimize these temporary impacts to a less than significant level. If the project is not initiated, Staff believes permanent, significant impacts on the creek, the surrounding habitat, and the Pilarcitos Creek watershed will continue to occur. Currently, the creek is physically degrading and this trend is not likely to change without intervention.

Policy 1.24 (*Protect Vegetative Resources*). This policy requires development to minimize the removal of vegetative resources. Removal of vegetative resources has been minimized to those areas where stabilization and restoration of the creek is most imperative. Along the approximately 800 linear feet of the project, 37 trees are proposed for removal. However, forty-seven (47) trees will be saved from removal. To compensate for this loss of resources and to stabilize the affected creek banks, the applicant will plant approximately 211 native trees as well as numerous shrubs within both the channel and creek banks. Exposed slopes will be hydroseeded with a native seed mix and stabilized using biodegradable erosion control fabrics.

Policy 1.25 (*Protect Water Resources*). This policy requires development to minimize the alteration of natural water bodies and maintain adequate stream flow and water quality for vegetative and fish and wildlife habitats. The purpose of the project is to stabilize the Creek to prevent bank failure with subsequent loss of trees and vegetation and dumping of sediment loads into Pilarcitos Creek. Corinda de los Trancos (CDLT) Creek is no longer a natural water body in the strictest sense of the term. The Creek's upper watershed has been highly modified by the expansion of the landfill and construction of runoff control structures for that use. Additionally, stabilization projects have occurred within the Creek in the last twenty years. Given this setting, the proposed work is an attempt to stabilize the Creek and return it to something approaching its pre-landfill condition, using a mix of constructed elements (rip-rap check dams) and revegetation. To protect water quality during the construction phase of the project, the applicant is proposing to implement erosion control fencing around all work sites and, if water is present in the Creek at the time of construction, then water will be diverted around work sites through the use of coffer dams and pipes.

b. Chapter 2 - Soil Resources

Soils within this watershed have been classified as being highly erosive, and exposed soils erode at a rate 100 times faster than when covered with vegetation. The project complies with Policy 2.17 (*Regulate development to Minimize Soil Erosion and Sedimentation*) and Policy 2.18 (*Encouragement of Soil Protective Uses*). As proposed, grade control structures (check dams) will be constructed in-stream to reduce the erosive force of high runoff through this stretch of the Creek. Bank protection devices will also be used to protect the reconstructed channel profile. Short-term (silt fencing, straw matting, etc.) and long-term (revegetation) erosion control measures have been incorporated into the project design. Water flow in the creek, if present, will be diverted around the project site during construction through the use of coffer dams and flexible plastic drain pipes. Work will be restricted to the dry season when water flow in the Creek will be at its lowest.

c. Chapter 4 – Visual Quality Policies

The project complies with Policy 4.26 (*Water Bodies*), which calls for the protection of visual resources of water bodies, and Policy 4.28 (*Trees and Vegetation*), which calls for the protection of trees and vegetation. The proposed project will have a short-term visual impact upon the scenic resources of the project site, in that existing vegetation will be removed to allow for the stabilization and restoration work. However, given the on-going erosion problems of this creek, this vegetation will eventually be lost. Replacement of the removed vegetation is included as part of the project design and included as conditions of approval in Attachment A.

d. Chapter 15 – Natural Hazards

The project complies with Policy 15.13 (*Abatement of Natural Hazards*). By stabilizing the creek channel, it is hoped that significant loss of adjacent agricultural land due to bank erosion will be prevented. Additionally, stabilization of the creek will help prevent build-up of sediment downstream, which, in turn, causes flooding.

2. Conformance with the Local Coastal Program (LCP)

Staff has reviewed the project and found it to be in compliance with the policies of the Local Coastal Program. The relevant policies are discussed below:

a. Agriculture Component

Based upon the USDA soil maps, there are Class III soils adjacent to the Creek which could potentially be considered “prime soils”. However, there is no actively farmed land immediately adjacent to the Creek. The property line between the two project parcels runs essentially down the middle of the creek. On the landfill side, there is no agricultural activity occurring. On the lands of Lemos, actively farmed lands are separated from the creek by parking areas, ranch buildings and a riparian buffer zone. The work proposed by this permit is limited to the areas within the creek banks, thus not affecting agricultural lands. Staff has determined that a PAD permit is therefore not required for this project.

b. Sensitive Habitats Component

Policy 7.3 (*Protection of Sensitive Habitats*) prohibits development that would have a significant adverse impact upon sensitive habitats which includes riparian corridors such as CDLT. The project will have a negative short-term impact upon the remaining biotic resources within the stretch of the creek where work is proposed. However, if the project is not carried out, the Creek will continue to degrade and undercut its banks, causing further erosion and loss of vegetation. Successful implementation of the project will result in the long-term stability and protection of biotic resources in this riparian corridor.

Policy 7.9 *(Permitted Uses in a Riparian Corridor*) lists fish and wildlife management activities and flood control projects as allowed uses within a riparian corridor. The proposed project will protect both downstream fish habitat and the access road to the landfill by stabilizing the creek channel.

The landfill activities in the upper canyon have greatly increased storm runoff which is directed to the large sediment pond at the top of the creek. However, this pond has had a minimal effect on attenuating flows during large storm events as it was designed to retain sediment not diminish the flows leaving the landfill. During major storm events, the large size of the primary spillway on the pond allows all of the peak flow to pass through the pond with very little detention. The pond effectively traps bedload size material interrupting the delivery of larger size sediment (rocks) which leads to a lack of channel armoring and subsequent down cutting pressure. The failure of the early 1990’s erosion control structures has resulted in accelerated down cutting of the creek channel which has created over steepened banks at the project location. When these banks fail, there is a flush of sediment into the creek, which then gets pushed down into Pilarcitos Creek,

which then silts over spawning grounds for Steelhead within that creek. The bank failures also threaten the stability of the access road into the landfill, which is the only point of entry into the landfill.

The proposed work will benefit downstream fish and wildlife habitat by reducing a source of sedimentation into Pilarcitos Creek as well as protecting the only access road into the County landfill.

Policy 7.10 (*Performance Standards in Riparian Corridors*) outlines certain standards that are required for projects in Riparian Corridors. The applicant proposes to remove only that vegetation necessary to carry-out the project, and only critical areas will be worked on. Stringent erosion and sediment controls are proposed as part of the project, and only native plant species will be used for revegetation. These measures are included as conditions of approval.

Policy 7.33 (*Permitted Uses in Habitats of Rare and Endangered Species*). As discussed above, California Red-legged Frog has been identified within the CDLT Creek corridor. Very few activities are allowed within areas designated as habitat for rare or endangered species. One of these is restoration of damaged habitat. The applicant, in compliance with U.S. Fish and Wildlife Service requirements, has proposed implementing a number of measures that are consistent with the Service's Programmatic Biological Opinion. These measures include placing exclusionary fencing around work areas, pre-construction surveys within each fenced area, worker training, and construction monitoring. These measures have been included in Attachment A as Conditions No. 7 – No. 23.

c. Visual Resources Component

Policy 8.6 (*Streams, Wetlands, and Estuaries*) requires development to be set back from the edge of streams and other natural waterways a sufficient distance to preserve the visual character of the waterway. All of the project site lies within the Highway 92 County scenic corridor. The majority of the proposed work will occur within the banks of the creek. The project site is approximately 2,500 feet from Hwy. 92 and will not be visible from this public roadway due to intervening vegetation and structures.

The project, by its nature, will have a significant, temporary impact upon the creek's visual resources. However, failure to implement the project will inevitably result in the same impact, as the creek devours its banks in an attempt to re-establish equilibrium. As the oversteepend banks fail, trees and other vegetation on them will fall into the creek, creating additional hazards and accelerating erosion

forces within the creek channel. The visual impacts of the project will be temporary in nature. As trees and other vegetation, planted to stabilize the reformed banks, become established, the visual impact of the project will diminish to a less than significant level.

d. Hazards Component

Policy 9.9 (*Regulation of Development in Floodplains*) requires projects that alter streams to incorporate the best mitigation measures feasible and limits this type of work to necessary water supply projects, flood control projects and developments to enhance fish and wildlife habitat. As discussed above, the project is necessary to prevent the loss of the only access road into the County landfill. The project will also benefit downstream fish habitat in Pilarcitos Creek by reducing the likelihood of catastrophic bank failures, which would result in large amounts of sediment entering into the watershed.

3. Compliance with Zoning Regulations

The project's compliance with the PAD zoning regulations was discussed above under Section 2(a). A portion of the project also lies within lands zoned RM-CZ. Section 6903 of the County Zoning Regulations defines which types of development in the RM-CZ Zoning District require Development Review Permits. This section also outlines which types of actions are exempt from Development Review Permits and Procedures. Specifically, grading and excavating operations which are subject to regulations of the County Ordinance Code, Chapter 5, *Regulation of Grading and Excavating Operations*, are exempt from a RM-CZ Permit. This project includes an application for a Grading Permit. Review for compliance with the County Grading regulations is included below, under Section 4.

4. Conformance with the Grading Ordinance

This project has been reviewed by the Department of Public Works and the County Geotechnical Review Section. Both Departments have approved the plans as proposed. The applicant has applied to the Army Corps of Engineers, California Department of Fish & Wildlife, and the Regional Water Quality Control Board for the respective permits from each agency. Conditions have been added which require the applicant to submit copies of these permits to the County upon their approval. Planning Staff reviewed the proposal against the required findings for a grading permit. After conducting an environmental review as required by CEQA, Staff found that there will not be a significant long term adverse effect on the environment. The project conforms to the criteria for review contained in the Grading Ordinance, including an erosion and sediment control plan. Finally, as

outlined above, the project, as conditioned, conforms to the General Plan and the Local Coastal Program. In order to approve this project, the Planning Commission must make the required findings contained in the Grading Regulations. The findings and supporting evidence are outlined below:

a. That the project will not have a significant adverse effect on the environment.

As discussed under the project description, the applicant estimates that the entire project will involve approximately 6,000 cubic yards of material (includes large boulders and woody debris) being placed within the project area. After conducting an environmental review as required by CEQA, Staff found that, if all mitigation measures are implemented, there will not be a significant long-term adverse effect on the environment. Mitigation measures include:

(1) Post construction re-vegetation monitoring (Condition No. 5).

(2) Implementation of dust control measures (Condition No. 6).

(3) Erection of snake exclusion fencing (Condition No. 8).

(4) Preconstruction survey for the red-legged frog and San Francisco garter snake (Condition No. 9).

(5) Pre-construction worker education on the red-legged frog and San Francisco garter snake (Condition No. 10).

(6) Biological monitor during construction activities (Condition No. 11).

(7) Scheduling construction to occur between August 1 and November 1 (Condition No. 18).

b. That the project conforms to the criteria of the San Mateo County Grading Ordinance and is consistent with the General Plan.

The project conforms to the criteria for review contained in the Grading Ordinance, including an erosion and sediment control plan, dust control measures, and revegetation plans. As outlined above, the project conforms to the General Plan.

B. ENVIRONMENTAL REVIEW

An Initial Study and Mitigated Negative Declaration were prepared for this project and circulated from November 17, 2018 to December 17, 2018. No comments were received. All mitigation measures recommended in the Negative Declaration have been included as Conditions of Approval Nos. 4 through 30 in Attachment A.

C. REVIEWING AGENCIES

California Coastal Commission
Building Inspection Section
Department of Public Works
Geotechnical Section
Regional Water Quality Control Board
California Dept. of Fish and Wildlife
U.S. Army Corps of Engineers

ATTACHMENTS

A. Recommended Findings and Conditions of Approval
B. Vicinity Map
C. Project Plans
D. Initial Study/Mitigated Negative Declaration (includes Biological Report and Historic Property Survey Report)
E. Project Background and Description Report

Attachment A

County of San Mateo
Planning and Building Department

RECOMMENDED FINDINGS AND CONDITIONS OF APPROVAL

Permit or Project File Number: PLN 2018-00127 Hearing Date: January 23, 2019

Prepared By: Michael Schaller, Senior Planner For Adoption By: Planning Commission

RECOMMENDED FINDINGS

Regarding the Mitigated Negative Declaration, Find:

1. That the Mitigated Negative Declaration is complete, correct, and adequate and prepared in accordance with the California Environmental Quality Act (CEQA) and applicable State and County Guidelines.

2. That, on the basis of the Initial Study, comments received hereto, and testimony presented and considered at the public hearing, that there is no substantial evidence that the project if subject to the mitigation measures contained in the Negative Declaration will have a significant effect on the environment.

3. That the Mitigated Negative Declaration reflects the independent judgment of San Mateo County.

4. That the mitigation measures in the Mitigated Negative Declaration and agreed to by the owner and placed as conditions on the project have been incorporated into the Mitigation Monitoring and Reporting Plan in conformance with the California Public Resources Code Section 21081.6.

Regarding the Coastal Development Permit, find:

5. That the project, as described in the application and accompanying materials required by Section 6328.7 and as conditioned in accordance with Section 6328.14, conforms to the plans, policies, requirements and standards of the San Mateo County Local Coastal Program as discussed in the staff report under Section A.2, including protection of biological resources and regulation of development in floodplains.

6. That the project conforms to specific findings required by policies of the San Mateo County Local Coastal Program. Specifically, the proposed project has a fish and wildlife management component and is also a flood control project. Both

types of projects are allowed uses within a riparian corridor. The proposed project will protect both downstream fish habitat and the access road to the landfill by stabilizing the creek channel.

Regarding the Grading Permit, find:

7. That the project will not have a significant adverse effect on the environment. Staff performed an Initial Study, pursuant to California Environmental Quality Act (CEQA) regulations, and determined that the project, if undertaken with appropriate mitigation measures, would not have a significant adverse impact on the environment. The Negative Declaration's mitigation measures have been incorporated into the recommended conditions of approval to ensure that the project will have no adverse impacts to the environment.

8. That the project conforms to the criteria of the San Mateo County Grading Ordinance and is consistent with the General Plan. The project has been reviewed against the applicable policies of the San Mateo County General Plan and found, as proposed and conditioned, to be consistent with its goals and objectives, specifically with regards to Biotic, Soil and Visual Resources, as well as Hazard Mitigation policies. The project, as proposed and conditioned, conforms to standards in the Grading Ordinance, including those relative to an erosion and sediment control plan, dust control plan, and the timing of grading activity.

RECOMMENDED CONDITIONS OF APPROVAL

Current Planning Section

General Conditions

1. The approval applies only to the proposal as described in this report and materials submitted for review and approval by the Planning Commission on January 9, 2019. The Community Development Director may approve minor revisions or modifications to the project if they are found to be consistent with the intent of and in substantial conformance with this approval.

2. These permits shall be valid for two years from the date of approval in which time a building permit shall be issued. Any extension of the permits shall require submittal of an application for permit extension and payment of applicable extension fees sixty days prior to the expiration date.

3. The Department of Fish and Game has determined that this project is not exempt from Department of Fish and Game California Environmental Quality Act filing fees per Fish and Game Section 711.4. The applicant shall pay to the San Mateo County Clerk/Recorder's Office an amount of $2,354.75 (plus the $50

administrative fee) at the time of filing of the Notice of Determination by the County Planning and Building Department staff within ten business days of the approval.

Mitigation Measures

4. **Mitigation Measure 1:** The applicant shall implement the proposed re-vegetation plan as depicted in the project plans immediately upon completion of grading activities.

5. **Mitigation Measure 2:** To ensure that re-vegetation efforts are successful, the applicant shall implement a five year monitoring program for those areas affected by the project. Woody plant survivorship and canopy cover progress will be measured using either the line-intercept methodology or direct counting of healthy, live plantings in a representative segment of the restoration area. Natural recruitment of native woody trees and shrubs will be recorded and included in the estimates. Tree and shrub density will be calculated using the as-built acreage of planting areas. A comprehensive species list will be recorded for the monitoring area to document species richness and relative cover by native and non-native plant species. Photographs representative of the overall progress of riparian establishment will be taken in each year to provide visual documentation of vegetation establishment. By the fifth growing season following planting, the total number of planted and naturally recruited native trees and shrubs in the re-vegetation areas shall be equal to at least sixty percent of the number of trees and shrubs originally planted. All planted and recruited trees and shrubs counted must be alive and in good health. If by the fifth year the sixty percent target has not been met, then the applicant shall replant as necessary and monitor for an additional five years. The applicant shall submit annual monitoring reports to the County Planning Department outlining the progress of re-vegetation efforts.

6. **Mitigation Measure 3:** The County shall require construction contractors to implement the following BAAQMD's Basic Construction Mitigation Measures, listed below:

    a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

    b. All haul trucks transporting soil, sand, or other loose material into or off-site shall be covered.

    c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

    d. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.

e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.

f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

h. Post a publicly visible sign with the telephone number and person to contact at the County regarding the project. The County shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

7. **Mitigation Measure 4:** The applicant/project sponsor shall submit the names and credentials of biologists proposed to perform preconstruction surveys and monitoring to the USFWS for written approval at least 30 days prior to commencement of any activities.

8. **Mitigation Measure 5:** Each construction area will be surrounded by snake exclusionary fencing one week prior to the start of construction.

9. **Mitigation Measure 6:** A USFWS-approved biologist will survey the work areas no more than 24 hours prior to the onset of activities and after the snake exclusion fencing has been installed.

10. **Mitigation Measure 7:** If California red-legged frogs, tadpoles, or eggs are found, the approved biologist will contact the USFWS to determine if moving any of these life-stages is appropriate. In making this determination the USFWS shall consider if an appropriate relocation site exists. If the Service approves moving animals, the approved biologist shall be allowed sufficient time to move CRLF from the work areas before work activities begin. Only USFWS-approved biologists will participate in activities associated with the capture, handling, and monitoring of CRLF. If a CRLF is found nearby, but outside a proposed work area, it will not be disturbed and USFWS will be notified. The biologist will also report any observations of other listed species addressed in this biological assessment.

11. **Mitigation Measure 8:** Before any construction activities begin on the project, a USFWS-approved biologist will conduct a training session for all construction personnel. The training will include a description of the listed species with potential to occur, their habitat, and the general measures that are being implemented to

conserve the species as they relate to the project and the boundaries within which the project may accomplished (i.e. work areas).

12. **Mitigation Measure 9:** A qualified construction monitor shall be present on-site, as required by regulatory permit conditions, during the initial clearing and grubbing of each work area. All vegetation clearing shall be done by hand and supervised by a qualified biological monitor.
13. **Mitigation Measure 10:** During project activities, all trash will be properly contained, removed from the work area and disposed of regularly. Following construction, all trash and construction debris from work areas will be removed.

14. **Mitigation Measure 11:** All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 15 meters (50 feet) from any riparian habitat or water body. The applicant/project sponsor will ensure contamination of habitat does not occur during such operations. Prior to the start of construction, the applicant/project sponsor will prepare a plan to ensure a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

15. **Mitigation Measure 12:** A USFWS-approved biologist will ensure that the spread or introduction of invasive plant species will be avoided to the maximum extent possible. When practical, invasive exotic plants in the project area will be removed. The biologist will permanently remove, from within the project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes to the maximum extent possible.

16. **Mitigation Measure 13:** Project areas that are disturbed will be revegetated with an appropriate assemblage of native riparian, wetland and upland vegetation.

17. **Mitigation Measure 14:** Stream contours will be returned to their original condition at the end of project activities, unless consultation with USFWS has determined that it is not beneficial to the species or feasible.

18. **Mitigation Measure 15:** The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and these areas will be outside of riparian and wetland areas where feasible. Where impacts occur in staging areas and access routes, restoration will be performed.

19. **Mitigation Measure 16:** If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than five millimeters to prevent California red-legged frogs from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities,

any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

20. **Mitigation Measure 17:** Ground-disturbing activities will be completed between April 1 and October 31. Should activities be necessary to conduct outside this period, the U.S. Army Corp of Engineers may authorize such activities after obtaining the Service's approval.

21. **Mitigation Measure 18:** To control erosion during and after project implementation, best management practices will be utilized.

22. **Mitigation Measure 19:** A qualified biologist will monitor the removal and relocation of woodrat houses and placement of refuge structures (e.g. half wine barrels and slash piles) for any woodrat nests located within the access road footprint. If young woodrats are found in any house, all removed material will be replaced and removal of that house will not continue until the young have left the house. Prior to dismantling houses, data will be collected to document the following characteristics of the house: house-building materials, contents of house cavities (particularly stored food and plants), percent and type of ground cover immediately around each house, tree and shrub species surrounding the house, and the house substrate (e.g., ground, tree, etc.). New houses will be established on site for each house removed. New house designs will be constructed of a half wine barrel placed upside down in appropriate microhabitat with materials from the nest chamber of the dismantled house placed inside, and other house materials placed over and around the barrel, including a long tunnel-shaped entrance that leads only into the receptacle.

23. **Mitigation Measure 20:** Vegetation clearing and other construction work will occur outside the nesting birds season (February 1 to August 15). If work is initiated during the nesting season, a preconstruction survey for nesting birds will be performed by a qualified biologist. Any active nests will be avoided until all the young have fledged and are independent.

24. **Mitigation Measure 21:** Unexpected Discovery of Cultural Resources: Not all cultural resources are visible on the ground surface. Prior to the start of construction or ground-disturbing activities, the applicant shall ensure all field personnel are educated of the possibility of encountering buried prehistoric or historic cultural resources. Personnel will be trained that upon discovery of buried cultural resources, work within 50 feet of the find must cease and the applicant shall contact a qualified archaeologist immediately to evaluate the find. Once the find has been identified and found eligible for listing on the National Register of Historic Places or the California Register of Historical Resources, plans for treatment, evaluation, and mitigation of impacts to the find shall be developed and implemented according to the qualified archaeologist's recommendations. This measure will ensure that prehistoric and historic cultural resources are appropriately protected.

25. **Mitigation Measure 22:** Unanticipated Discovery of Human Remains: The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the 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 PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the County coroner shall be notified immediately. If the human remains are determined to be prehistoric, the coroner shall notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). The MLD has 48 hours after being given access to the site to make recommendations to the landowner regarding disposition of the remains.

26. **Mitigation Measure 23:** If surface water is present during construction, the applicant shall implement the following:

    a. Cofferdams, flow bypass pipes, or diversion dams shall be used to ensure continued flow around the work area.

    b. Adequate sediment and turbidity control measures shall be implemented. One or more fences of filter fabric shall be constructed across stream channels downstream of the lowermost cofferdams to reduce turbidity and sedimentation downstream of the stream construction sites during removal of cofferdams and until water clarity is re-established once stream flow is re-introduced to the stream channel in the work area.

    c. The presence of surface water, such as in-stream flow or pool habitat, could mean the potential for salmonids to occur in the work area. To relocate salmonids from the work area following installation of a cofferdam or diversion dam/bypass pipes, a fish rescue and relocation effort shall be conducted by qualified biologists utilizing NMFS prescribed methods for the safe handling of salmonids.

    d. The applicant shall have a biologist monitor the construction site during placement and removal of cofferdams, channel diversions, and access ramps to ensure that any adverse effects to salmonids are minimized. The biologist shall be on site during all dewatering events to capture, handle, and safely relocate steelhead, if present.

    e. Consistent with Mitigation Measures 24 and 25, contractors shall have a supply of erosion control materials, and fuel and hydraulic fluid spill containment supplies onsite to facilitate a quick response to unanticipated storm events, or fuel or hydraulic fluid spill emergencies.

    f. Consistent with Mitigation Measure 26, construction equipment used within the creek channel shall be checked each day prior to work within the creek.

27. **Mitigation Measure 24:** Project materials shall be placed in locations and manners that will not impair surface water flow into or out of any water of the United States. If surface flow is present during construction, dewatering activities shall ensure that near-normal downstream flows are maintained. Fill shall consist of suitable material and placement such that it will not be eroded by future high flows. Following completion of construction, temporary fill shall be removed to upland areas, dredged material shall be returned to its original location, and the affected areas shall be restored to preconstruction elevations. The area upstream and downstream of the project reach shall be monitored annually for a two year period post construction to qualitatively assess channel conditions.

28. **Mitigation Measure 25:** The applicant shall prepare a comprehensive stormwater pollution and erosion control plan for the project. Erosion control measures shall be in place prior to the start of construction activities and remain in place throughout all phases of project construction. The plan must provide a BMP monitoring and maintenance schedule and identify parties responsible for monitoring and maintenance of construction-phase BMPs. Erosion and water quality control measures identified in the plan must comply with the County of San Mateo Department of Public Work's Contract Requirements for Erosion and Sediment Control and Contract Requirements for Water Pollution Control for Construction in Sensitive Areas, and at a minimum include the following measures (County of San Mateo 2013a; County of San Mateo, 2013b):

    a. Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place.

    b. Sediment shall be retained on-site by a system of sediment basins, traps, or other appropriate measures.

    c. A spill prevention and countermeasure plan shall be developed that will identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used on-site. The plan will also require the proper storage, handling, use, and disposal of petroleum products.

    d. Construction activities shall be scheduled to minimize land disturbance during peak runoff periods and to the immediate area required for construction. Existing vegetation shall be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.

e. Surface waters, including ponded waters, must be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity which may result in a discharge to the receiving water. Diversion activities must not result in the degradation of beneficial uses or exceedance of water quality objectives of the receiving waters. Any temporary dam or other artificial obstruction constructed must only be built from materials such as clean gravel which will cause little or no siltation. Normal flows must be restored to the affected stream immediately upon completion of work at that location.

f. Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff losses and contamination of groundwater.

g. Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events. All removed topsoil shall be reused during construction to the extent feasible. Unused topsoil, if any, shall be broadly redistributed to the surrounding areas in such a manner that topography and vegetation cover would not be adversely impacted.

h. Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff.

i. Disturbed areas will be re-vegetated after completion of construction activities.

j. Provide sanitary facilities for construction workers.

29. **Mitigation Measure 26:** The applicant shall use the following best management practices (BMPs) to minimize potential adverse effects of the project to groundwater and soils from chemicals used during construction activities:

a. Follow manufacturer's recommendations on use, storage and disposal of chemical products used in construction;

b. Avoid overtopping construction equipment fuel gas tanks;

c. Provide secondary containment for any hazardous materials temporarily stored onsite;

d. During routine maintenance of construction equipment, properly contain and remove grease and oils;

e. Perform regular inspections of construction equipment and materials storage areas for leaks and maintain records documenting compliance with the storage, handling and disposal of hazardous materials; and
f. Properly dispose of discarded containers of fuels and other chemicals.

30. **Mitigation Measure 27:** The construction contractor(s) shall develop a construction management plan for review and approval by the County's Planning and Public Works Departments. The plan shall include at least the following items and requirements to reduce, to the maximum extent feasible, any safety hazards and traffic congestion during construction:

    a. A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours, signs, and designated construction access routes.

    b. Identification of haul routes for movement of construction vehicles that would minimize impacts on motor vehicular traffic, and circulation and safety. Impacts to Highway 92 shall be minimized to the greatest extent possible.

    c. Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur.

    d. Provisions for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project sponsor.

<u>Grading Permit Conditions</u>

31. The provision of the San Mateo County Grading Ordinance shall govern all grading on and adjacent to this site. Per San Mateo County Ordinance Section 8605.5, all equipment used in grading operations shall meet spark arrester and fire-fighting tool requirements, as specified in the California Public Resources Code.

32. No grading activities shall commence until the applicant has been issued a grading permit (issued as the "hard card" with all necessary information filled out and signatures obtained) by the Current Planning Section.

33. The engineer who prepared the approved grading plan shall be responsible for the inspection and certification of the grading as required by Section 8606.2 of the Grading Ordinance. The engineer's responsibilities shall include those relating to non-compliance detailed in Section 8606.5 of the Grading Ordinance.

34. For the final approval of the grading permit, the applicant shall ensure the performance of the following activities within thirty (30) days of the completion of grading:

    a. The engineer shall submit written certification to the Department of Public Works and the Geotechnical Section that all grading has been completed in conformance with the approved plans, conditions of approval, and the Grading Ordinance.

    b. All applicable work during construction shall be subject to observation and approval by the geotechnical consultant. Section II of the Geotechnical Consultant Approval form must be submitted to the County's Geotechnical Engineer and Current Planning Section.

35. The applicant shall implement erosion control measures prior to the beginning of grading or construction operations. Revegetation of denuded areas shall begin immediately upon completion of grading/construction operations.

36. The grading permit "hard card" and the building permit shall be issued at the same time. No grading shall occur until the "hard card" has been issued.

37. Unless approved, in writing, by the Community Development Director, no grading shall be allowed during the winter season (October 1 to April 30) to avoid potential soil erosion.

38. The applicant shall submit a letter to the Current Planning Section, a minimum of two (2) weeks prior to commencement of grading, stating the date when grading will begin.

<u>Building Inspection Section</u>

39. This project will require a building permit.

40. At the time of building permit application, an engineering analysis, prepared by a registered design professional, demonstrating that the flood-carrying capacity of the altered watercourse will not be decreased shall be submitted.
41. The design flood elevation of the area being altered shall be determined with accepted hydrologic and hydraulic engineering techniques. Such analysis shall be performed and sealed by a registered design professional.

42. Sediment and erosion control measures must be installed prior to beginning any site work and maintained throughout the term of the permit. Failure to install or maintain these measures will result in stoppage of construction until the corrections have been made and fees paid for staff enforcement time.

Geotechnical Section

43. The applicant shall comply with all requirements of the Geotechnical Section prior to the issuance of a grading permit and/or building permit.

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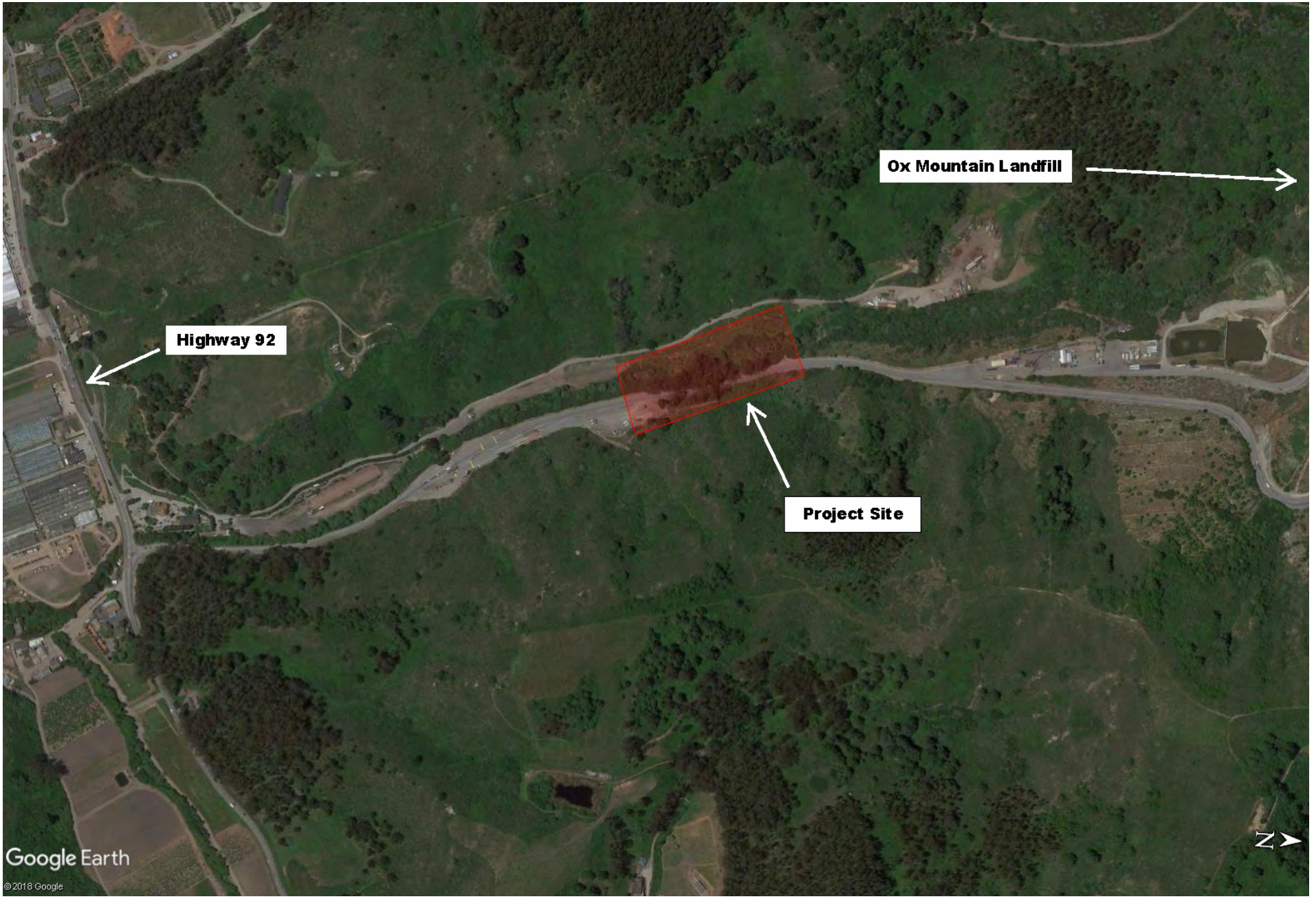
County of San Mateo - Planning and Building Department

ATTACHMENT B



San Mateo County Planning Commission Meeting

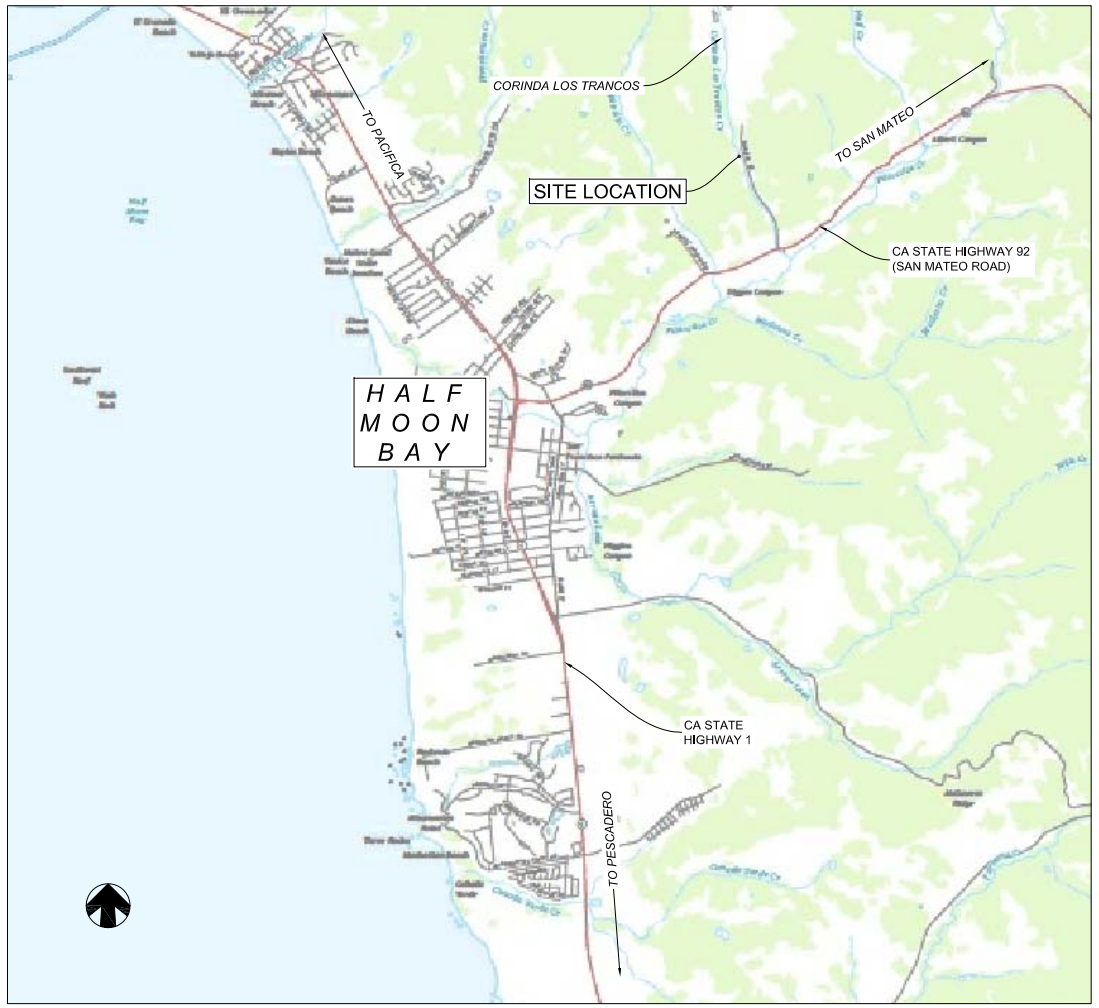
Owner/Applicant: **Questa Engineering** Attachment: **B**

File Numbers: **PLN 0018-00127**

County of San Mateo - Planning and Building Department

ATTACHMENT C

CORINDA LOS TRANCOS STABILIZATION PROJECT
HALF MOON BAY, SAN MATEO COUNTY, CA



LOCATION MAP
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VICINITY MAP
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SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
1	TITLE PAGE
2	EXISTING SITE AND WATER DIVERSION
3	STAGING & ACCESS & EXCLUSION FENCING
4	TREE REMOVAL
5	CURRENT VS PROPOSED ALIGNMENT
6	OVERALL GRADING PLAN
7	GRADING SECTION VIEWS
8	ACCESS ROAD CROSS SECTIONS
9	GEOGRID AND SEEP DRAIN OVERVIEW
10	GEOGRID TYPICAL CROSS SECTIONS
11	SEEP AND SLIDE ZONE CROSS SECTIONS
12	CONSTRUCTION PLAN I
13	CONSTRUCTION PLAN I CONT.
14	CONSTRUCTION PLAN II
15	CONSTRUCTION DETAILS
16	PERMANENT EROSION CONTROL OVERVIEW
17	EROSION CONTROL DETAILS
18	PLANTING AND IRRIGATION PLAN
19	PLANTING DETAILS
20	SWPP GUIDELINES

NOT FOR CONSTRUCTION

CORINDA LOS TRANCOS CREEK STABILIZATION

REPUBLIC SERVICES
SAN MATEO COUNTY

QUESTA ENGINEERING CORP.
Civil Environmental & Water Resources
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P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

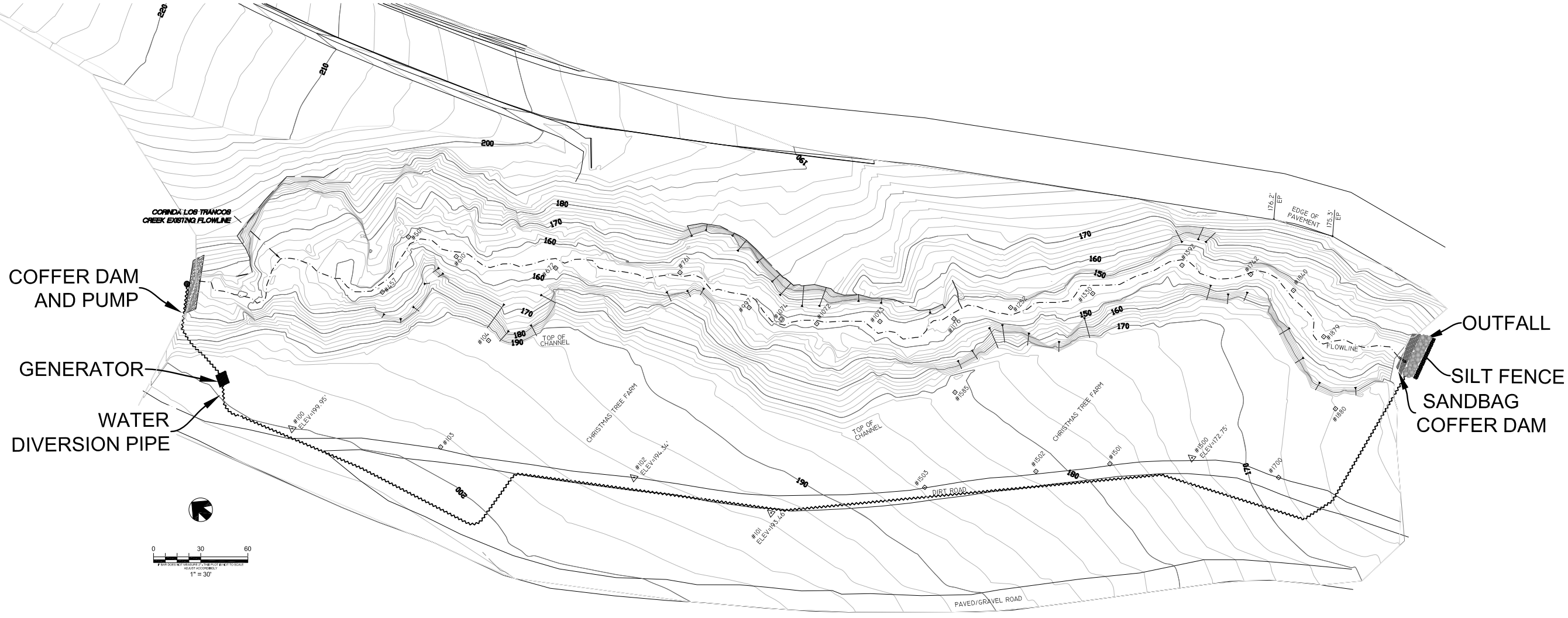
Sht:	Rev.:	Date:	By:	Description:	Appr'd:

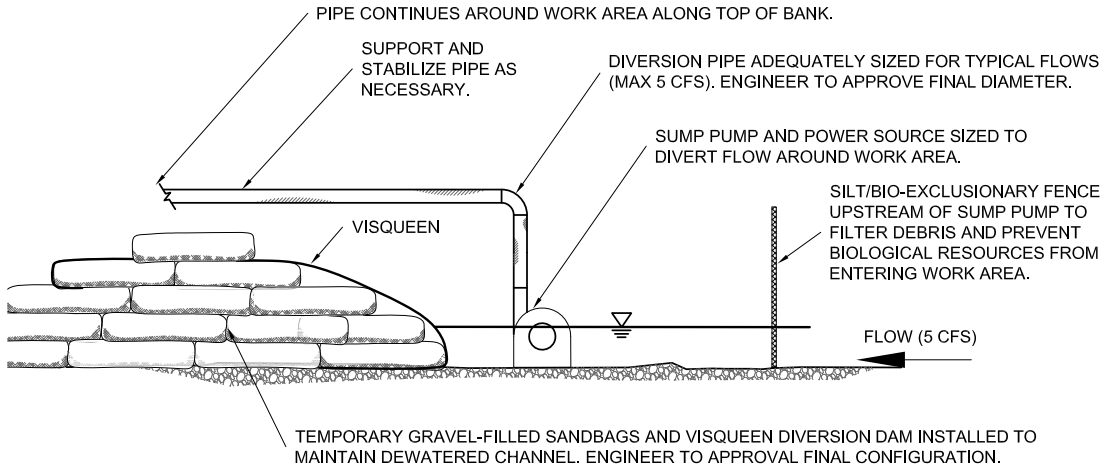
Design: ST
Drawn: FP
Checked: ST
Appr'd: ST

TITLE PAGE

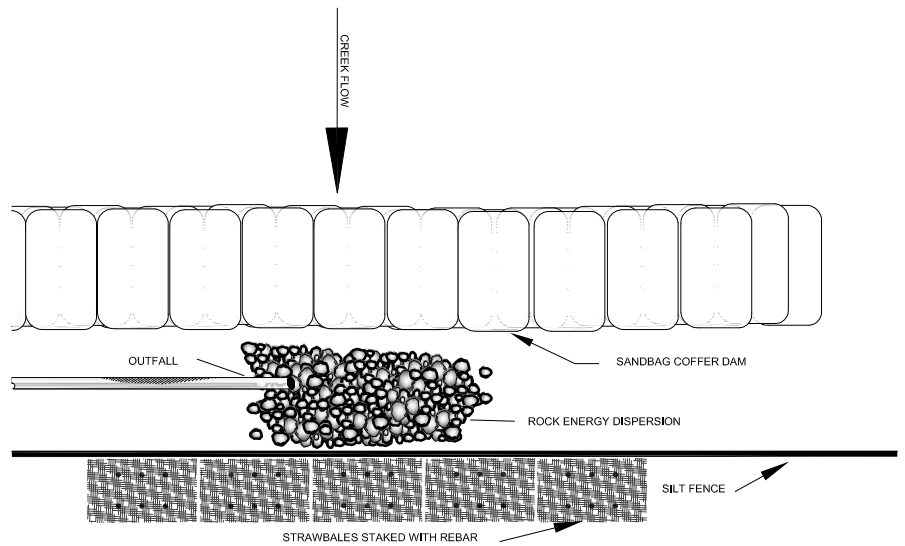
CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
Scale: AS NOTED
Date: 6/13/2018
Sheet: 1 OF 20

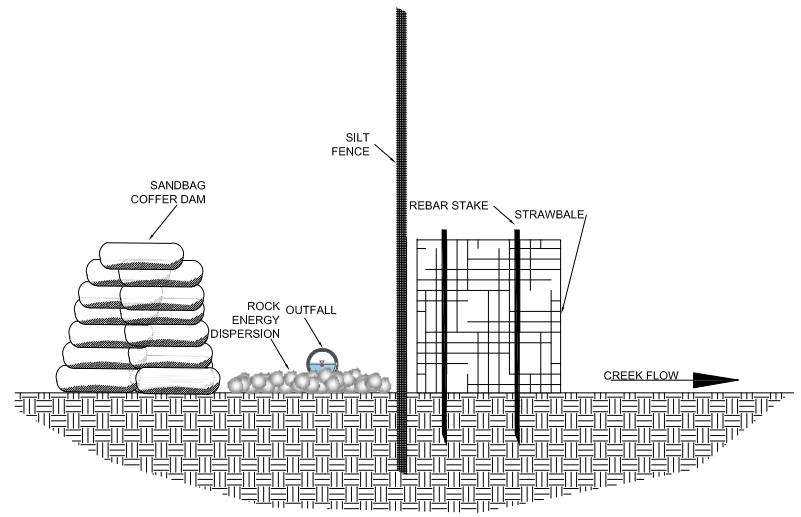




1 **VISQUEEN AND SANDBAG COFFER DAM**
NTS



2 **OUTFALL DETAIL**
NTS



3 **OUTFALL DETAIL**
NTS

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

LAST SAVED: 6/12/2018 PLOT DATE: 6/13/2018 PLOT STYLE: ----

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CORINDA LOS TRANCOS CREEK STABILIZATION

REPUBLIC SERVICES
SAN MATEO COUNTY, CA

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EXISTING SITE AND WATER DIVERSION

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

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Project: 1700036
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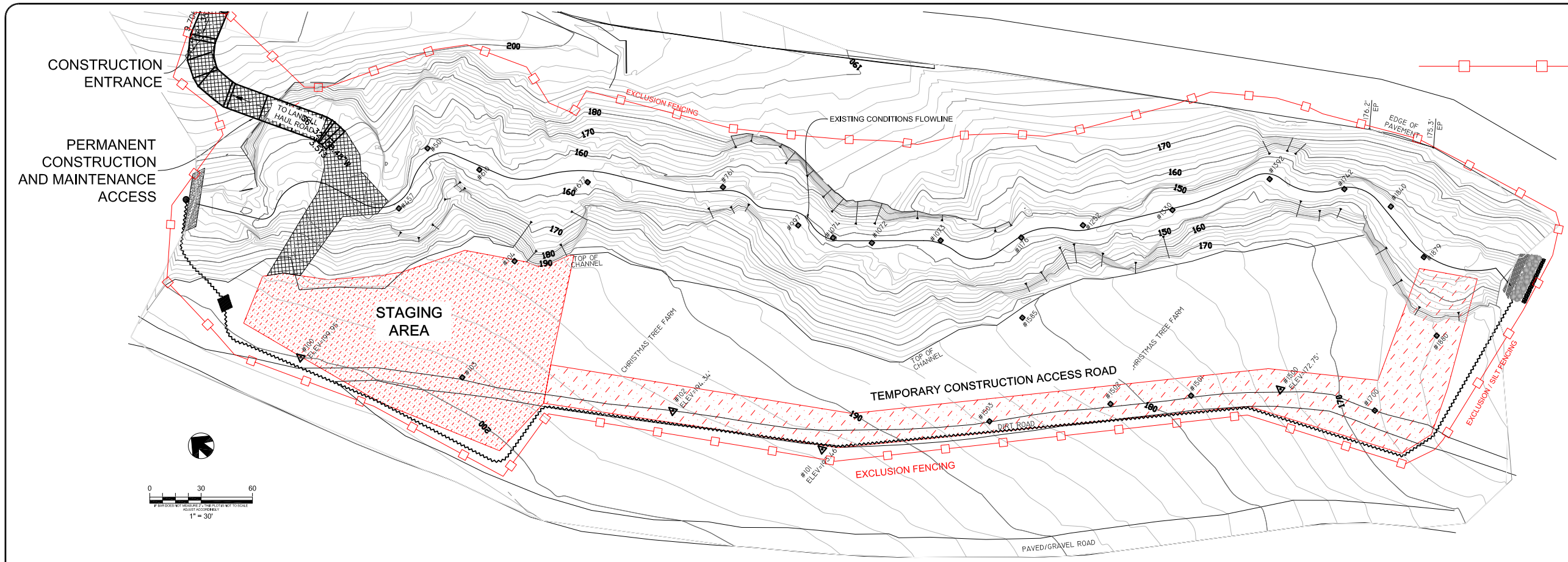
Date: 6/13/2018
Sheet: 2 OF 20

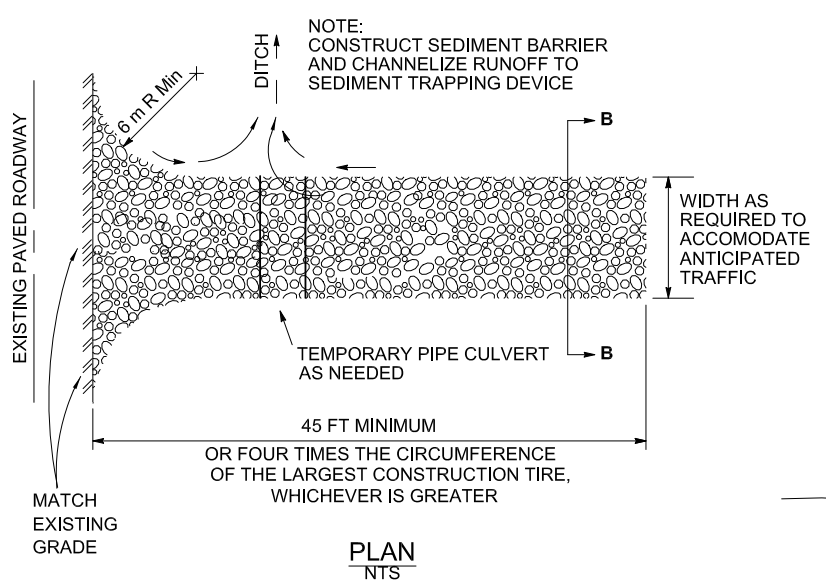


NOTE:

WESTERN ACCESS ROADS WILL BE REMOVED AFTER CONSTRUCTION

EASTERN ROAD LEADING TO LANDFILL HAUL ROAD WILL BE RETAINED FOR MAINTENANCE ACCESS

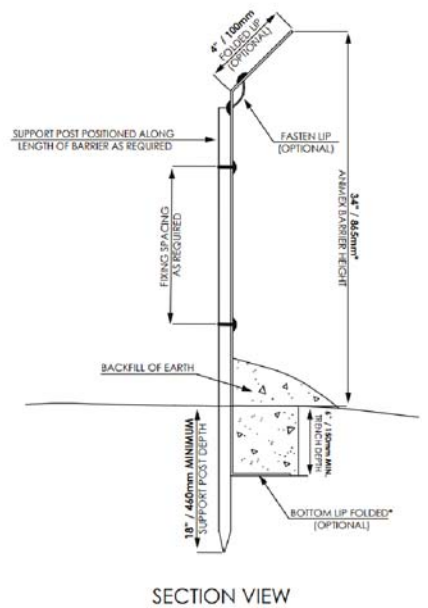
CONSTRUCTION ENTRANCE DETAILS



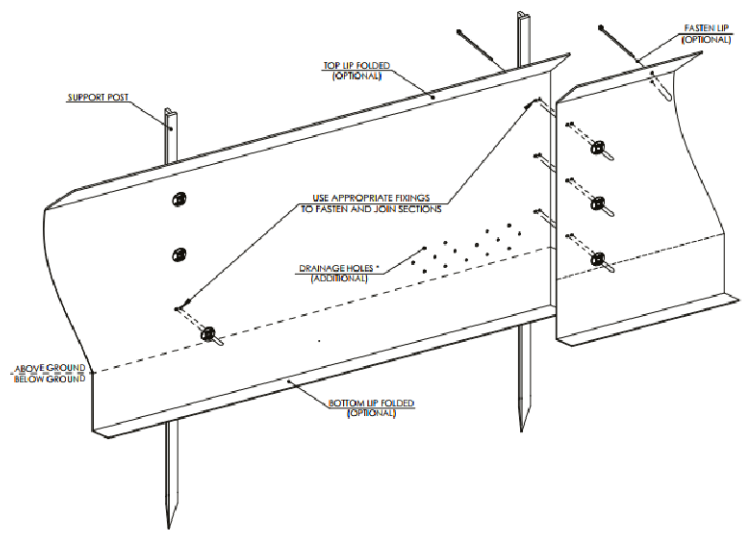
PLAN
NTS

SECTION B-B
NTS

ANIMEX EXCLUSION FENCING (AMX 40/1015) INSTALLATION DETAILS



SECTION VIEW



Detailed installition guides and additional information can be found at:
https://animexfencing.com/fencing/species/frog

CORINDA LOS TRANCOS CREEK STABILIZATION

LEMOS RANCH
SAN MATEO COUNTY, CA

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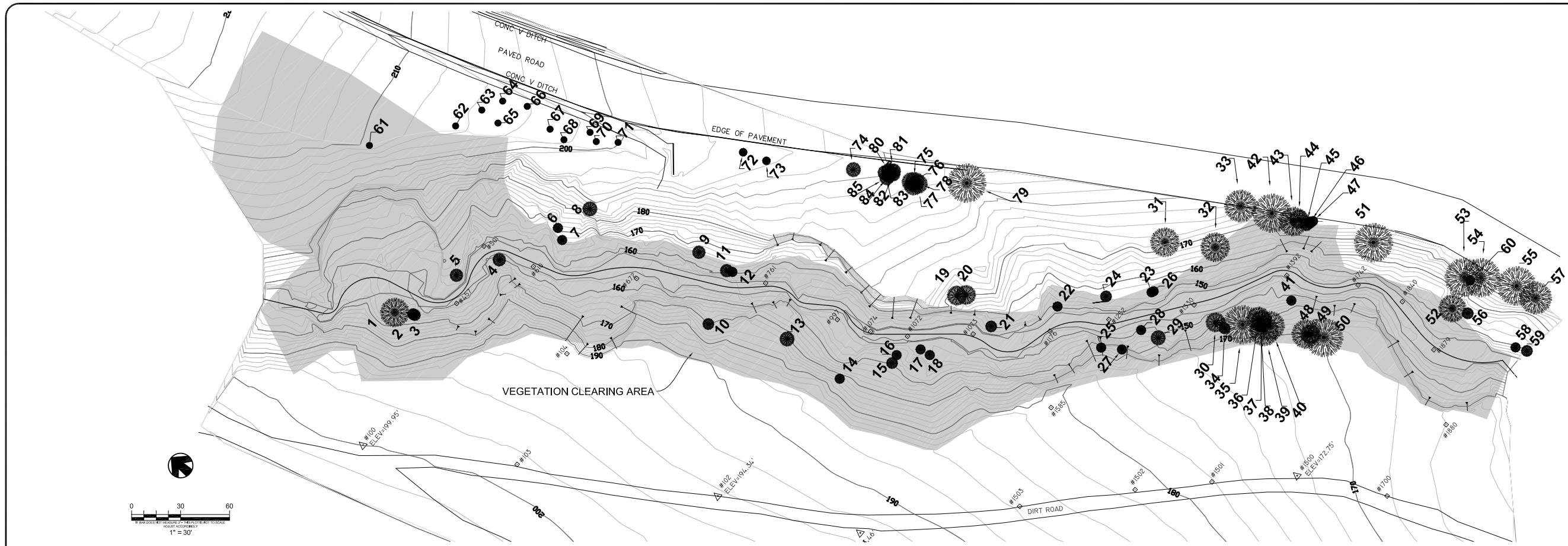
STAGING & ACCESS & EXCLUSION FENCING

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
Scale: AS NOTED
Date: 6/13/2018
Sheet: 3 OF 20



KEPT TREES							
Alder		Eucalyptus		Bay		Dead Trees	
Tree #	Size	Tree #	Size	Tree #	Size	Tree #	Size
8	18	31	36	6	12	19	24
26	12	32	60			20	24
27	12	33	40				
28	12	42	48				
58	12	43	36				
59	14	44	24				
62	8	45	16				
63	8	46	14				
64	8	47	12				
65	8	48	36				
66	8	49	24				
67	8	50	48				
68	8	51	48				
69	8	52	34				
70	8	53	48				
71	8	54	48				
72	10	55	48				
73	10	56	14				
		57	40				
		60	12				
		74	18				
		75	24				
		76	24				
		77	24				
		78	24				

REMOVED TREES					
Alder		Eucalyptus		Bay	
Tree #	Size	Tree #	Size	Tree #	Size
1	12	29	18	2	14
4	16	30	24	3	14
5	16	34	14	13	18
7	12	35	48	14	12
9	16	36	30	22	12
10	14	37	26		
11	16	38	14		
12	12	39	36		
15	14	40	36		
16	12	41	12		
17	12				
18	12				
21	14				
23	12				
24	14				
25	12				
61	8				

Summary		
Tree Type	Removed	Kept
Alder	17	18
Eucalyptus	10	26
Bay	10	1
Dead	0	2
Sum	**37**	**47**

NOTES:

1) ALL NATIVE TREES WILL BE REMOVED SO THAT THE ROOT BALL IS RETAINED WITH AT LEAST 10' OF TRUNK. ROOT BALLS AND ASSOCIATED TRUNKS SHALL BE SEPARATED AND SALVAGED FOR PLACEMENT IN NEW CREEK CHANNEL.

2) CLEARING GRUBBING SHALL FIRST BE COMPLETED BY HAND CREWS WITH A BIOLOGIC MONITOR BEFORE MACHINERY ENTERS THE SITE.

3) NO EUCALYPTUS TREES WILL BE SALVAGED

CORINDA LOS TRANCOS CREEK STABILIZATION

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TREE REMOVAL

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
Scale: AS NOTED
Date: 6/13/2018
Sheet: 4 OF 20

IF BAR DOES NOT MEASURE 1" DRAWING IS NOT TO SCALE – ADJUST ACCORDINGLY
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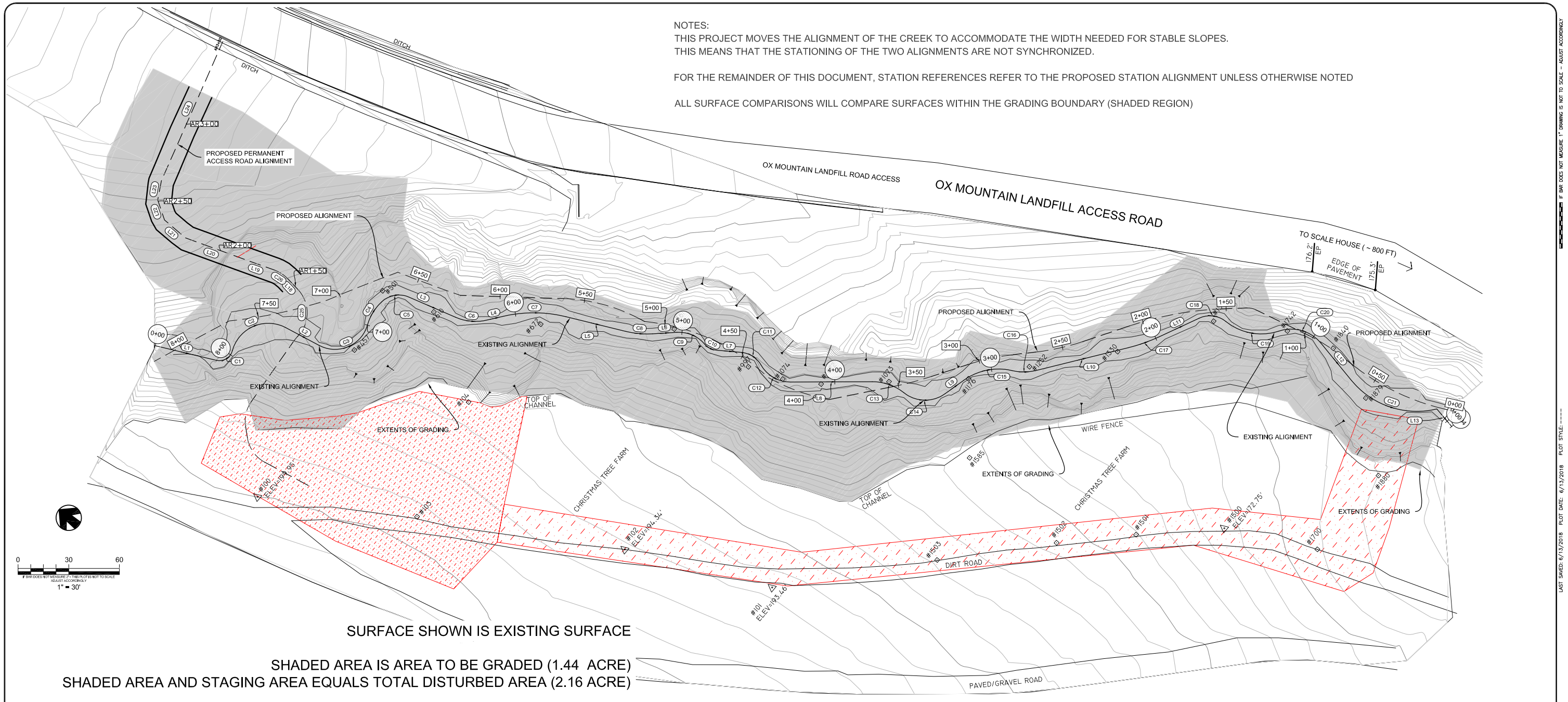
NOTES:
THIS PROJECT MOVES THE ALIGNMENT OF THE CREEK TO ACCOMMODATE THE WIDTH NEEDED FOR STABLE SLOPES.
THIS MEANS THAT THE STATIONING OF THE TWO ALIGNMENTS ARE NOT SYNCHRONIZED.

FOR THE REMAINDER OF THIS DOCUMENT, STATION REFERENCES REFER TO THE PROPOSED STATION ALIGNMENT UNLESS OTHERWISE NOTED

ALL SURFACE COMPARISONS WILL COMPARE SURFACES WITHIN THE GRADING BOUNDARY (SHADED REGION)



SURFACE SHOWN IS EXISTING SURFACE

SHADED AREA IS AREA TO BE GRADED (1.44 ACRE)
SHADED AREA AND STAGING AREA EQUALS TOTAL DISTURBED AREA (2.16 ACRE)

FLOWLINE LINE TABLE			
LINE #	LENGTH	DIRECTION	START STATION
L1	37.23	S26° 31' 36.52"E	8+09.65
L2	22.45	S12° 01' 31.05"E	7+35.43
L3	29.95	S16° 35' 29.93"E	6+36.28
L4	9.65	S53° 08' 37.82"E	6+07.49
L5	36.51	S26° 13' 07.93"E	5+33.38
L6	14.44	S43° 26' 45.44"E	5+03.01
L7	15.06	S34° 46' 26.94"E	4+61.64
L8	48.37	S40° 10' 15.05"E	3+77.86
L9	13.77	S75° 44' 49.84"E	3+17.70
L10	56.46	S53° 52' 58.42"E	2+17.04
L11	26.02	S64° 58' 09.50"E	1+71.68
L12	28.38	S10° 40' 50.39"W	0+65.67
L13	13.62	S9° 47' 26.93"W	0+04.16

FLOWLINE CURVE TABLE				
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START STATION
C1	8.00	12.32	S70° 38' 46.17"E	7+97.33
C2	22.00	39.45	S63° 23' 43.43"E	7+57.88
C3	20.00	35.59	S63° 00' 37.85"E	6+99.83
C4	30.00	16.19	N81° 27' 55.16"E	6+83.64
C5	15.00	17.40	S49° 49' 57.48"E	6+66.24
C6	30.00	19.14	S34° 52' 03.88"E	6+17.14
C7	80.00	37.59	S39° 40' 52.88"E	5+69.90
C8	52.96	15.92	S34° 49' 56.68"E	5+17.46
C9	20.00	18.55	S16° 52' 22.39"E	4+84.46
C10	10.00	7.76	S12° 32' 13.14"E	4+76.70
C11	15.00	14.37	S7° 20' 02.44"E	4+47.27

FLOWLINE CURVE TABLE				
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START STATION
C12	20.00	21.04	S10° 01' 56.49"E	4+26.23
C13	30.00	20.26	S20° 49' 40.41"E	3+57.60
C14	20.16	26.14	S38° 36' 57.81"E	3+31.47
C15	35.00	29.96	S51° 13' 21.26"E	2+87.73
C16	30.00	14.23	S40° 17' 25.54"E	2+73.50
C17	100.00	19.35	S59° 25' 33.96"E	1+97.69
C18	15.00	16.71	S33° 03' 22.58"E	1+54.97
C19	33.42	33.34	S29° 43' 20.49"E	1+21.62
C20	22.91	27.58	S23° 48' 37.47"E	0+94.04
C21	50.00	56.21	S21° 31' 25.84"E	0+09.46

ACCESS ROAD LINE TABLE			
LINE #	LENGTH	DIRECTION	START STATION
L18	8.79	N6° 32' 58.48"E	1+56.65
L19	21.51	N20° 15' 57.23"W	1+87.52
L20	34.51	N19° 59' 25.10"W	2+22.04
L21	16.34	N0° 26' 55.27"E	2+38.38
L22	12.55	N31° 11' 20.08"E	2+50.93
L23	11.65	N60° 56' 21.83"E	2+62.58
L24	89.93	N73° 48' 32.50"E	3+52.51

FLOWLINE CURVE TABLE				
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START STATION
C12	20.00	21.04	S10° 01' 56.49"E	4+26.23
C13	30.00	20.26	S20° 49' 40.41"E	3+57.60
C14	20.16	26.14	S38° 36' 57.81"E	3+31.47
C15	35.00	29.96	S51° 13' 21.26"E	2+87.73
C16	30.00	14.23	S40° 17' 25.54"E	2+73.50
C17	100.00	19.35	S59° 25' 33.96"E	1+97.69
C18	15.00	16.71	S33° 03' 22.58"E	1+54.97
C19	33.42	33.34	S29° 43' 20.49"E	1+21.62
C20	22.91	27.58	S23° 48' 37.47"E	0+94.04
C21	50.00	56.21	S21° 31' 25.84"E	0+09.46

CORINDA LOS TRANCOS CREEK STABILIZATION

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CURRENT VS PROPOSED ALIGNMENT

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
Scale: AS NOTED
Date: 6/13/2018
Sheet: 5 OF 20

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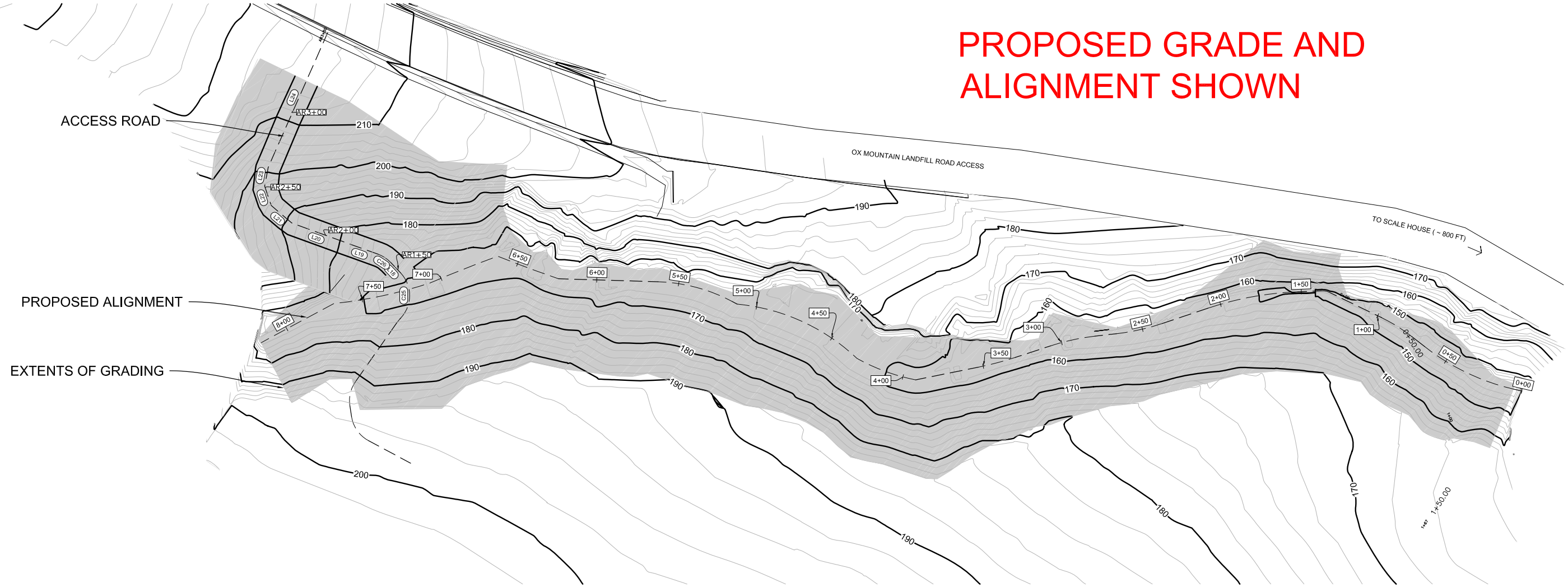
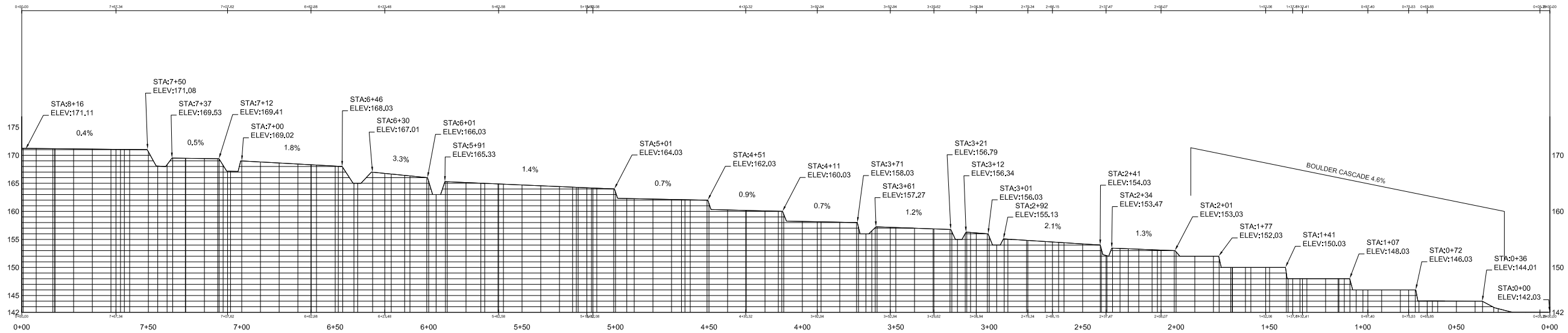
PROPOSED GRADE AND ALIGNMENT SHOWN



PROPOSED ALIGNMENT



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OVERALL GRADING PLAN

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
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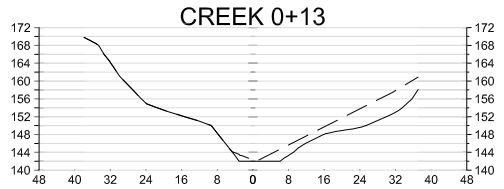
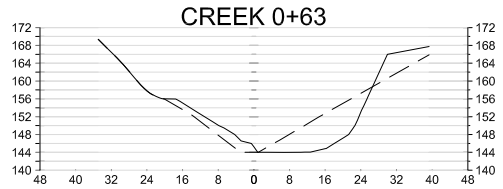
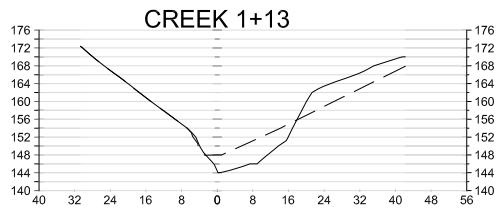
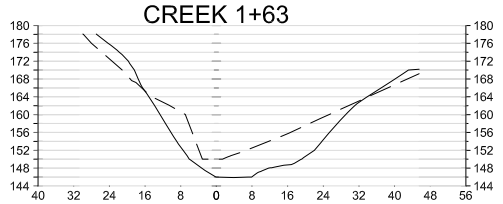
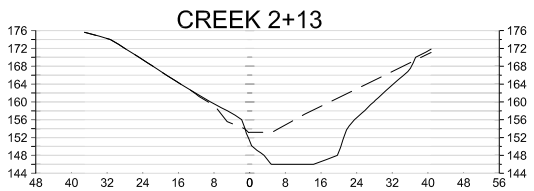
Date: 6/13/2018
Sheet: 6 OF 20

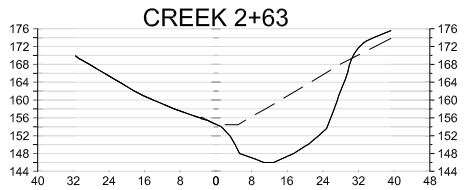


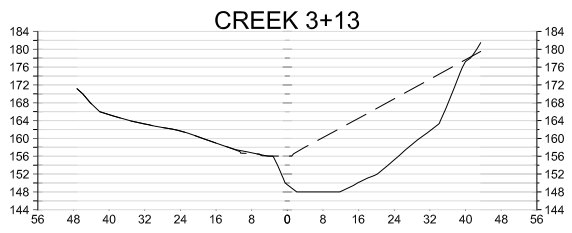


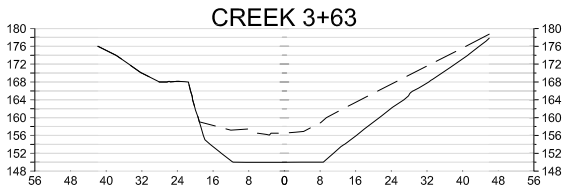


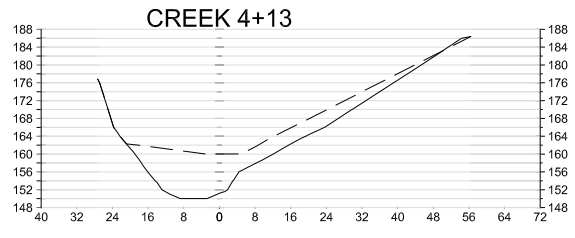


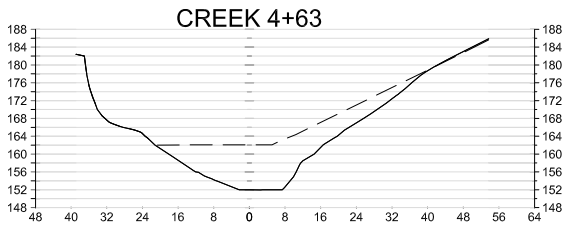


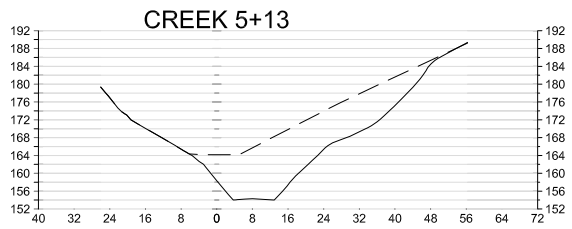


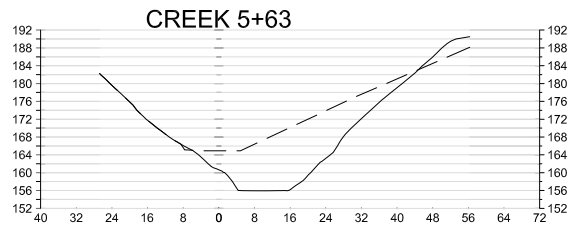


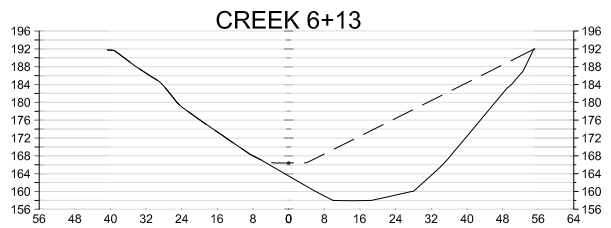


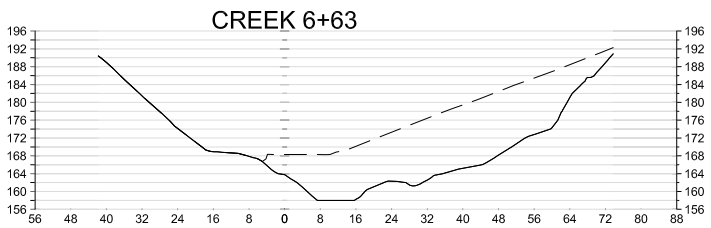


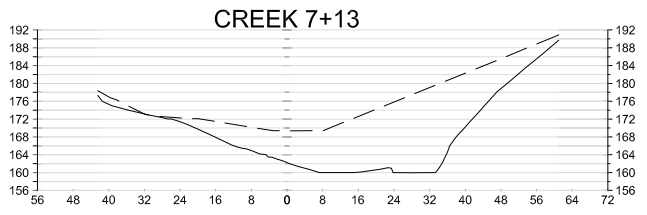


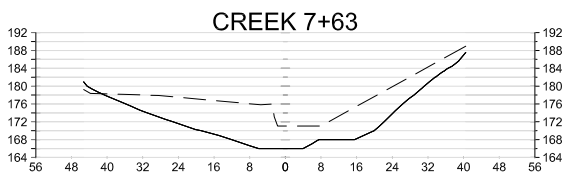












SECTION VIEWS OF PROPOSED ALIGNMENT LOOKING DOWNSTREAM

PROPOSED FINAL GRADE

EXISTING GRADE

CORINDA LOS TRANCOS CREEK STABILIZATION

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GRADING SECTION VIEWS

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
Scale: AS NOTED
Date: 6/13/2018
Sheet: 7 OF 20

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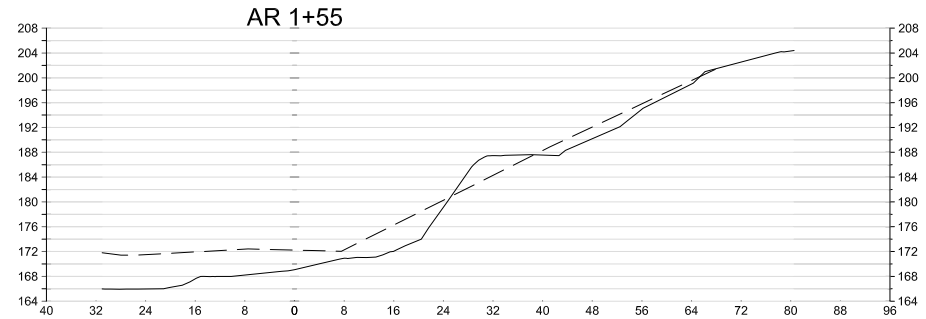
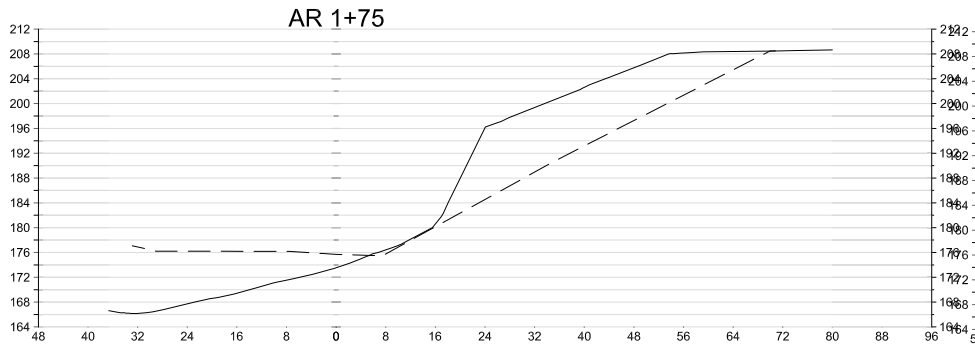
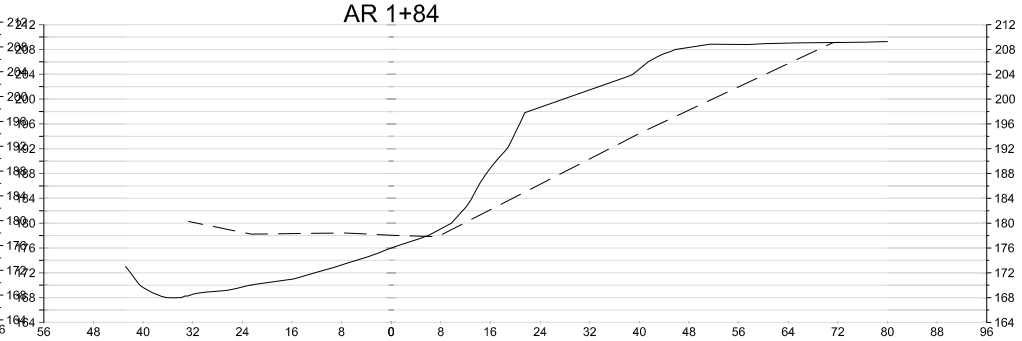
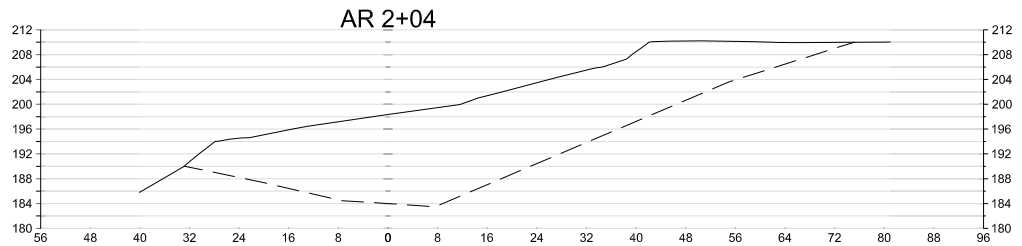
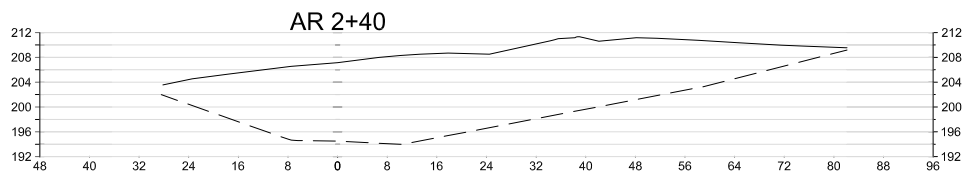




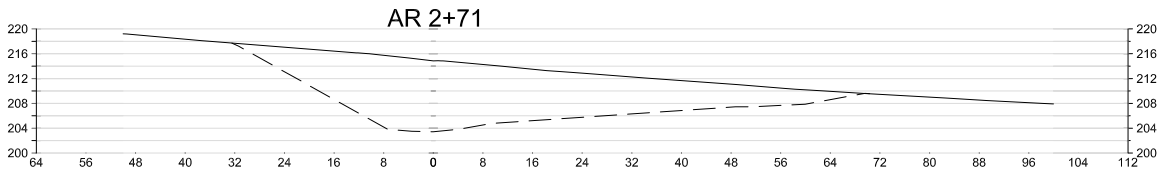


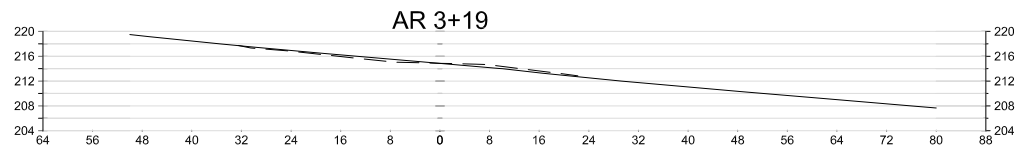




PROPOSED FINAL GRADE

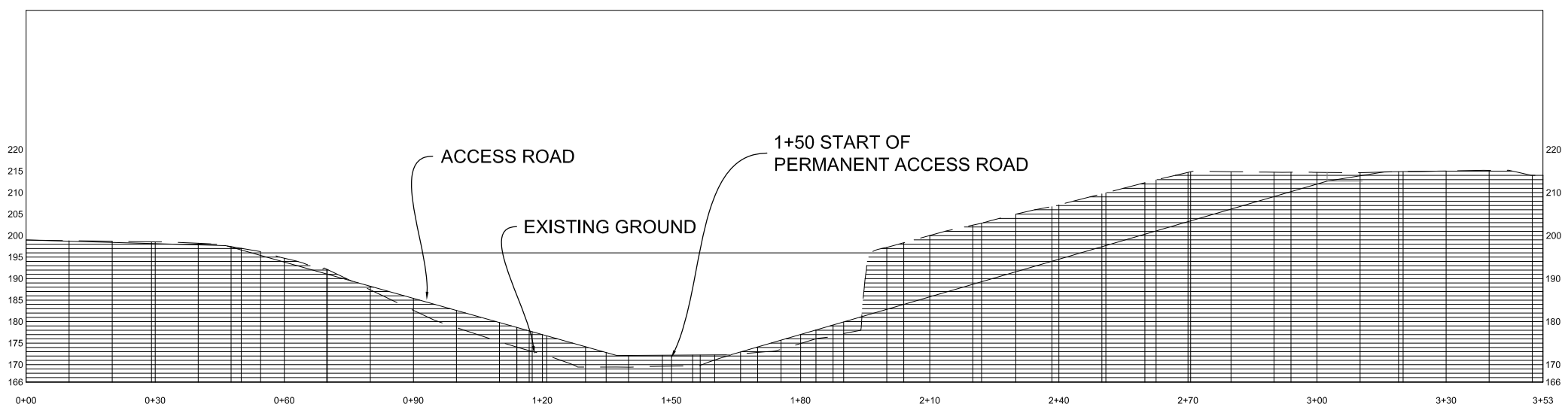
EXISTING GRADE





SECTIONS ARE LOOKING DOWNSTREAM

ACCESS ROAD PROFILE
HORIZONTAL: 1" = 30'
VERTICAL: 1" = 10'



THE PROFILE TO THE LEFT SHOWS THE ENTIRE PROFILE FOR THE ACCESS ROAD. DURING CONSTRUCTION, THE ENTIRE ACCESS ROAD WILL BE NEEDED TO GET VEHICLES AND EQUIPMENT IN AND OUT OF THE CHANNEL. THE ACCESS ROAD FROM STATION 1+50 TO 3+20 WILL REMAIN AFTER CONSTRUCTION TO GIVE ACCESS FOR FUTURE MONITORING AND MAINTENANCE.

SECTION 1+50 TO 3+20 OF THE ACCESS ROAD IS REFEREED TO AS THE PERMANENT ACCESS ROAD.

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

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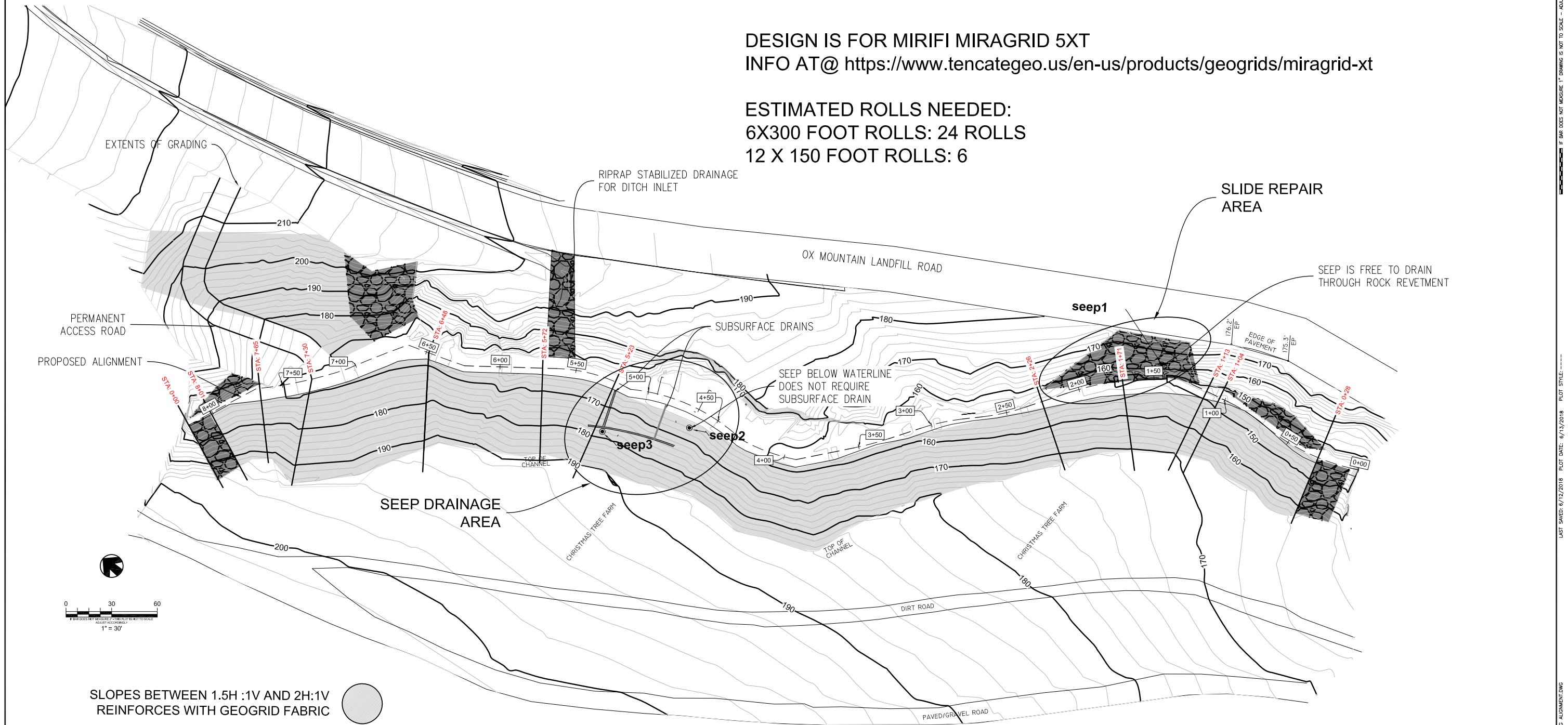
ACCESS ROAD CROSS SECTIONS

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
Scale: AS NOTED
Date: 6/13/2018
Sheet: 8 OF 20

DESIGN IS FOR MIRIFI MIRAGRID 5XT
INFO AT@ https://www.tencategeo.us/en-us/products/geogrids/miragrid-xt

ESTIMATED ROLLS NEEDED:
6X300 FOOT ROLLS: 24 ROLLS
12 X 150 FOOT ROLLS: 6



SLOPES BETWEEN 1.5H :1V AND 2H:1V
REINFORCES WITH GEOGRID FABRIC

SLOPES STEEPER THAN 1.5V :1H
REINFORCES WITH RIPRAP

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GEOGRID AND SEEP DRAIN OVERVIEW

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

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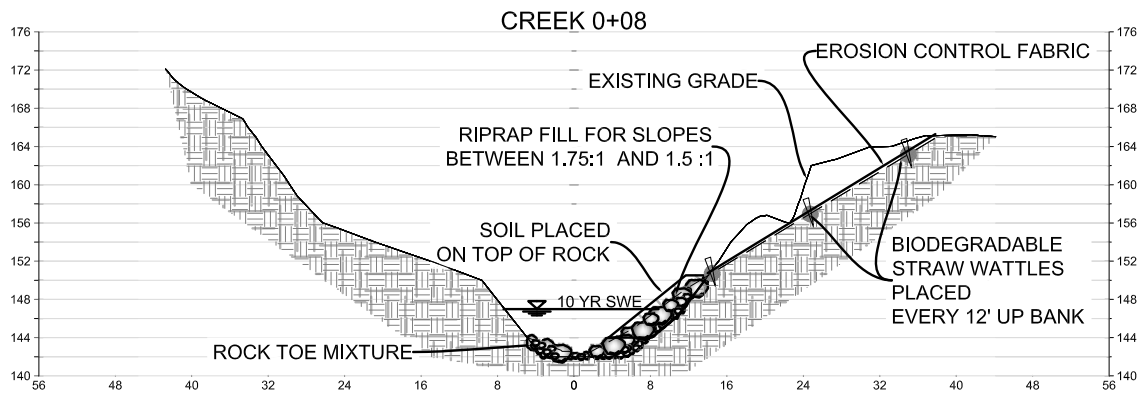
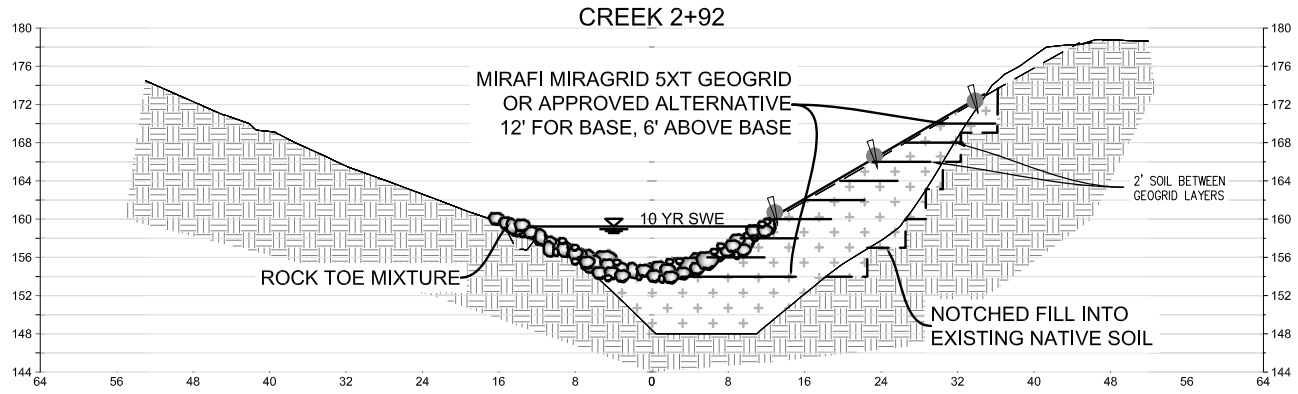
Sheet: 9 OF 20

GEOGRID CROSS SECTIONS FOR TYPICAL SLOPES

1.5-1.75 :1 SLOPE
TYPICAL RIPRAP REINFORCED SLOPE CROSS SECTION

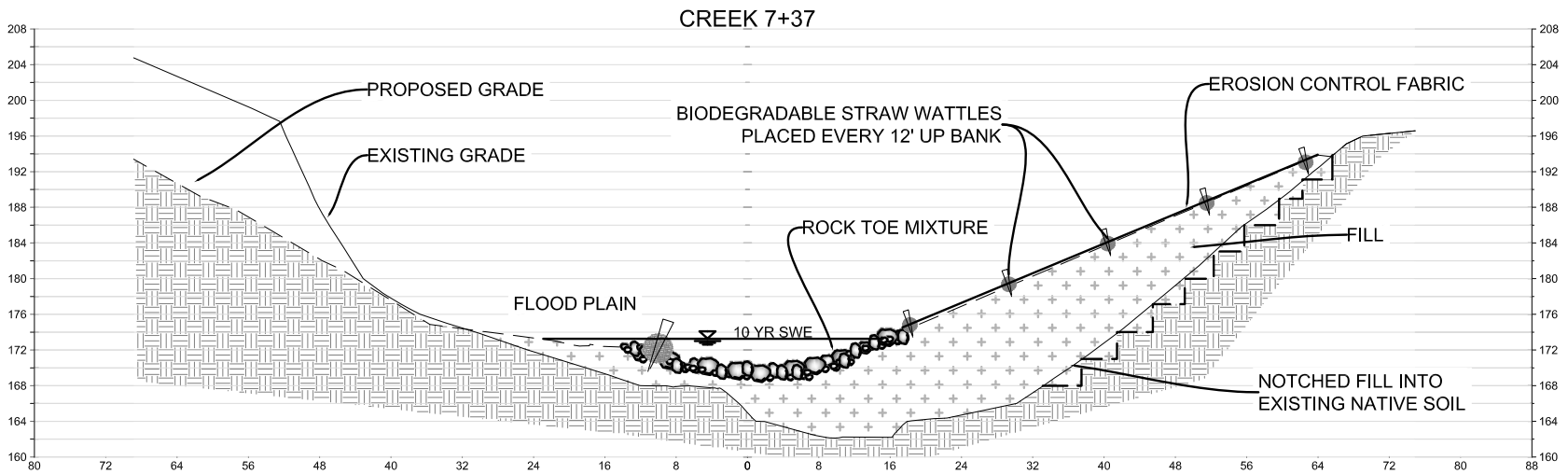


1.75-2 :1 SLOPE
TYPICAL GEOGRID REINFORCED SLOPE CROSS SECTION



COMPACT FILL MATERIALS TO 90% RELATIVE COMPACTION AT 1% TO 4% ABOVE OPTIMUM MOISTURE CONTENT

2- >2 :1 SLOPE
TYPICAL STABLE SLOPE CROSS SECTION



SECTIONS LOOKING DOWNSTREAM

PROPOSED FINAL GRADE

EXISTING GRADE

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

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CORINDA LOS TRANCOS CREEK STABALIZATION

LEMOS RANCH
SAN MATEO COUNTY

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Civil Environmental & Water Resources
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FAX (510) 236-2423
questa@questaec.com
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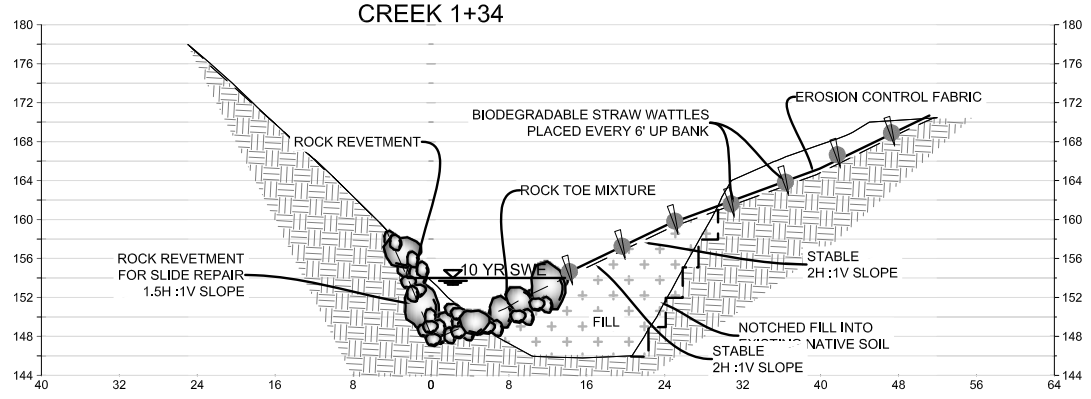
GEOGRID TYPICAL CROSS SECTIONS

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

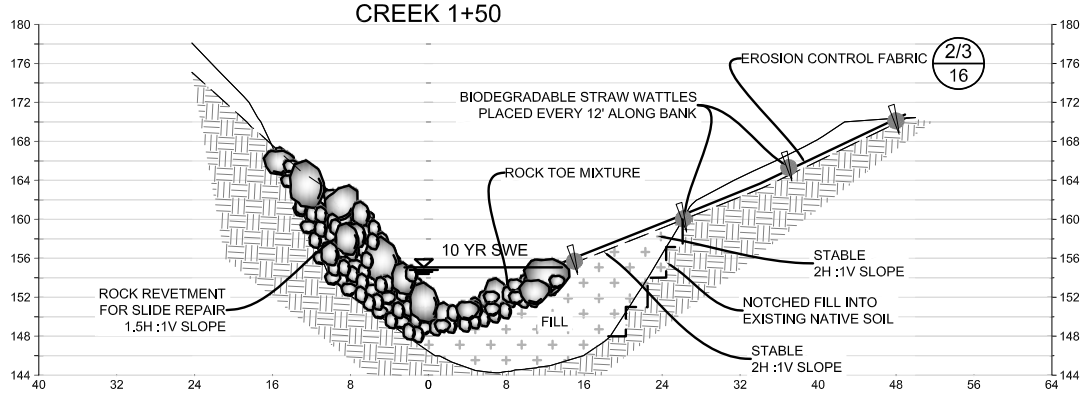
Size: D | Project: 1700036
Scale: AS NOTED
Date: 6/13/2018
Sheet: 10 OF 20

SLIDE REPAIR DETAIL

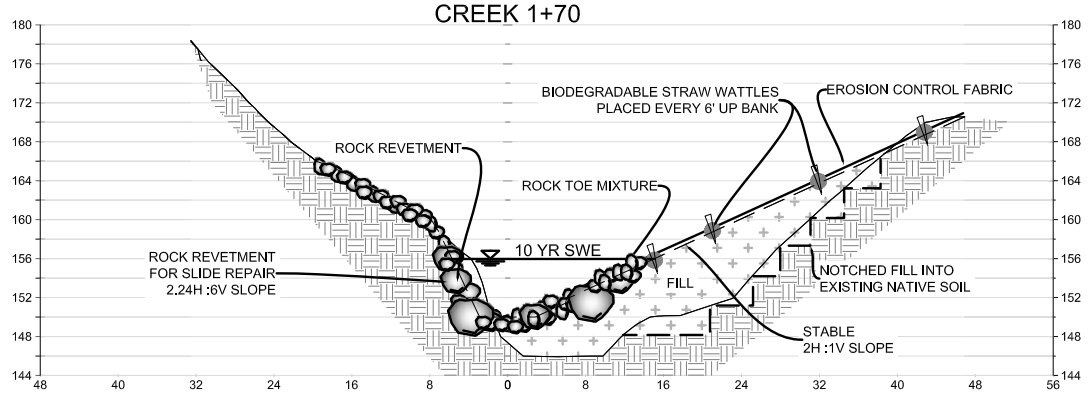
CREEK 1+34



CREEK 1+50



CREEK 1+70

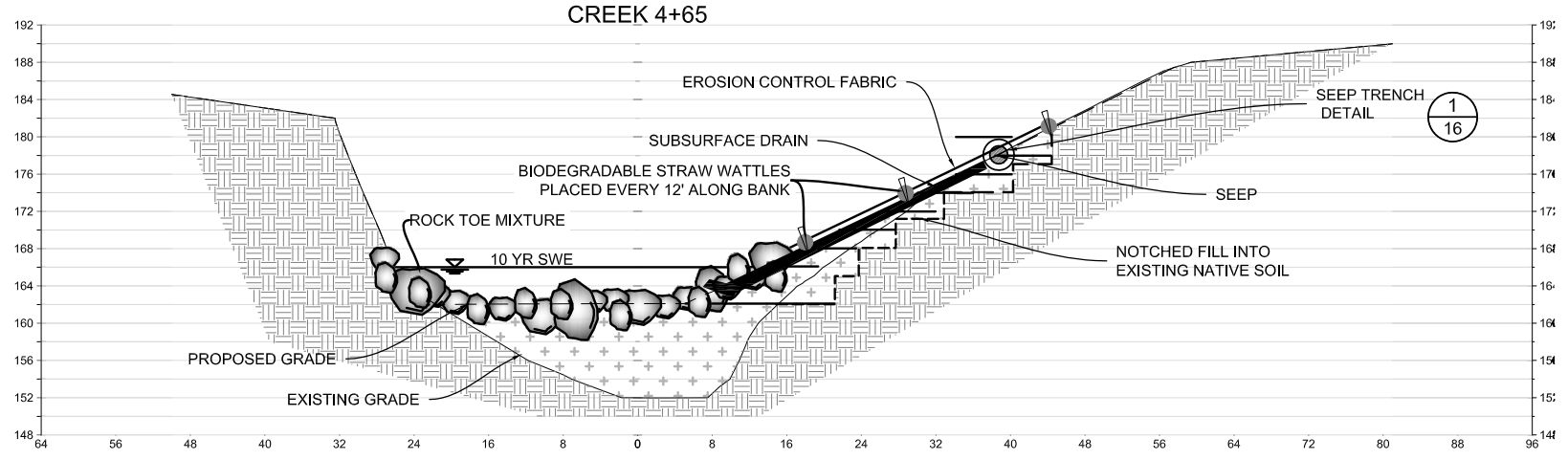


PROPOSED FINAL GRADE
EXISTING GRADE
SEEP LOCATION

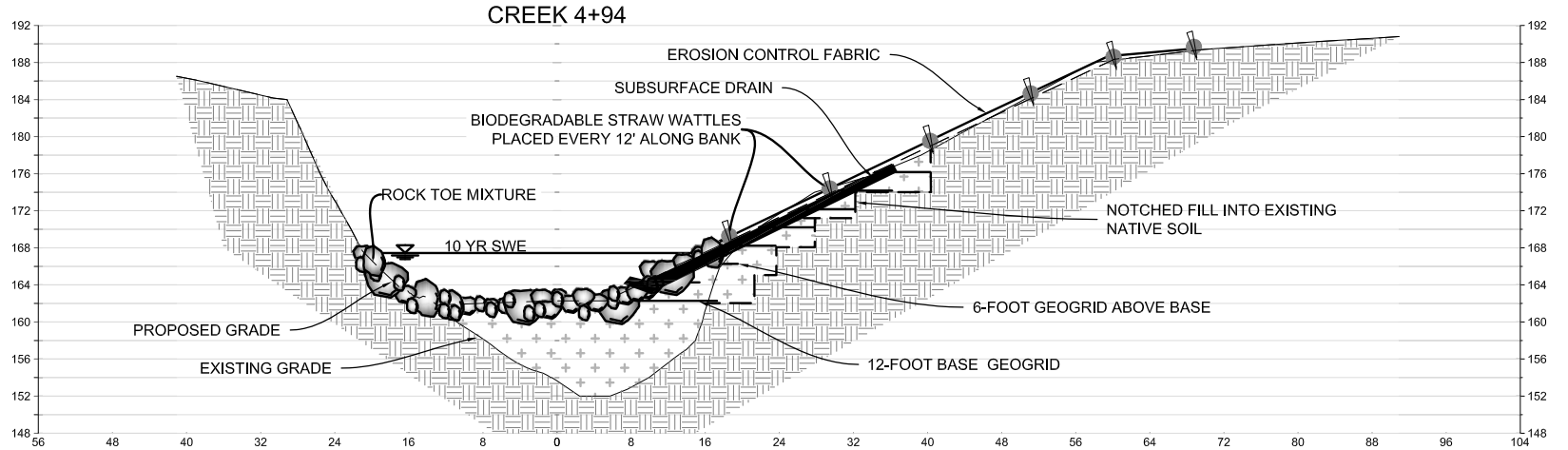
SECTIONS ARE LOOKING DOWNSTREAM

SEEP DETAIL

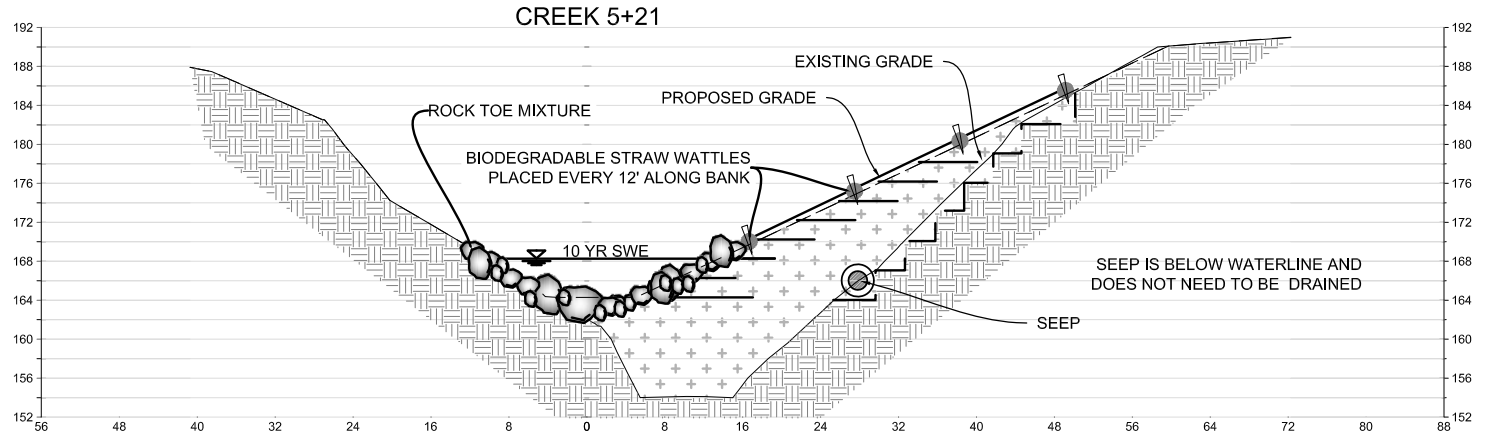
CREEK 4+65



CREEK 4+94



CREEK 5+21



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SEEP AND SLIDE ZONE CROSS SECTIONS

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
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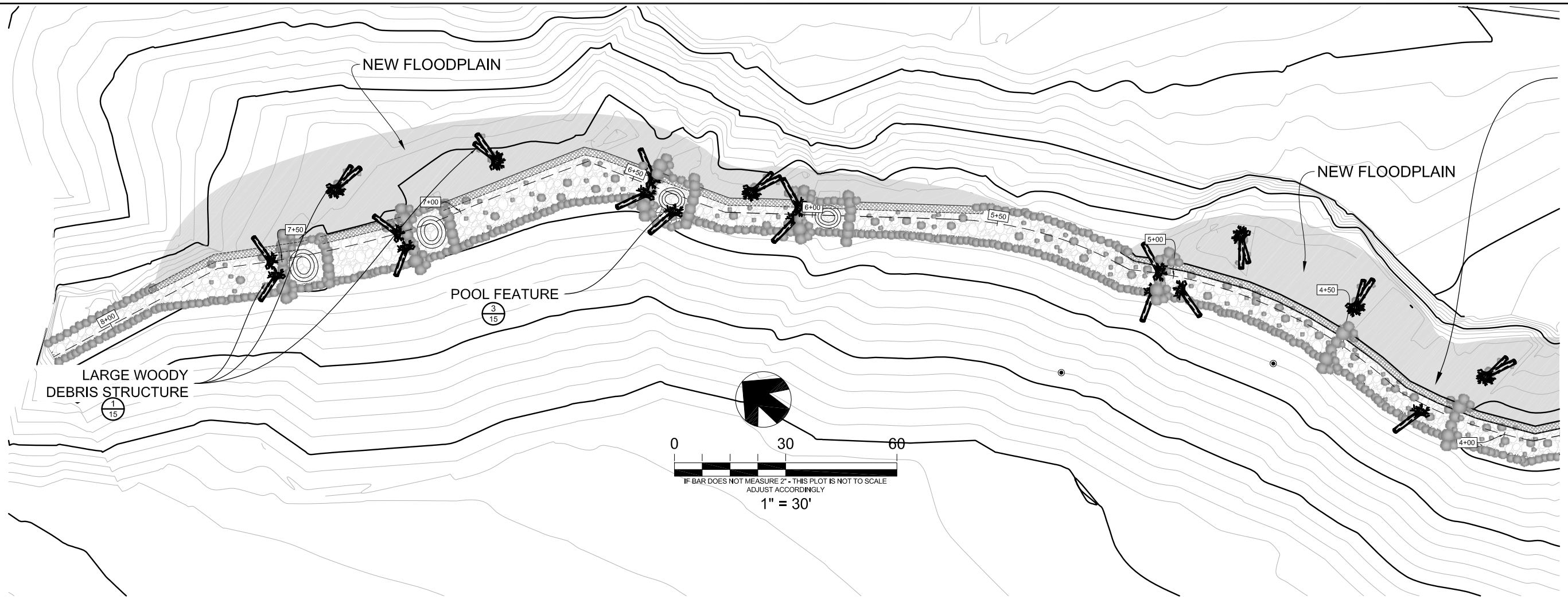
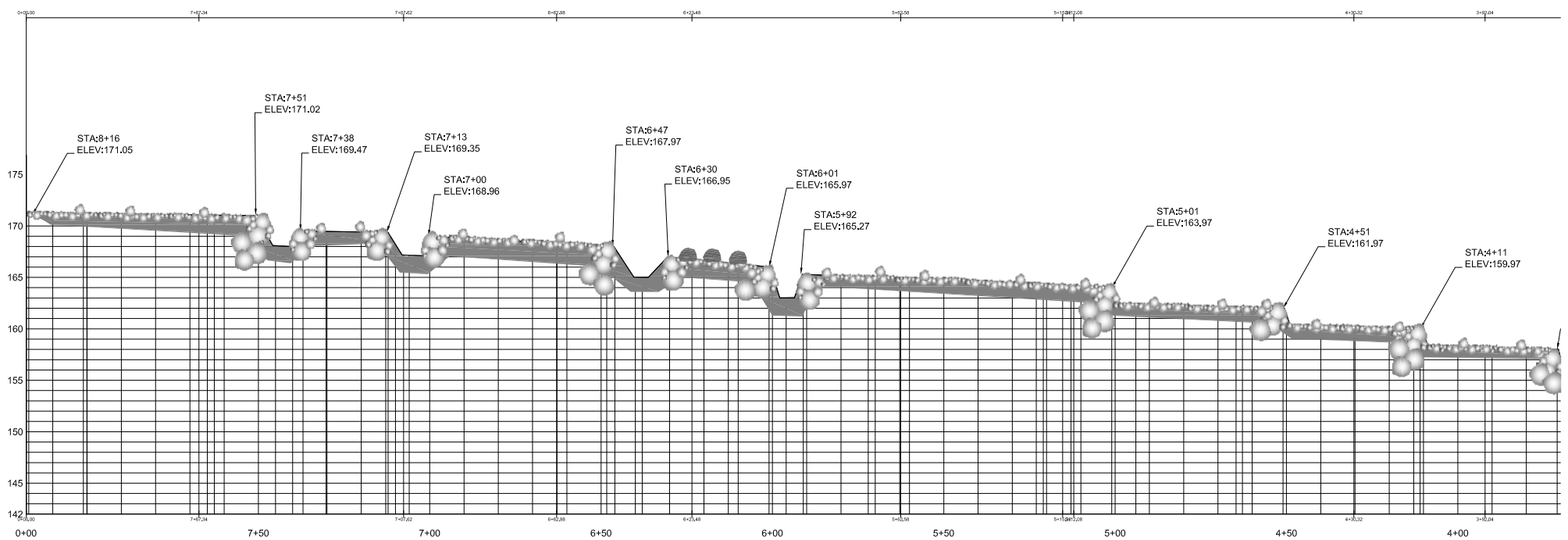


PROPOSED ALIGNMENT USED FOR PERMITS PROFILE
HORIZONTAL: 1" = 30'
VERTICAL: 1" = 10'



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CONSTRUCTION PLAN I

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 170036
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Sheet: 12 OF 20

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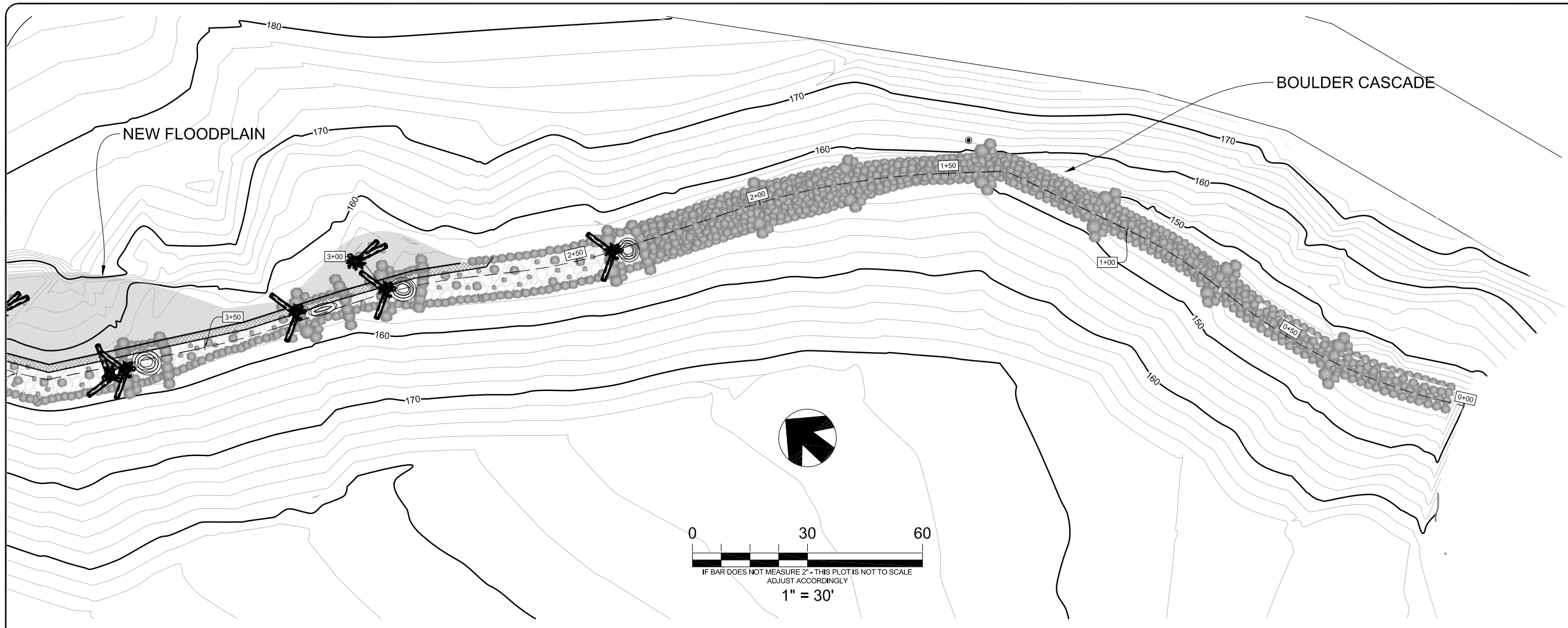

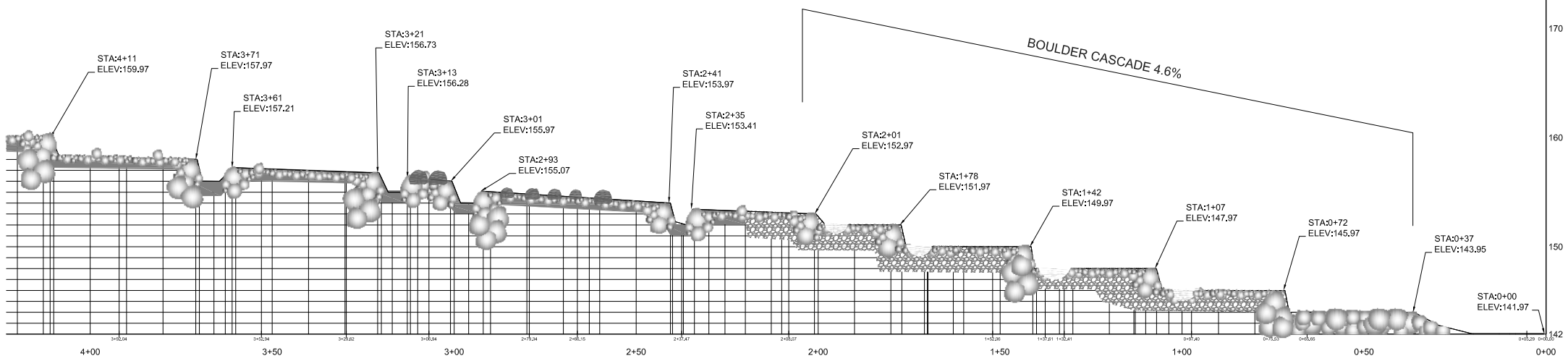

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CONSTRUCTION PLAN I CONT.

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
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Sheet: 13 OF 20

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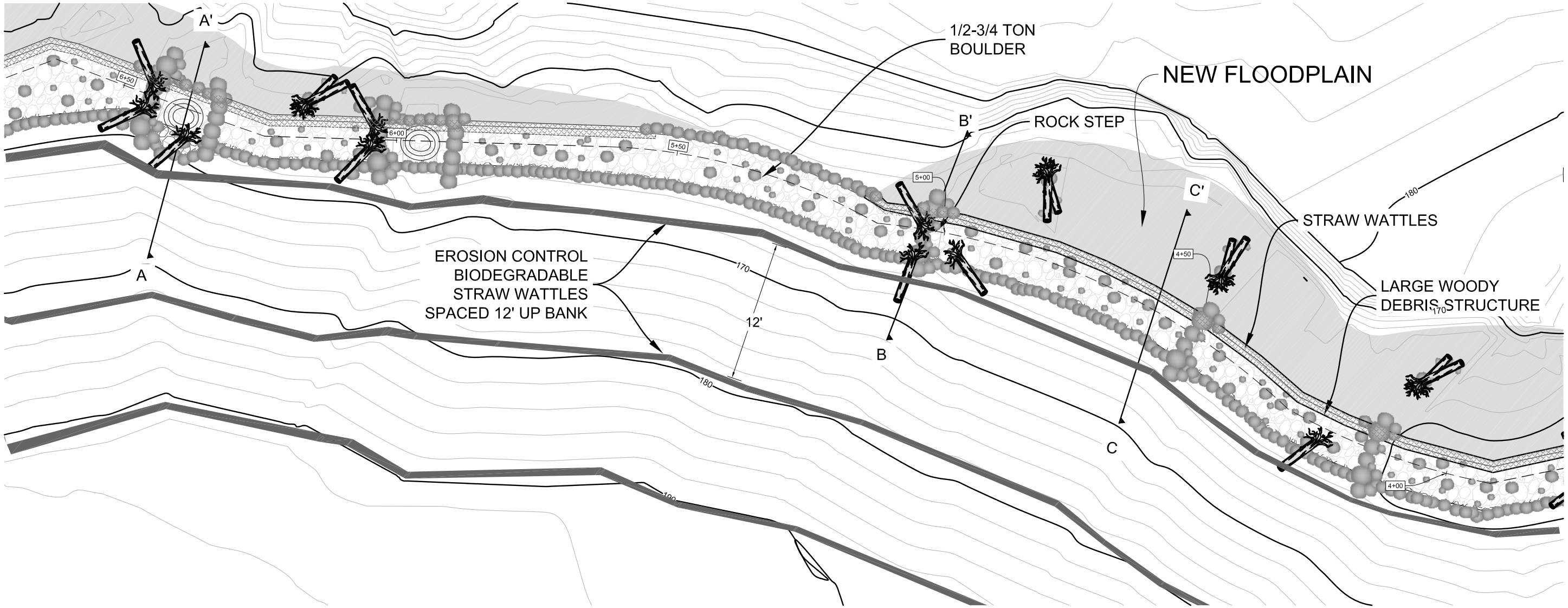
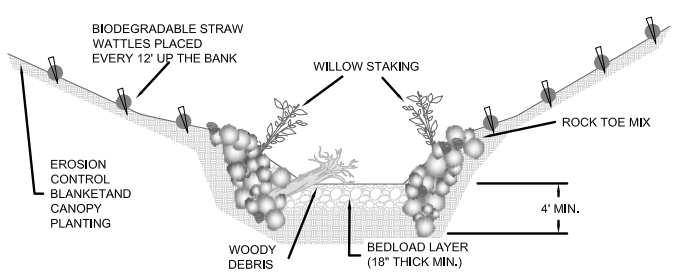
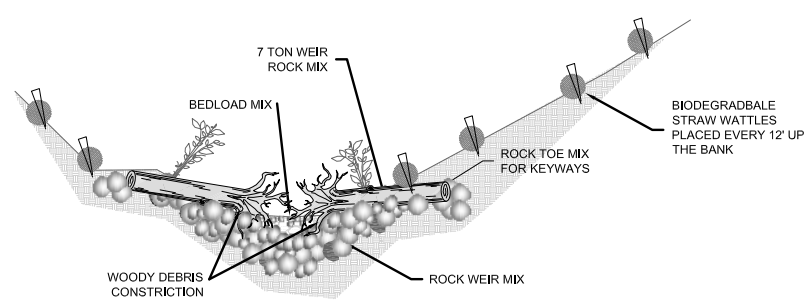
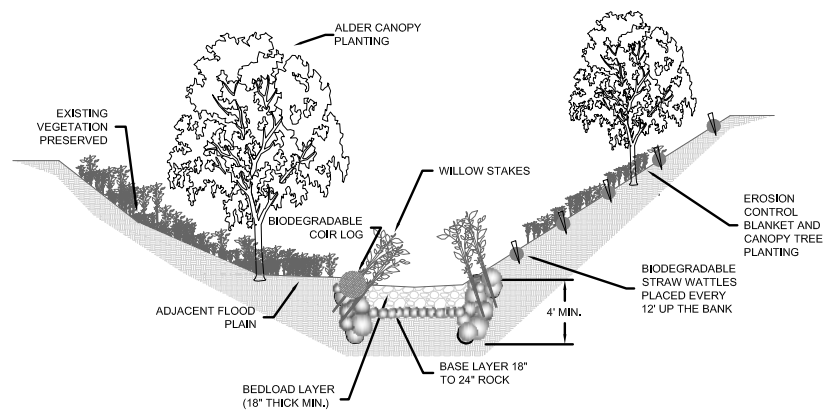




A **CREEK CROSS SECTION A-A'**
POOL CONSTRUCTION



B **CREEK CROSS SECTION B-B'**
AT GRADE CONTROL/ WEIR CREST



C **CREEK CROSS SECTION C-C'**
RIFFLE SECTION LOOKING DOWNSTREAM

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CORINDA LOS TRANCOS CREEK STABILIZATION

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CONSTRUCTION PLAN II
TYPICAL SECTIONS
CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
Scale: AS NOTED
Date: 6/13/2018
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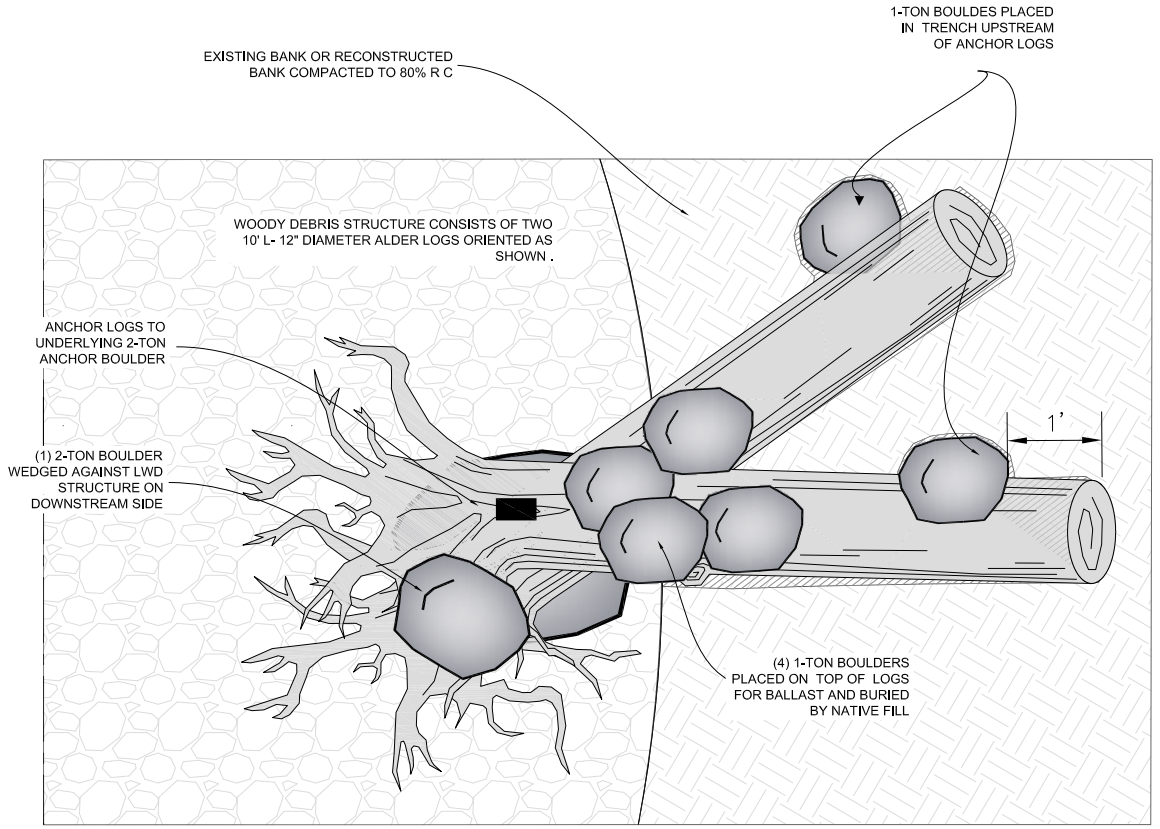
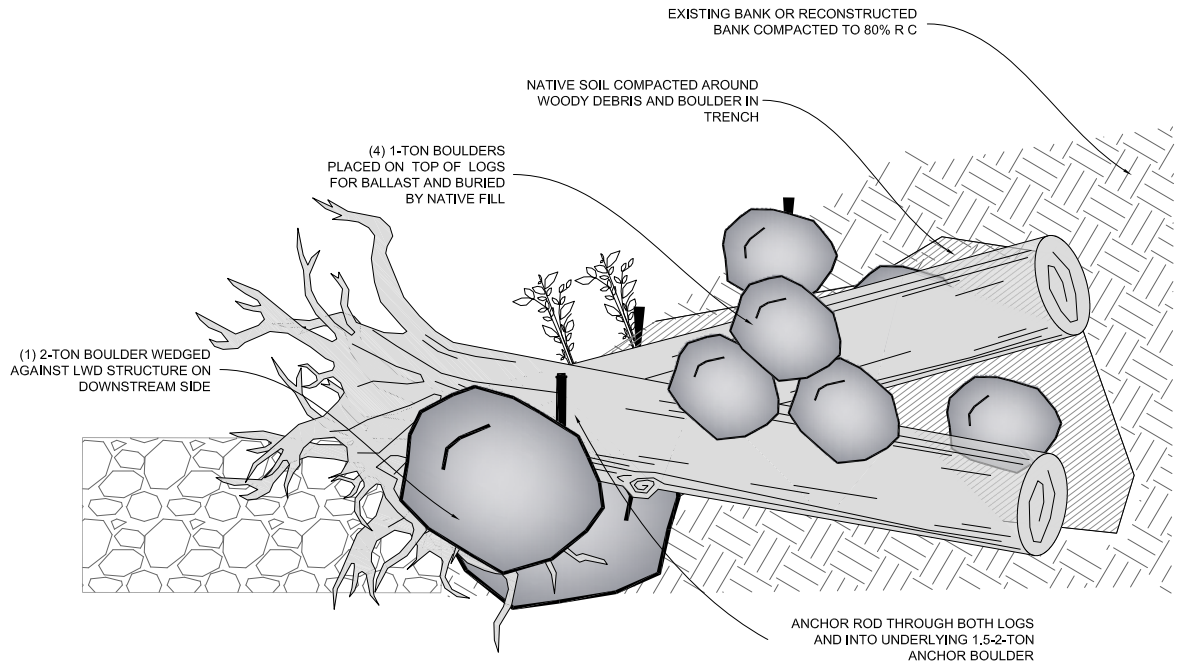
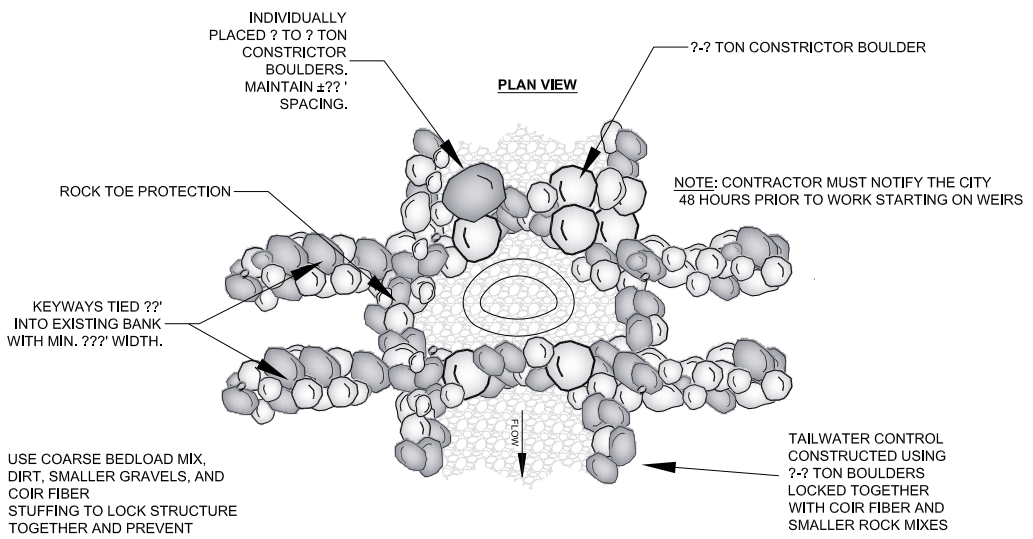


PLAN VIEW



1 LARGE WOODY DEBRIS STRUCTURE
NOT TO SCALE

2 LARGE WOODY DEBRIS STRUCTURE
NOT TO SCALE



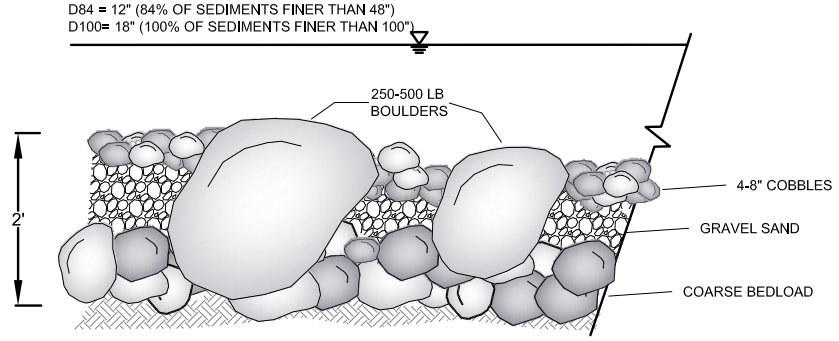
3 ROCK WEIR AND TAILWATER STRUCTURE
NOT TO SCALE

TYPICAL BEDLOAD MIX

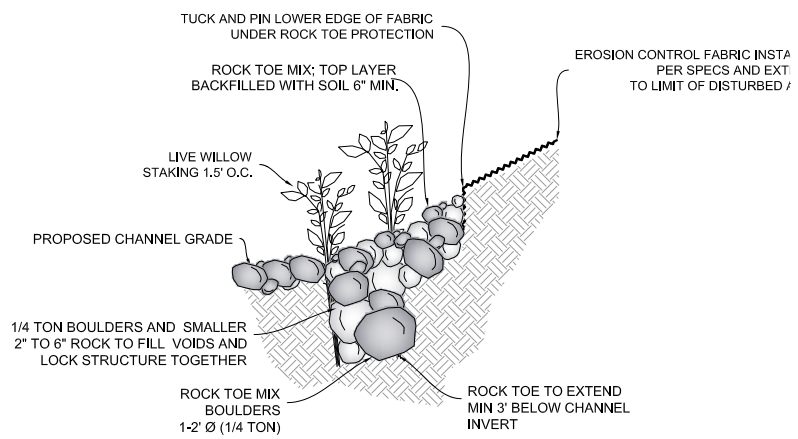
D16 = 1" (16% OF SEDIMENTS FINER THAN 1")
D50 = 12" (50% OF SEDIMENTS FINER THAN 12")
D84 = 24" (84% OF SEDIMENTS FINER THAN 24")
D100= 60" (100% OF SEDIMENTS FINER THAN 60")

COARSE BEDLOAD MIX

D16 = 2" (16% OF SEDIMENTS FINER THAN 2")
D50 = 6" (50% OF SEDIMENTS FINER THAN 24")
D84 = 12" (84% OF SEDIMENTS FINER THAN 48")
D100= 18" (100% OF SEDIMENTS FINER THAN 100")



4 RECONSTRUCTED GRAVEL BED
NOT TO SCALE



5 WILLOW STAKES
NOT TO SCALE

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CONSTRUCTION DETAILS

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
Scale: AS NOTED
Date: 6/13/2018
Sheet: 15 OF 20

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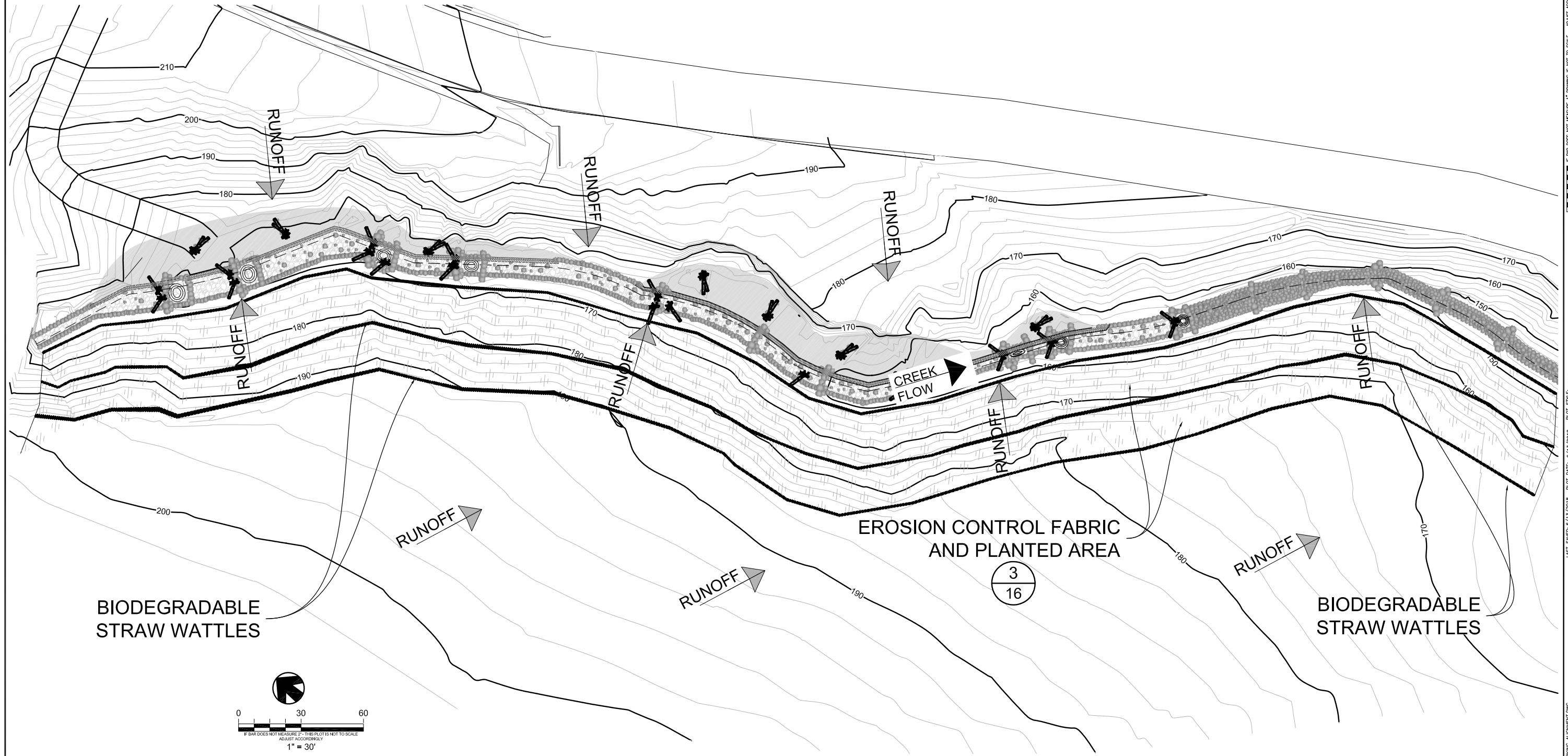

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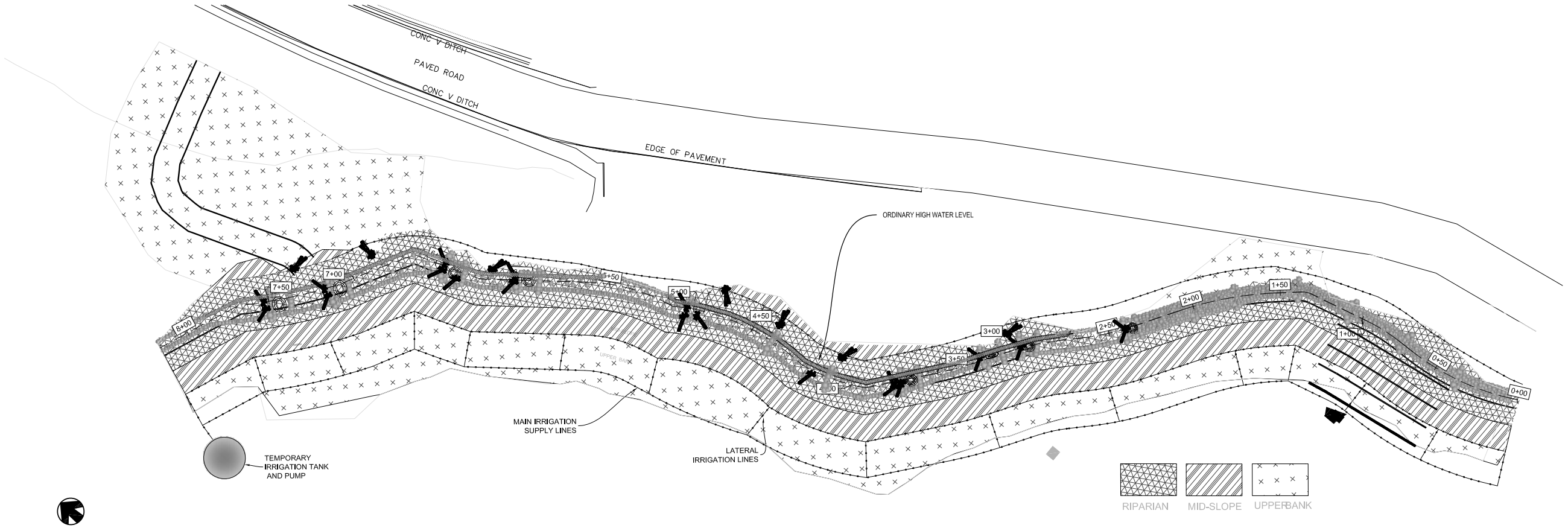
PERMANENT EROSION CONTROL OVERVIEW TYPICAL SECTIONS

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
Scale: AS NOTED
Date: 6/13/2018
Sheet: 16 OF 20



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

1" = 30'

RIPARIAN			
AREA: 21,430 SQ FT PERIMETER: 1,620 FT			
SPECIES	SPACING	SIZE	QTY
Arroyo willow (Salix lasiolepis)	Rock toe, 3 ft o.c.	Live stakes	540
White alder (Alnus rhombifolia)	Rock toe, 3 ft o.c.	TP	85
Pacific willow (Salix lasiandra)	Rock toe, 3 ft o.c.	Live stakes	540
		SUB TOTAL	1165

MID-SLOPE			
AREA: 12,010 SQ FT			
SPECIES	SPACING	SIZE	QTY
Madrone (Arbutus menziesii)	20-30 ft	TP	30
Dogwood (Cornus sericea)	20-30 ft	TP	30
Toyon (Heteromeles arbutifolia)	20-30 ft	TP	30
Coffeeberry (Rhamnus californica)	8-10 ft	DP	188
Currant (Ribes sanguineum)	8-10 ft	DP	188
Red elderberry (Sambucus racemosa)	8-10 ft	DP	188
		SUB TOTAL	653

UPPER BANK			
AREA: 29,561 SQ FT			
SPECIES	SPACING	SIZE	QTY
Buckeye (Aesculus californica)	30-40 ft.	TP	33
Coast live oak (Quercus agrifolia)	30-40 ft.	TP	33
Coast silktassel (Garrya elliptica)	10-15 ft.	DP	296
Coyote brush (Baccharis pilularis)	8-10 ft.	DP	462
Blue blossom Ceanothus thrysiflorus	8-10 ft.	DP	462
		SUB TOTAL	1285

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PLANTING AND IRRIGATION PLAN

CORINDA LOS TRANCOS
HALF MOON BAY, CALIFORNIA

Size: D
Project: 1700036
Scale: AS NOTED
Date: 6/13/2018
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County of San Mateo - Planning and Building Department

ATTACHMENT D

COUNTY OF SAN MATEO, PLANNING AND BUILDING DEPARTMENT

NOTICE OF INTENT TO ADOPT
MITIGATED NEGATIVE DECLARATION

A notice, pursuant to the California Environmental Quality Act of 1970, as amended (Public Resources Code 21,000, et seq.), that the following project: *Corinda de Los Trancos Creek Restoration, Phase 2*, when adopted and implemented, will not have a significant impact on the environment.

FILE NO.: PLN 2018-00127

OWNER: Republic Services and Bob Lemos

APPLICANT: Questa Engineering (Syd Temple)

ASSESSOR'S PARCEL NO.: 056-360-040, 056-360-330

LOCATION: Corinda de Los Trancos Creek, adjacent to Ox Mountain Landfill

PROJECT DESCRIPTION

The proposed project will affect an 800-foot reach of Corinda de Los Trancos Creek (CLT Creek) and disturb 40,300 square feet (0.93 acres) of riparian area. The project will entail reconstructing the channel bed, the west bank of the channel, and select sections of the east bank. Fill will be used to raise the creek bed, creating a wider channel, and the east bank will be filled to create a stable, more gradual slope. The design includes habitat and grade control features such as eight Pool Complexes, 250 feet of Steep Cascades and 6,660 square feet of flood plain. Numerous large woody debris structures will be created from the 35 native trees removed for grading. Lastly, the project will increase the Ordinary High Water area by 4,875 square feet.

Temporary Creek Flow Diversion

Flow in CLT Creek will be temporarily diverted around the project site during construction through one or two, six-inch plastic drain pipes. The diversion will begin upstream of the impacted portion of the channel and will re-enter the creek approximately 50 feet downstream of the lowest channel structure. A sandbag coffer dam and pump will be placed upstream of the project area. The diversion pipe will be routed around the construction zone discharging into a temporary energy dissipater in creek. The outfall will include a sand bag coffer dam to control runoff, rocks to disperse energy of the redirected water and silt fencing backed with straw bales to prevent construction sediment from entering the creek.

Vegetation Clearing and Tree Removal

The existing vegetation will be cleared within the project area which extends approximately 60 to 80 feet bank to bank for grading and channel reconstruction. The channel reconstruction will result in the loss of 35 trees with diameters greater than 12-inches, primarily Eucalyptus and Alders.

Grading

The design plan is to place approximately 6,000 cubic yards of fill within the channel bed raising it between 0 and 8 feet and restoring a natural 2-3% gradient. The adjacent slopes vertical or near vertical eroding channel banks will be reconstructed into stable bank slopes. The channel will be reconstructed into a new complex channel that includes rock steps, pools, riffles and runs, woody debris, and boulder cascades. All of the rock and fill will come from landfill sources less a mile away. The size classes will be sorted and screened so that appropriate mixes of silts, sands, cobles and boulders are attained.

Channel Bank Reconstruction

There are numerous occurrences of ongoing bank erosion creating vertical, unstable creek banks throughout the project reach. These are often associated with areas of incision. The applicant is proposing to raise the channel bed and reduce bank heights. With bank heights reduced, new fill slopes will be shorter, allowing more channel bottom area for enhancement. Approximately 800 linear feet of bank is proposed to be reconstructed. Rock grade controls and biotechnical bank toe protection with planted willow will be utilized throughout the project site.

Channel Bed Reconstruction

The channel elevation through the project reach currently drops 32 feet in 800 feet with an average slope of 4%. Under natural conditions, channels in this type of high gradient stream would be composed of bedrock, course cobble, or a series of vertical drops created with boulders and/or large wood. No bedrock or boulders are evident within the channel reach and existing cobble and woody debris provide only occasional grade control. Therefore, installation of rock weirs are proposed to create individual channel segments with lower slopes in the context of the overall project reach. Additionally, the channel will be reconstructed with a rocky substrate that will resist transport. Fish do not inhabit the project reach so there is no limit on vertical drop heights.

Eighteen grade control rock steps are proposed. Some of these structures are boulder cascades, others are weirs with accompanying pools and riffles. All of the structures were designed to provide vertical bed control, stabilize the channel, provide various types of aquatic habitat and mimic bed forms that could be found in high gradient coastal streams. It is essential that these structures be keyed deeply into the banks and channel so that flow does not “flank” or go under the structures. Engineered Stream Material (ESM) and biodegradable Coir material will be placed behind the grade control structures to fill voids and prevent piping.

The key to overall channel bed stability is rebuilding the channel bed sediments. The natural bed of CLT is sand based and easily mobilized, rendering it an inadequate armoring. In order to provide a long term stable bed, the project will reconstruct the base of the channel bed with an Engineered Streambed Mix (ESM). This mix is designed to be relatively immobile in events less than the 25-year flow. A sand layer will be placed to bury most of this rock substrate and reestablish the natural sand bed creek but in much more stable configuration.

Re-vegetation Plan

The project incorporates an extensive re-vegetation and irrigation plan. The goal is to develop a solid canopy which quickly provides shade and cover for aquatic and amphibian species. The slopes will be seeded and covered with biodegradable erosion control fabric; and in the late fall will undergo extensive replanting of both canopy trees and a native understory. The immediate

channel bank and bank toes will be extensively staked with locally collected willow poles. Alder trees will also be planted in this zone. Three other planting zones are identified: Riparian, Mid-Slope, and Upper-Slope. The riparian zone will be replanted with willow and alders. The mid bank zone will include understory plants as well as canopy trees. The upper bank zone will plant with more drought-tolerant, dry-soil-loving canopy tree and understory

FINDINGS AND BASIS FOR A NEGATIVE DECLARATION

The Current Planning Section has reviewed the initial study for the project and, based upon substantial evidence in the record, finds that:

1. The project will not adversely affect water or air quality or increase noise levels substantially.

2. The project will not have adverse impacts on the flora or fauna of the area.

3. The project will not degrade the aesthetic quality of the area.

4. The project will not have adverse impacts on traffic or land use.

5. In addition, the project will not:

    a. Create impacts which have the potential to degrade the quality of the environment.

    b. Create impacts which achieve short-term to the disadvantage of long-term environmental goals.

    c. Create impacts for a project which are individually limited, but cumulatively considerable.

    d. Create environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly.

The County of San Mateo has, therefore, determined that the environmental impact of the project is insignificant.

MITIGATION MEASURES included in the project to avoid potentially significant effects: The following measures are included in the project plans or proposals pursuant to Section 15070(b)(1) of the State CEQA Guidelines:

Mitigation Measure 1: The applicant shall implement the proposed re-vegetation plan as depicted in the project plans immediately upon completion of grading activities.

Mitigation Measure 2: To ensure that re-vegetation efforts are successful, the applicant shall implement a five year monitoring program for those areas affected by the project. Woody plant survivorship and canopy cover progress will be measured using either the line-intercept methodology or direct counting of healthy, live plantings in a representative segment of the restoration area. Natural recruitment of native woody trees and shrubs will be recorded and included in the estimates. Tree and shrub density will be calculated using

the as-built acreage of planting areas. A comprehensive species list will be recorded for the monitoring area to document species richness and relative cover by native and non-native plant species. Photographs representative of the overall progress of riparian establishment will be taken in each year to provide visual documentation of vegetation establishment. By the fifth growing season following planting, the total number of planted and naturally recruited native trees and shrubs in the re-vegetation areas shall be equal to at least 60 percent of the number of trees and shrubs originally planted. All planted and recruited trees and shrubs counted must be alive and in good health. If by the fifth year the 60 percent target has not been met, then the applicant shall replant as necessary and monitor for an additional five years. The applicant shall submit annual monitoring reports to the County Planning Department outlining the progress of re-vegetation efforts.

Mitigation Measure 3: The County shall require construction contractors to implement the following BAAQMD's Basic Construction Mitigation Measures, listed below:

a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

b. All haul trucks transporting soil, sand, or other loose material into or off-site shall be covered.

c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

d. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.

e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.

f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

h. Post a publicly visible sign with the telephone number and person to contact at the County regarding the project. The County shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure 4: The applicant/project sponsor shall submit the names and credentials of biologists proposed to perform preconstruction surveys and monitoring to the USFWS for written approval at least 30 days prior to commencement of any activities. Mitigation Measure 5: Each construction area will be surrounded by snake exclusionary fencing one week prior to the start of construction.

Mitigation Measure 6: A USFWS-approved biologist will survey the work areas no more than 24 hours prior to the onset of activities and after the snake exclusion fencing has been installed.

Mitigation Measure 7: If California red-legged frogs, tadpoles, or eggs are found, the approved biologist will contact the USFWS to determine if moving any of these life-stages is appropriate. In making this determination the USFWS shall consider if an appropriate relocation site exists. If the Service approves moving animals, the approved biologist shall be allowed sufficient time to move CRLF from the work areas before work activities begin. Only USFWS-approved biologists will participate in activities associated with the capture, handling, and monitoring of CRLF. If a CRLF is found nearby, but outside a proposed work area, it will not be disturbed and USFWS will be notified. The biologist will also report any observations of other listed species addressed in this biological assessment.

Mitigation Measure 8: Before any construction activities begin on the project, a USFWS-approved biologist will conduct a training session for all construction personnel. The training will include a description of the listed species with potential to occur, their habitat, and the general measures that are being implemented to conserve the species as they relate to the project and the boundaries within which the project may accomplished (i.e. work areas).

Mitigation Measure 9: A qualified construction monitor shall be present on-site, as required by regulatory permit conditions, during the initial clearing and grubbing of each work area. All vegetation clearing shall be done by hand and supervised by a qualified biological monitor.

Mitigation Measure 10: During project activities, all trash will be properly contained, removed from the work area and disposed of regularly. Following construction, all trash and construction debris from work areas will be removed.

Mitigation Measure 11: All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 15 meters (50 feet) from any riparian habitat or water body. The applicant/project sponsor will ensure contamination of habitat does not occur during such operations. Prior to the start of construction, the applicant/project sponsor will prepare a plan to ensure a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

Mitigation Measure 12: A USFWS-approved biologist will ensure that the spread or introduction of invasive plant species will be avoided to the maximum extent possible. When practical, invasive exotic plants in the project area will be removed. The biologist will permanently remove, from within the project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes to the maximum extent possible.

Mitigation Measure 13: Project areas that are disturbed will be revegetated with an appropriate assemblage of native riparian, wetland and upland vegetation.

Mitigation Measure 14: Stream contours will be returned to their original condition at the end of project activities, unless consultation with USFWS has determined that it is not beneficial to the species or feasible.

Mitigation Measure 15: The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and these areas will be outside of riparian and wetland areas where feasible. Where impacts occur in staging areas and access routes, restoration will be performed.

Mitigation Measure 16: If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than five millimeters to prevent California red-legged frogs from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

Mitigation Measure 17: Ground-disturbing activities will be completed between April 1 and October 31. Should activities be necessary to conduct outside this period, the U.S. Army Corp of Engineers may authorize such activities after obtaining the Service's approval.

Mitigation Measure 18: To control erosion during and after project implementation, best management practices will be utilized.

Mitigation Measure 19: A qualified biologist will monitor the removal and relocation of woodrat houses and placement of refuge structures (e.g. half wine barrels and slash piles) for any woodrat nests located within the access road footprint. If young woodrats are found in any house, all removed material will be replaced and removal of that house will not continue until the young have left the house. Prior to dismantling houses, data will be collected to document the following characteristics of the house: house-building materials, contents of house cavities (particularly stored food and plants), percent and type of ground cover immediately around each house, tree and shrub species surrounding the house, and the house substrate (e.g., ground, tree, etc.). New houses will be established on site for each house removed. New house designs will be constructed of a half wine barrel placed upside down in appropriate microhabitat with materials from the nest chamber of the dismantled house placed inside, and other house materials placed over and around the barrel, including a long tunnel-shaped entrance that leads only into the receptacle.

Mitigation Measure 20: Vegetation clearing and other construction work will occur outside the nesting birds season (February 1 to August 15). If work is initiated during the nesting season, a preconstruction survey for nesting birds will be performed by a qualified biologist. Any active nests will be avoided until all the young have fledged and are independent.

Mitigation Measure 21: Unexpected Discovery of Cultural Resources: Not all cultural resources are visible on the ground surface. Prior to the start of construction or ground-disturbing activities, the applicant shall ensure all field personnel are educated of the possibility of encountering buried prehistoric or historic cultural resources. Personnel will be trained that upon discovery of buried cultural resources, work within 50 feet of the find must cease and the applicant shall contact a qualified archaeologist immediately to evaluate the

find. Once the find has been identified and found eligible for listing on the National Register of Historic Places or the California Register of Historical Resources, plans for treatment, evaluation, and mitigation of impacts to the find shall be developed and implemented according to the qualified archaeologist's recommendations. This measure will ensure that prehistoric and historic cultural resources are appropriately protected.

Mitigation Measure 22: Unanticipated Discovery of Human Remains: The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the 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 PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the County coroner shall be notified immediately. If the human remains are determined to be prehistoric, the coroner shall notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

Mitigation Measure 23: If surface water is present during construction, the applicant shall implement the following:

a. Cofferdams, flow bypass pipes, or diversion dams shall be used to ensure continued flow around the work area.

b. Adequate sediment and turbidity control measures shall be implemented. One or more fences of filter fabric shall be constructed across stream channels downstream of the lowermost cofferdams to reduce turbidity and sedimentation downstream of the stream construction sites during removal of cofferdams and until water clarity is re-established once stream flow is re-introduced to the stream channel in the work area.

c. The presence of surface water, such as in-stream flow or pool habitat, could mean the potential for salmonids to occur in the work area. To relocate salmonids from the work area following installation of a cofferdam or diversion dam/bypass pipes, a fish rescue and relocation effort shall be conducted by qualified biologists utilizing NMFS prescribed methods for the safe handling of salmonids.

d. The applicant shall have a biologist monitor the construction site during placement and removal of cofferdams, channel diversions, and access ramps to ensure that any adverse effects to salmonids are minimized. The biologist shall be on site during all dewatering events to capture, handle, and safely relocate steelhead, if present.

e. Consistent with Mitigation Measures 24 and 25, contractors shall have a supply of erosion control materials, and fuel and hydraulic fluid spill containment supplies onsite to facilitate a quick response to unanticipated storm events, or fuel or hydraulic fluid spill emergencies.

f. Consistent with Mitigation Measure 26, construction equipment used within the creek channel shall be checked each day prior to work within the creek.

Mitigation Measure 24: Project materials shall be placed in locations and manners that will not impair surface water flow into or out of any water of the United States. If surface flow is present during construction, dewatering activities shall ensure that near-normal downstream flows are maintained. Fill shall consist of suitable material and placement such that it will not be eroded by future high flows. Following completion of construction, temporary fill shall be removed to upland areas, dredged material shall be returned to its original location, and the affected areas shall be restored to preconstruction elevations. The area upstream and downstream of the project reach shall be monitored annually for a two year period post construction to qualitatively assess channel conditions.

Mitigation Measure 25: The applicant shall prepare a comprehensive stormwater pollution and erosion control plan for the project. Erosion control measures shall be in place prior to the start of construction activities and remain in place throughout all phases of project construction. The plan must provide a BMP monitoring and maintenance schedule and identify parties responsible for monitoring and maintenance of construction-phase BMPs. Erosion and water quality control measures identified in the plan must comply with the County of San Mateo Department of Public Work's Contract Requirements for Erosion and Sediment Control and Contract Requirements for Water Pollution Control for Construction in Sensitive Areas, and at a minimum include the following measures (County of San Mateo 2013a; County of San Mateo, 2013b):

a. Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place.

b. Sediment shall be retained on-site by a system of sediment basins, traps, or other appropriate measures.

c. A spill prevention and countermeasure plan shall be developed that will identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used on-site. The plan will also require the proper storage, handling, use, and disposal of petroleum products.

d. Construction activities shall be scheduled to minimize land disturbance during peak runoff periods and to the immediate area required for construction. Existing vegetation shall be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.

e. Surface waters, including ponded waters, must be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity which may result in a discharge to the receiving water. Diversion activities must not result in the degradation of beneficial uses or exceedance of water quality objectives of the receiving waters. Any temporary dam or other artificial obstruction constructed must only be built from materials such as clean gravel which will cause little or no siltation. Normal flows must be restored to the affected stream immediately upon completion of work at that location.

f. Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff losses and contamination of groundwater.

g. Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events. All removed topsoil shall be reused during construction to the extent feasible. Unused topsoil, if any, shall be broadly redistributed to the surrounding areas in such a manner that topography and vegetation cover would not be adversely impacted.

h. Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff.

i. Disturbed areas will be re-vegetated after completion of construction activities.

j. Provide sanitary facilities for construction workers.

Mitigation Measure 26: The applicant shall use the following best management practices (BMPs) to minimize potential adverse effects of the project to groundwater and soils from chemicals used during construction activities:

a. Follow manufacturer's recommendations on use, storage and disposal of chemical products used in construction;

b. Avoid overtopping construction equipment fuel gas tanks;

c. Provide secondary containment for any hazardous materials temporarily stored onsite;

d. During routine maintenance of construction equipment, properly contain and remove grease and oils;

e. Perform regular inspections of construction equipment and materials storage areas for leaks and maintain records documenting compliance with the storage, handling and disposal of hazardous materials; and

f. Properly dispose of discarded containers of fuels and other chemicals.

Mitigation Measure 27: The construction contractor(s) shall develop a construction management plan for review and approval by the County's Planning and Public Works Departments. The plan shall include at least the following items and requirements to reduce, to the maximum extent feasible, any safety hazards and traffic congestion during construction:

a. A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours, signs, and designated construction access routes.

b. Identification of haul routes for movement of construction vehicles that would minimize impacts on motor vehicular traffic, and circulation and safety. Impacts to Highway 92 shall be minimized to the greatest extent possible.

c. Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur.

d. Provisions for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project sponsor.

RESPONSIBLE AGENCY CONSULTATION

Regional Water Quality Control Board
California Dept. of Fish and Wildlife
U.S. Army Corps of Engineers
California Coastal Commission

INITIAL STUDY

The San Mateo County Current Planning Section has reviewed the Environmental Evaluation of this project and has found that the probable environmental impacts are insignificant. A copy of the initial study is attached.

REVIEW PERIOD: November 17, 2018 – December 17, 2018

All comments regarding the correctness, completeness, or adequacy of this Negative Declaration must be received by the County Planning and Building Department, 455 County Center, Second Floor, Redwood City, no later than **5:00 p.m., December 17, 2018**.

CONTACT PERSON

Michael Schaller
Project Planner, 650/363-1849
mschaller@smcgov.org

M. Schaller
Michael Schaller, Project Planner

MJS:aow – MJSCC0543_WAH.DOCX

County of San Mateo
Planning and Building Department

INITIAL STUDY
ENVIRONMENTAL EVALUATION CHECKLIST
(To Be Completed by Planning Department)

1. **Project Title:** Corinda de Los Trancos Creek Restoration, Phase 2

2. **County File Number:** PLN 2018-00127

3. **Lead Agency Name and Address:** San Mateo County Planning Department
455 County Center, 2nd Floor, Redwood City, CA 94063

4. **Contact Person and Phone Number:** Michael Schaller, Senior Planner, 650/363-1849

5. **Project Location:** Corinda de Los Trancos Creek, adjacent to Ox Mountain Landfill

6. **Assessor's Parcel Number and Size of Parcel:** 056-360-040, 056-360-330

7. **Project Sponsor's Name and Address:** Questa Engineering, Syd Temple, 1220 Brickyard Cove Road, Point Richmond, CA 94801

8. **General Plan Designation:** Open Space and Agriculture

9. **Zoning:** Resource Management-Coastal Zone (RM-CZ) and Planned Agricultural Development (PAD)

10. **Description of the Project:** The proposed project will affect an 800-foot reach of Corinda de Los Trancos Creek (CLT Creek) and disturb 40,300 square feet (0.93 acres) of riparian area. The project will entail reconstructing the channel bed, the west bank of the channel, and select sections of the east bank. Fill will be used to raise the creek bed, creating a wider channel, and the east bank will be filled to create a stable, more gradual slope. The design includes habitat and grade control features such as eight (8) Pool Complexes, 250 feet of Steep Cascades and 6,660 square feet of flood plain. Numerous large woody debris structures will be created from the thirty five (35) native trees removed for grading. Lastly, the project will increase the Ordinary High Water area by 4,875 square feet.

    <u>Access</u>

    A permanent access road will be installed on the northern bank (landfill side) and a temporary staging area and construction access will be established on the Lemos side of the creek channel. The creek will be accessed during construction through three points; one at the lower and two at the upper end of the project reach (See Attachment 1, Sheet 3). These access points will allow for efficient maneuvering of large equipment into or out of the site in a continuous path. Fill and rock materials will be transported from the upper landfill to the creek channel along the existing land fill haul road.

Temporary Creek Flow Diversion

Flow in CLT Creek will be temporarily diverted around the project site during construction through one or two, six-inch plastic drain pipes. The diversion will begin upstream of the impacted portion of the channel and will re-enter the creek approximately 50 feet downstream of the lowest channel structure. A sandbag coffer dam and pump will be placed upstream of the project area (See Attachment 1, Sheet 2). The diversion pipe will be routed around the construction zone discharging into a temporary energy dissipater in creek. The outfall will include a sand bag coffer dam to control runoff, rocks to disperse energy of the redirected water and silt fencing backed with straw bales to prevent construction sediment from entering the creek.

Silt and Exclusion Fencing

A combination silt fence and biologic exclusionary fencing will surround the entire project site. All of the grading and disturbance will be confined to the existing site plan and will be within the exclusion fencing for the project. The fencing will provide a barrier to frogs or other species from accessing the site during construction. Silt fences will be used to confine soil loss and will be repositioned at the completion of the project construction and used in the winterization of the site.

Dust Control Measures

During clearing, grading, grubbing, and filling activities associated with project construction dust may be generated, particularly under dry conditions. Dust control measures such as water trucks will be used several times a day on the project's dirt haul and access roads to stabilize soil from wind erosion, and reduce dust generated by the construction traffic.

Vegetation Clearing and Tree Removal

The existing vegetation will be cleared within the project area which extends approximately 60 to 80 feet bank to bank for grading and channel reconstruction. The vegetation clearing area is shown on Attachment 1, Sheet 4. The channel reconstruction will result in the loss of 37 trees with diameters greater than 12-inches, primarily Eucalyptus and Alders.

Grading

The design plan is to place approximately 6,000 cubic yards of fill within the channel bed raising it between 0 and 8 feet and restoring a natural 2-3% gradient. The adjacent slopes vertical or near vertical eroding channel banks will be reconstructed into stable bank slopes. The channel will be reconstructed into a new complex channel that includes rock steps, pools, riffles and runs, woody debris, and boulder cascades. All of the rock and fill will come from landfill sources less a mile away. The size classes will be sorted and screened so that appropriate mixes of silts, sands, cobles and boulders are attained. The proposed grading and new channel profile are shown on Attachment 1, Sheet 5.

Channel Bank Reconstruction

There are numerous occurrences of ongoing bank erosion creating vertical, unstable creek banks throughout the project reach. These are often associated with areas of incision. The applicant is proposing to raise the channel bed and reduce bank heights. With bank heights reduced, new fill slopes will be shorter, allowing more channel bottom area for enhancement.

Approximately 800 linear feet of bank is proposed to be reconstructed. Rock grade controls and biotechnical bank toe protection with planted willow will be utilized throughout the project site. Cross sections of the proposed bank reconstruction are shown on Attachment 1, Sheet 6.

Channel Bed Reconstruction

The channel elevation through the project reach currently drops 32 feet in 800 feet with an average slope of 4%. Under natural conditions, channels in this type of high gradient stream would be composed of bedrock, course cobble, or a series of vertical drops created with boulders and/or large wood. No bedrock or boulders are evident within the channel reach and existing cobble and woody debris provide only occasional grade control. Therefore, installation of rock weirs are proposed to create individual channel segments with lower slopes in the context of the overall project reach. Additionally, the channel will be reconstructed with a rocky substrate that will resist transport. Fish do not inhabit the project reach so there is no limit on vertical drop heights.

Eighteen grade control rock steps are proposed. Some of these structures are boulder cascades, others are weirs with accompanying pools and riffles. All of the structures were designed to provide vertical bed control, stabilize the channel, provide various types of aquatic habitat and mimic bed forms that could be found in high gradient coastal streams. It is essential that these structures be keyed deeply into the banks and channel so that flow does not "flank" or go under the structures. The proposed grade control configuration is detailed on Attachment 1, Sheets 7 & 8. Engineered Stream Material (ESM) and biodegradable Coir material will be placed behind the grade control structures to fill voids and prevent piping. This channel bed configuration is shown on Attachment 1, Sheets 9 and 10.

The key to overall channel bed stability is rebuilding the channel bed sediments. The natural bed of CLT is sand based and easily mobilized, rendering it an inadequate armoring. In order to provide a long term stable bed, the project will reconstruct the base of the channel bed with an Engineered Streambed Mix (ESM). This mix is designed to be relatively immobile in events less than the 25-year flow. A sand layer will be placed to bury most of this rock substrate and reestablish the natural sand bed creek but in much more stable configuration. The details of this bed mix are shown on Attachment 1, Sheet 10.

Re-vegetation Plan

The project incorporates an extensive re-vegetation and irrigation plan. The goal is to develop a solid canopy which quickly provides shade and cover for aquatic and amphibian species. The slopes will be seeded and covered with biodegradable erosion control fabric; and in the late fall will undergo extensive replanting of both canopy trees and a native understory. The immediate channel bank and bank toes will be extensively staked with locally collected willow poles. Alder trees will also be planted in this zone. Three other planting zones are identified: Riparian, Mid-Slope, and Upper-Slope. The riparian zone will be replanted with willow and alders. The mid bank zone will include understory plants as well as canopy trees. The upper bank zone will plant with more drought-tolerant, dry-soil-loving canopy tree and understory. Please see Attachment 1, Sheet 11 for the planting list and location of the planting zones.

11. **Surrounding Land Uses and Setting:** The project site is bordered by the Leemos Farm to the west and the access road for Ox Mountain Landfill to the east. The landfill itself lies to the north of the project site and Highway 92 defines the southern boundary of the project site.

12. **Other Public Agencies Whose Approval is Required:**

    a. U.S. Army Corps of Engineers - Section 404 permit

    b. U.S. Fish and Wildlife Service and the National Marine Fisheries Service – Endangered Species Act consultation

    c. Regional Water Quality Control Board - Section 401 Water Quality Certification and/or Waste Discharge Requirements application

    d. California Department of Fish and Wildlife - Streambed Alteration Agreement.

13. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?:** *(NOTE: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process (see Public Resources Code Section 21083.3.2.). Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality).*

    No California Native American tribe has requested consultation pursuant to Public Resources Code section 21080.3.1.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

X	Aesthetics		Hazards and Hazardous Materials		Recreation
	Agricultural and Forest Resources	X	Hydrology/Water Quality	X	Transportation/Traffic
X	Air Quality		Land Use/Planning		Tribal Cultural Resources
X	Biological Resources		Mineral Resources		Utilities/Service Systems
X	Cultural Resources		Noise	X	Mandatory Findings of Significance
	Geology/Soils		Population/Housing		
	Climate Change		Public Services		

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

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

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in 5. below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063(c)(3)(D)). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less Than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources. Sources used or individuals contacted should be cited in the discussion.

1. **AESTHETICS**. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
1.a. Have a significant adverse effect on a scenic vista, views from existing residential areas, public lands, water bodies, or roads?				X

Discussion: The project site is not viewable from public lands or water bodies. The area of the proposed project is approximately 1600 feet away from Highway 92, which is the nearest public road. There are no residential areas adjacent to the project area. There are no designated scenic vistas in the project vicinity. The site is within the boundaries of the Highway 92 County Scenic Corridor, but will not be visible from the highway due to vegetation and intervening topography. The project will not have an impact upon the listed views.

Source: County of San Mateo, 1986, General Plan Policies; County of San Mateo Local Coastal Program; County GIS; Site reconnaissance.

1.b. Significantly damage or destroy scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?		X		

Discussion: As discussed in the project setting section, large portions of the creek bank within the project area are extremely steep and unstable. An element of the project is to lay these banks back to a more stable angle of repose. The toes of the creek banks will also be armored with large to medium size boulders. The rip-rap will then be joint planted with willow stakes and the upper portions of the banks reseeded with a short-term erosion control seed mix and a long-term re-vegetation seed mix, as described in the project description section above and depicted on the plans included as Attachment 1 of this report.

Potential significant impacts of the project will be the removal of existing riparian vegetation, including 35 significant size (12" dia. or greater) trees as well as construction equipment on the landfill entrance road. These are short term impacts that cannot be avoided if the project is to be implemented properly. Mitigation for the loss of vegetation is the implementation of the proposed re-vegetation plan:

Mitigation Measure 1: The applicant shall implement the proposed re-vegetation plan as depicted in the project plans immediately upon completion of grading activities.

Mitigation Measure 2: To ensure that re-vegetation efforts are successful, the applicant shall implement a five year monitoring program for those areas affected by the project. Woody plant survivorship and canopy cover progress will be measured using either the line-intercept methodology or direct counting of healthy, live plantings in a representative segment of the restoration area. Natural recruitment of native woody trees and shrubs will be recorded and included in the estimates. Tree and shrub density will be calculated using the as-built acreage of planting areas. A comprehensive species list will be recorded for the monitoring area to document species richness and relative cover by native and non-native plant species. Photographs representative of the overall progress of riparian establishment will be taken in each year to provide visual documentation of vegetation establishment. By the fifth growing season following planting, the total number of planted and naturally recruited native trees and shrubs in the re-vegetation areas

shall be equal to at least 60 percent of the number of trees and shrubs originally planted. All planted and recruited trees and shrubs counted must be alive and in good health. If by the fifth year the 60 percent target has not been met, then the applicant shall replant as necessary and monitor for an additional five years. The applicant shall submit annual monitoring reports to the County Planning Department outlining the progress of re-vegetation efforts. **Source:** Project Plans.					
1.c.	Significantly degrade the existing visual character or quality of the site and its surroundings, including significant change in topography or ground surface relief features, and/or development on a ridgeline?		X		
Discussion: See discussion under Question 1(b). **Source:**					
1.d.	Create a new source of significant light or glare that would adversely affect day or nighttime views in the area?				X
Discussion: No new street lights or other light sources are proposed as part of this project **Source:** Project Plans.					
1.e.	Be adjacent to a designated Scenic Highway or within a State or County Scenic Corridor?				X
Discussion: See discussion under Question 1(a). **Source:**					
1.f.	If within a Design Review District, conflict with applicable General Plan or Zoning Ordinance provisions?				X
Discussion: The project site is not within a Design Review District. **Source:** San Mateo County Zoning Maps and Ordinance.					
1.g.	Visually intrude into an area having natural scenic qualities?		X		
Discussion: See discussion under Question 1(b). **Source:**					

2. AGRICULTURAL AND FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forestland, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
2.a.	For lands outside the Coastal Zone, convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X

Discussion: The project site is within the Coastal Zone. While there is prime farmland on the adjacent Leemos property (that is actively farmed) this project will not significantly impact it or permanently convert this farmland to a non-agricultural use. There is an area on the Leemos property that will be used for project staging. Portions of this area could have Prime soils on them. This area is currently used to grow Christmas trees. Upon completion of the project, this area will be replanted for Christmas trees.

Source: Project Plans; California Resources Agency Farmland Mapping and Monitoring Program.

2.b.	Conflict with existing zoning for agricultural use, an existing Open Space Easement, or a Williamson Act contract?			X	

Discussion: The project parcel is not under a Williamson Act contract, but the adjacent Leemos property is under such contract. The project parcel is zoned Resource Management – Coastal Zone, which allows agriculture as a principally permitted use. However, the parcel is not used for that purpose. Upon completion, the project will not conflict with the on-going agricultural uses on the adjacent Leemos property. No agricultural land will be permanently taken out of production or converted to a non-agricultural use. There is an area on the Leemos property that will be used for project staging. Portions of this area could have Prime soils on them. This area is currently used to grow Christmas trees. Upon completion of the project, this area will be replanted for Christmas trees.

Source: Project Plans; San Mateo County Zoning Ordinance; San Mateo County Williamson Act database.

2.c.	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forestland to non-forest use?				X
Discussion: See discussion under Questions 2(a) and (b). **Source:**					
2.d.	For lands within the Coastal Zone, convert or divide lands identified as Class I or Class II Agriculture Soils and Class III Soils rated good or very good for artichokes or Brussels sprouts?				X
Discussion: See discussion under Questions 2(a) and (b). **Source:**					
2.e.	Result in damage to soil capability or loss of agricultural land?				X
Discussion: See discussion under Questions 2(a) and (b). **Source:**					
2.f.	Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? *Note to reader: This question seeks to address the economic impact of converting forestland to a non-timber harvesting use.*				X
Discussion: The project site does not meet the definitions of forestland or timberland. **Source:** Project Plans; Site Visit; County GIS.					

3. 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:

		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
3.a.	Conflict with or obstruct implementation of the applicable air quality plan?				

Discussion: Large projects that exceed regional employment, population, and housing planning projections have the potential to be inconsistent with the regional inventory compiled as part of the BAAQMD 2017 Bay Area Clean Air Plan. Post construction, this project will not generate new operational vehicle trips. In addition, the project will not substantially affect housing, employment, and population projections within the region, which is the basis of the Bay Area Clean Air Plan projections. Therefore, the proposed Project is not considered a regionally significant project under CEQA Guidelines Section 15206 that will affect regional vehicle miles traveled (VMT) and warrant intergovernmental review by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC). Furthermore, the project falls under BAAQMD's screening criteria, which is used to determine projects that have the potential to generate emissions that exceed BAAQMD's operational emissions thresholds. These thresholds are established to identify projects that have the potential to generate a substantial amount of criteria air pollutants. Because the project will not exceed these thresholds, the project will not be considered by BAAQMD to be a substantial emitter of criteria air pollutants. Therefore, the Project will not conflict with or obstruct implementation of the 2017 Bay Area Clean Air Plan and impacts will be considered less than significant.

Source: Bay Area Air Quality Management District (BAAQMD), 2017; Bay Area 2017 Clean Air Plan; Project Plans.

3.b.	Violate any air quality standard or contribute significantly to an existing or projected air quality violation?			X	

Discussion: Construction of the project would result in the temporary generation of reactive organic gases (ROG), nitrogen oxides (NOX), PM10, and PM2.5 emissions associated primarily from off-road construction equipment, on-road motor vehicles, soil grading, and material transport. ROG and NOX emissions are primarily associated with mobile equipment exhaust. Fugitive dust emissions are primarily associated with site preparation (area disturbed) and transportation (trucks delivering or removing materials, worker trips).

Construction emissions were estimated using the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Roadway Construction Emissions Model (Version 8.1.0) with conservative assumptions regarding the duration and scope of construction (SMAQMD 2018). The Roadway Construction Emissions Model Version 8.1.0 uses equipment data and emission factors from OFFROAD2011 and EMFAC2014. The total criteria pollutant construction emissions for the project are presented below, and are low because of the relatively low intensity of construction activity for this project (limited equipment and workforce). Estimated construction emissions would not exceed BAAQMD's applicable mass emission thresholds of significance that are listed in the table.

Emissions Sources	ROG	NO_X	PM_{10} (exhaust + dust)	$PM_{2.5}$ (exhaust + dust	CO2e
Total Emissions (tons/total construction period)	Less than 0.01	0.03	0.22	0.05	47.9 (metric)
Maximum Daily Emissions (lbs/day)	1.44	2.93	20.32	4.35	52.8
Thresholds of Significance[(a)] (lbs/day)	54	54	82	54	No construction threshold
Exceeds Thresholds?	No	No	No	No	No/Not Applicable

Notes: (a) Thresholds from the BAAQMD CEQA Air Quality Guidelines (BAAQMD 2017a).
ROG = reactive organic gases; NOX = oxides of nitrogen; PM10 = particulate matter with aerodynamic diameter less than 10 microns; PM2.5 = particulate matter with aerodynamic diameter less than 2.5 microns; lbs/day = pounds per day

Although the project would not generate emissions that would exceed the BAAQMD thresholds during the construction phase, due to the non-attainment status of the air basin with respect to ozone, PM10, and PM2.5, the BAAQMD recommends that projects implement a set of Basic Construction Mitigation Measures as best management practices regardless of the significance determination. Implementing Mitigation Measure 3 (below) would help reduce impacts of these three emissions to a less than significant level.

With regards to long-term operations, the project will not generate new vehicle trips or result in maintenance activities other than the occasional site visit to check on the status of the re-vegetation plantings. Operational impacts of the project would be less than significant without mitigation.

Mitigation Measure 3: The County shall require construction contractors to implement the following BAAQMD's Basic Construction Mitigation Measures, listed below:

a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

b. All haul trucks transporting soil, sand, or other loose material into or off-site shall be covered.

c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

d. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.

e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.

f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

h. Post a publicly visible sign with the telephone number and person to contact at the County regarding the project. The County shall respond and take corrective action within 48 hours.

The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Source: Roadway Construction Emissions Model (RoadMod), ver. 8.1.0; Project Plans; BAAQMD CEQA Air Quality Guidelines.

3.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 which exceed quantitative thresholds for ozone precursors)?			X	

Discussion: According to the BAAQMD, no single project, by itself, is sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. In addition, according to the BAAQMD CEQA Air Quality Guidelines, if a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions (BAAQMD, 2011). Alternatively, if a project does not exceed the identified significance thresholds, then the project would not be considered cumulatively considerable and would result in less than significant air quality impacts. As discussed above, the project would not exceed the BAAQMD thresholds, thus resulting in less than significant construction emissions. The project would not result in long-term adverse air quality impacts either. Thus, the project would not result in cumulatively considerable air pollutant emissions and would be result in less than significant cumulative impacts on the air quality environment.

Source: Project Plans; BAAQMD CEQA Air Quality Guidelines.

3.d.	Expose sensitive receptors to significant pollutant concentrations, as defined by BAAQMD?			X	

Discussion: Land uses in the project site vicinity include the County Landfill and several commercial land uses. Construction of the project would result in short-term diesel exhaust emissions (DPM), which are toxic air contaminants (TACs), from on-site heavy-duty equipment and haul trucks. Exposure of sensitive receptors is the primary factor used to determine health risk. Exposure is a function of the concentration of a substance or substances in the environment and the extent of exposure that people have with the substance. A longer exposure period will result in a higher exposure level. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project. Thus, the duration of the proposed construction activities (approximately 1.5 months) would only constitute a small percentage of the total 70-year exposure period. Furthermore, based on the linear progression of the project construction activities, the use of diesel powered construction equipment would be temporary and episodic, affecting only a few nearby receptors for a limited period of time. It is not anticipated that the project will generate post-construction emissions of any TACs as activities that would generate TACs are not proposed or anticipated.

In conclusion, the proposed project would not expose sensitive receptors to substantial pollutant

concentrations during construction or operations. Therefore, impacts related to exposure of sensitive receptors to substantial pollutant concentrations are considered less than significant. **Source:** Project Plans; BAAQMD CEQA Air Quality Guidelines.					
3.e.	Create objectionable odors affecting a significant number of people?			X	
Discussion: As a general matter, the types of land use development that pose potential odor problems include wastewater treatment plants, refineries, landfills, composting facilities and transfer stations. In this case, the proposed project is the restoration of a creek channel. There is no evidence to suggest that, post-construction, this restoration will generate any odors. Although some odor may occur during construction due to the use of diesel-fueled engines, construction activities will be temporary and will only affect a few nearby receptors for a limited period of time. Upon completion of the proposed project, objectionable odors will not occur from the restored creek channel. Therefore, this project will not create objectionable odors that would affect a substantial number of people and this impact can be considered less than significant. **Source:** Project Plans; BAAQMD CEQA Air Quality Guidelines.					
3.f.	Generate pollutants (hydrocarbon, thermal odor, dust or smoke particulates, radiation, etc.) that will violate existing standards of air quality on-site or in the surrounding area?			X	
Discussion: As discussed in response to question 3(b) above, the project will not exceed the BAAQMD thresholds and will not result in long-term adverse air quality impacts. Also, as discussed for questions 3(d) and 3(e) above, the project will not expose sensitive receptors to substantial pollutant concentrations or objectionable odors. Thus, the project will not generate pollutants that will violate existing standards of air quality on-site or in the surrounding area. This impact can be considered less than significant. **Source:** Project Plans; BAAQMD *CEQA* Air Quality Guidelines.					

4.	**BIOLOGICAL RESOURCES**. Would the project:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
4.a.	Have a significant 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 Wildlife or U.S. Fish and Wildlife Service?		X		

Discussion: *California Red-legged Frog*

The project area lies within designated California red-legged frog (CRLF) critical habitat unit SNM-1 (USFWS 2010). Potential project-related impacts to the red-legged frog include direct (crushing or injuring frogs present in work areas with equipment or vehicles) and indirect impacts (temporary or permanent alteration of habitats such that they cannot be used by red-legged frogs, introduction of non-native invasive plants, trash left on site that could attract predators, and sedimentation of aquatic habitats from vehicles crossing aquatic areas). The project will temporarily affect a total of 0.92 acres (ac) of CRLF habitat (0.62 acres upland habitat, 0.3 acres aquatic non-breeding habitat) by construction of temporary access roads through riparian willow forest and installing channel stabilization features. To avoid potential significant impacts to the CRLF, **Mitigation Measures 4 – 18** are proposed.

San Francisco Garter Snake

There is potential for San Francisco Garter Snake (SFGS) to occur within the project area, as there is suitable habitat present which is bolstered by the presence of a breeding population of CRLF, the primary prey species of SFGS. Avoidance and mitigation measures (USFWS 1999; Appendix A) employed in order to minimize impacts to CRLF should also minimize potential impacts to SFGS. To avoid potential significant impacts to both CRLF and SFGS, the following measures are proposed:

Mitigation Measure 4: The applicant/project sponsor shall submit the names and credentials of biologists proposed to perform preconstruction surveys and monitoring to the USFWS for written approval at least 30 days prior to commencement of any activities.

Mitigation Measure 5: Each construction area will be surrounded by snake exclusionary fencing one week prior to the start of construction.

Mitigation Measure 6: A USFWS-approved biologist will survey the work areas no more than 24 hours prior to the onset of activities and after the snake exclusion fencing has been installed.

Mitigation Measure 7: If California red-legged frogs, tadpoles, or eggs are found, the approved biologist will contact the USFWS to determine if moving any of these life-stages is appropriate. In making this determination the USFWS shall consider if an appropriate relocation site exists. If the Service approves moving animals, the approved biologist shall be allowed sufficient time to move CRLF from the work areas before work activities begin. Only USFWS-approved biologists will participate in activities associated with the capture, handling, and monitoring of CRLF. If a CRLF is found nearby, but outside a proposed work area, it will not be disturbed and USFWS will be notified. The biologist will also report any observations of other listed species addressed in this biological

assessment.

Mitigation Measure 8: Before any construction activities begin on the project, a USFWS-approved biologist will conduct a training session for all construction personnel. The training will include a description of the listed species with potential to occur, their habitat, and the general measures that are being implemented to conserve the species as they relate to the project and the boundaries within which the project may accomplished (i.e. work areas).

Mitigation Measure 9: A qualified construction monitor shall be present on-site, as required by regulatory permit conditions, during the initial clearing and grubbing of each work area. All vegetation clearing shall be done by hand and supervised by a qualified biological monitor.

Mitigation Measure 10: During project activities, all trash will be properly contained, removed from the work area and disposed of regularly. Following construction, all trash and construction debris from work areas will be removed.

Mitigation Measure 11: All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 15 meters (50 feet) from any riparian habitat or water body. The applicant/project sponsor will ensure contamination of habitat does not occur during such operations. Prior to the start of construction, the applicant/project sponsor will prepare a plan to ensure a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

Mitigation Measure 12: A USFWS-approved biologist will ensure that the spread or introduction of invasive plant species will be avoided to the maximum extent possible. When practical, invasive exotic plants in the project area will be removed. The biologist will permanently remove, from within the project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes to the maximum extent possible.

Mitigation Measure 13: Project areas that are disturbed will be revegetated with an appropriate assemblage of native riparian, wetland and upland vegetation.

Mitigation Measure 14: Stream contours will be returned to their original condition at the end of project activities, unless consultation with USFWS has determined that it is not beneficial to the species or feasible.

Mitigation Measure 15: The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and these areas will be outside of riparian and wetland areas where feasible. Where impacts occur in staging areas and access routes, restoration will be performed.

Mitigation Measure 16: If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than five millimeters to prevent California red-legged frogs from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

Mitigation Measure 17: Ground-disturbing activities will be completed between April 1 and October 31. Should activities be necessary to conduct outside this period, the U.S. Army Corp of Engineers may authorize such activities after obtaining the Service's approval.

Mitigation Measure 18: To control erosion during and after project implementation, best management practices will be utilized.

Central Valley Steelhead and Central California Coastal Steelhead

Steelhead have been documented in several coastal streams in the project vicinity including

Pilarcitos Creek (NOAA 2005). Pilarcitos Creek is also located in designated critical habitat for steelhead (Federal Register 2005). However, no Steelhead have been documented in Corinda Los Trancos Creek upstream from Highway 92. The Highway. 92 culvert prevents access to the creek and the sandy substrate of the creek does not provide suitable spawning and rearing habitat. Indirect impacts to the downstream Steelhead population can be minimized by following Best Management Practices during construction such as dewatering and erosion control. In the long term, the project is intended to benefit the steelhead by reducing fine sediment input into their downstream habitat.

San Francisco Dusky-footed woodrat

San Francisco dusky-footed woodrat are a California Species of Special Concern. San Francisco dusky-footed woodrats are present within the project area. One woodrat house was observed within the project area and it is anticipated that several additional houses may be present. Temporary access roads will attempt to avoid woodrat nests where possible. Impacts will be minimized by using a qualified biological monitor to oversee any removal and relocation of the woodrat houses and placement of refugee structures (e.g. half wine barrels and slash piles). To further reduce potential impacts to the woodrat, the applicant's biologist is recommending the following measure:

Mitigation Measure 19: A qualified biologist will monitor the removal and relocation of woodrat houses and placement of refuge structures (e.g. half wine barrels and slash piles) for any woodrat nests located within the access road footprint. If young woodrats are found in any house, all removed material will be replaced and removal of that house will not continue until the young have left the house. Prior to dismantling houses, data will be collected to document the following characteristics of the house: house-building materials, contents of house cavities (particularly stored food and plants), percent and type of ground cover immediately around each house, tree and shrub species surrounding the house, and the house substrate (e.g., ground, tree, etc.). New houses will be established on site for each house removed. New house designs will be constructed of a half wine barrel placed upside down in appropriate microhabitat with materials from the nest chamber of the dismantled house placed inside, and other house materials placed over and around the barrel, including a long tunnel-shaped entrance that leads only into the receptacle.

Nesting Birds

Mitigation Measure 20: Vegetation clearing and other construction work will occur outside the nesting birds season (February 1 to August 15). If work is initiated during the nesting season, a preconstruction survey for nesting birds will be performed by a qualified biologist. Any active nests will be avoided until all the young have fledged and are independent.

Source: Applicant's biological report, Cal. Dept. of Fish & Wildlife database

4.b.	Have a significant adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X		

Discussion: The project will have a significant temporary impact upon the riparian habitat of Corinda de Los Trancos creek through the removal of existing riparian vegetation. However, the proposed work is necessary to stabilize the creek and avoid the loss of creek bank vegetation due to erosion and bank failure. A key component of the project is re-vegetation of the creek banks with riparian plant and tree species in order to stabilize them and avoid erosion into the creek. Mitigation for this impact is implementation of the project as proposed (including the re-vegetation plan which

includes success criteria and re-planting requirements). **Source:** Project Plans; Site Visit.					
4.c.	Have a significant 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?				X
Discussion: No wetlands were identified by the project biologist. **Source:** Project Plans. Site Visit.					
4.d.	Interfere significantly with the movement of any native resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X
Discussion: As discussed previously, the creek is not accessible to fish passage due to the Highway. 92 culvert barrier. No other species are known to use the creek on a regular basis for migratory purposes. As discussed above, CRLF and SFGS could use the creek area on a permanent basis. Potential impacts and mitigations for these species were discussed above. **Source:** Applicant's biological report; Cal. Dept. of Fish & Wildlife database.					
4.e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (including the County Heritage and Significant Tree Ordinances)?		X		
Discussion: See discussion under Question 4.b above. **Source:**					
4.f.	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, other approved local, regional, or State habitat conservation plan?				X
Discussion: The project site is not within the boundaries of any said conservation plan. **Source:** Calif. Dept. of Fish & Wildlife (CDFW); U.S. Fish & Wildlife Service (USFW).					
4.g.	Be located inside or within 200 feet of a marine or wildlife reserve?				X
Discussion: The project site is not inside or within 200 feet of a marine or wildlife reserve.					

Source: Calif. Dept. of Fish & Wildlife (CDFW); U.S. Fish & Wildlife Service (USFW).					
4.h.	Result in loss of oak woodlands or other non-timber woodlands?				X
Discussion: The project site does not contain oak woodlands or other non-timber woodlands. **Source:** Site Visit; Project Plans.					
5.	**CULTURAL RESOURCES**. Would the project:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
5.a.	Cause a significant adverse change in the significance of a historical resource as defined in CEQA Section 15064.5?		X		
Discussion: As part of the application materials, a Historic Property Survey Report (prepared by Basin Research Associates, dated March 2018) was submitted. Basin Research found that no historic properties (including archaeological sites, built environment or other resources) have been recorded within or immediately adjacent to the project area. No known Native American cultural resources were identified within or immediately adjacent to the project area. The report concludes that there is a low potential for buried prehistoric archaeological resources within or immediately adjacent to the project area based upon the archival data, field inventory, local geology and topography. Despite the negative survey results discussed above, it is possible that subsurface deposits may exist or that evidence of such resources has been obscured by more recent natural factors, such as the on-going erosion within the creek channel. As such, the potential to encounter unknown archaeological resources remains and this impact would be potentially significant. Implementation of the following Mitigation Measures would reduce this impact to a less than significant level. **Mitigation Measure 21: Unexpected Discovery of Cultural Resources** Not all cultural resources are visible on the ground surface. Prior to the start of construction or ground-disturbing activities, the applicant shall ensure all field personnel are educated of the possibility of encountering buried prehistoric or historic cultural resources. Personnel will be trained that upon discovery of buried cultural resources, work within 50 feet of the find must cease and the applicant shall contact a qualified archaeologist immediately to evaluate the find. Once the find has been identified and found eligible for listing on the National Register of Historic Places or the California Register of Historical Resources, plans for treatment, evaluation, and mitigation of impacts to the find shall be developed and implemented according to the qualified archaeologist's recommendations. This measure will ensure that prehistoric and historic cultural resources are appropriately protected. **Source:** *CLT Mid-Section Channel Repairs Project HPSR/FOE* (prepared by Basin Research Associates, March 2018).					
5.b.	Cause a significant adverse change in the significance of an archaeological resource pursuant to CEQA Section 15064.5?				X
Discussion: See discussion under Question 5.a above.					

Source:					
5.c.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X
Discussion: See discussion under Question 5.a above. There is no evidence to suggest that the project site contains fossil resources. **Source:**					
5.d.	Disturb any human remains, including those interred outside of formal cemeteries?		X		
Discussion: Despite the negative survey results discussed above, it is possible that previously unknown buried human remains could be unearthed in the process of construction. In the case of an unanticipated discovery of human remains, the following mitigation measure will require compliance with the applicable requirements of State law. Implementation of this measure, if necessary, will mitigate any potentially significant impact to interred human remains to a less than significant level. **Mitigation Measure 22: Unanticipated Discovery of Human Remains:** The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the 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 PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the County coroner shall be notified immediately. If the human remains are determined to be prehistoric, the coroner shall notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. **Source:** *CLT Mid-Section Channel Repairs Project HPSR/FOE* (prepared by Basin Research Associates, March 2018).					

6.	**GEOLOGY AND SOILS**. Would the project:	***Potentially Significant Impacts***	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
6.a.	Expose people or structures to potential significant adverse effects, including the risk of loss, injury, or death involving the following, or create a situation that results in:			X	

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 significant evidence of a known fault? *Note: Refer to Division of Mines and Geology Special Publication 42 and the County Geotechnical Hazards Synthesis Map.*				X
Discussion: The project site is not within or adjacent to a mapped earthquake fault zone. **Source:** Alquist-Priolo Earthquake Fault Zoning Map (Half Moon Bay Quad) – Calif. Dept. of Conservation.				
ii. Strong seismic ground shaking?			X	
Discussion: The nearest known fault zone to the project site is the Seal Cove fault zone which is approximately three miles west of the project site. The San Andreas fault zone lies approximately 3.5 miles east of the project site. A major earthquake along either fault line could produce strong ground shaking. However, the project will not create any habitable structures or potentially unstable slopes adjacent to habitable structures or infrastructure. **Source:** Alquist-Priolo Earthquake Fault Zoning Map (Half Moon Bay Quad) – Calif. Dept. of Conservation; Project Plans.				
iii. Seismic-related ground failure, including liquefaction and differential settling?				X
Discussion: The project site is not within a mapped liquefaction hazard zone or on soils known to be susceptible to liquefaction or differential settling. Again, the project will not create any habitable structures or potentially unstable slopes adjacent to habitable structures or infrastructure. **Source:** Calif. Geological Survey Seismic Hazards Zones maps; Project Plans				
iv. Landslides?				X
Discussion: See response to question 6(a)(ii). **Source:**				
v. Coastal cliff/bluff instability or erosion? *Note to reader: This question is looking at instability under current conditions. Future, potential instability is looked at in Section 7 (Climate Change).*				X
Discussion: The project site is not near any coastal cliffs/bluffs. **Source:** Project Plans; Google Earth.				
6.b. Result in significant soil erosion or the			X	

	loss of topsoil?				
Discussion: The project is intended to address long-term channel erosion within Corinda de los Trancos Creek. This will be achieved through the construction of grade control structures and the reduction of the overall slope of the creek. In addition, over steepened creek banks will be laid back to reduce their potential to fail during peak winter flows. Construction of the project within the creek channel will require a significant amount of grading within the confines of a live creek. To address erosion issues during construction, the applicant is proposing to utilize coffer dams to divert stream water around work areas and to implement construction phase erosion control measures within all work areas, including the use of silt fencing, etc. As discussed previously, the project includes an extensive post-construction re-vegetation component that will reduce the potential for long-term erosion off of the newly created stream banks. Implementation of the project as proposed will not result in a significant long term erosion problem. **Source:** Project Plans.					
6.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, severe erosion, liquefaction or collapse?				X
Discussion: See response to question 6(a)(iii). **Source:**					
6.d.	Be located on expansive soil, as noted in the 2010 California Building Code, creating significant risks to life or property?				X
Discussion: Based upon the U.S. Dept. of Agriculture soil maps for San Mateo County, the soils on the project site are not identified as expansive soils. No habitable structures or over steepened slopes will be created by this project. **Source:** U.S. Dept. of Agriculture soil maps for San Mateo County.					
6.e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X
Discussion: No septic system or other wastewater disposal system is proposed. **Source:** Project Plans.					

7.	**CLIMATE CHANGE**. Would the project:

		Potentially Significant Impacts	*Significant Unless Mitigated*	*Less Than Significant Impact*	*No Impact*
7.a.	Generate greenhouse gas (GHG) emissions (including methane), either directly or indirectly, that may have a significant impact on the environment?			X	
Discussion: GHG emissions were estimated using the Roadway Construction Emissions Model (RoadMod), version 7.1.2 (Sacramento Metropolitan Air Quality Management District, 2016), which BAAQMD recommends for linear construction projects, for each of the project components. Notably, there are no long-term sources of GHGs associated with project development. Once the project is completed, there will be no more GHG generation associated with the project. GHGs associated with construction will be generated by construction equipment, haul trucks, and worker vehicles. The modeling program estimates that maximum annual GHGs of 47.9 metric tons of CO2e will be emitted during all construction activities related to this project. Based upon this estimate, the proposed project will not exceed the BAAQMD's most stringent GHG threshold of 1,100 metric tons per year and should be considered less than significant. **Source:** Roadway Construction Emissions Model (RoadMod), ver. 8.1.0, Project Plans, BAAQMD CEQA Air Quality Guidelines					
7.b.	Conflict with an applicable plan (including a local climate action plan), policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X
Discussion: San Mateo County has developed an Energy and Climate Change Element for the General Plan (San Mateo County, 2013). The Element includes energy use reduction measures, transportation measures, and solid waste reduction measures to reduce GHGs. Since the project consists of stream and creek bank improvements and would not result in long-term sources of GHGs, these reduction strategies do not apply. Thus, the project would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. **Source:** San Mateo County Energy and Climate Change Element 2013; BAAQMD Guidelines.					
7.c.	Result in the loss of forestland or conversion of forestland to non-forest use, such that it would release signifi-cant amounts of GHG emissions, or significantly reduce GHG sequestering?				X
Discussion: The project site does not contain forestland, nor will the project involve the removal of a significant number of trees. In fact, the re-vegetation plan for this project proposes to plant over 120 new trees to help both stabilize the reformed creek banks and to provide habitat within the damaged riparian corridor. **Source:** Project Plans.					
7.d.	Expose new or existing structures and/or infrastructure (e.g., leach fields) to				X

	accelerated coastal cliff/bluff erosion due to rising sea levels?				
Discussion: The project site is approximately 2.3 miles east of the Pacific Ocean and does not contain coastal cliffs/bluffs. There is no evidence to suggest that rising sea levels will directly impact the project site. **Source:** San Mateo County GIS.					
7.e.	Expose people or structures to a significant risk of loss, injury or death involving sea level rise?				X
Discussion: See response to question 7(d). **Source:**					
7.f.	Place structures within an anticipated 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
Discussion: See response to Question 8(i), below. **Source:**					
7.g.	Place within an anticipated 100-year flood hazard area structures that would impede or redirect flood flows?			X	
Discussion: The project will construct grade control structures within the stream channel in order to reduce the velocity of the storm waters within the creek channel during peak storm events. The slope of the creek will also be built back up to help reduce the velocity. The hydrological regime of this creek is highly regulated by the large storm water retention pond at the head of the stream within the Ox Mountain Landfill, and by the general disturbance of the canyon by the landfill. The intention of the project is to reduce the velocity of the creek and reduce the amount of bank failure due to channel incision. There are no habitable structures proposed in or immediately adjacent to the creek. **Source:** Project Plans.					

8. **HAZARDS AND HAZARDOUS MATERIALS**. Would the project:					
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
8.a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (e.g., pesticides, herbicides, other toxic substances, or radioactive material)?				X
Discussion: No hazardous materials, pesticides or herbicides, are proposed for use in this project. **Source:** Project Plans.					
8.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?				X
Discussion: The only hazardous material that is proposed for use in this project is diesel fuel to power construction equipment. Equipment will be refueled at the existing refueling station within the landfill. This area meets standard fuel containment measures including a secondary containment wall around the fuel tank. There is no new risk associated with this project. **Source:** Project Plans; Site Visit.					
8.c.	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
Discussion: There are no existing or proposed schools within one mile of the project site. **Source:** Project Plans; Site Visit.					
8.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?				X
Discussion: The project site is located adjacent to the Ox Mountain Landfill which is a hazardous materials site. However, the project will not involve the disturbance of any landfill areas. The water within CDLT creek is monitored as part of the Landfill's stormwater permit. There is no evidence to suggest that the proposed project will release hazardous substances from the landfill areas into the environment.					

Source: Project Plans; Site Visit.					
8.e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area?				X
Discussion: There are no airports within 2 miles of the project site. The project site is not within the boundaries of an airport land use plan. **Source:** Project Plans; Site Visit.					
8.f.	For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area?				X
Discussion: There are no private airstrips within a 2 mile radius of the project site. **Source:** County GIS database.					
8.g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
Discussion: There is no evidence to suggest that the project will interfere with any emergency response plan. No work will occur that will impede or close a public road. **Source:** Project Plans; Site Visit; County GIS database.					
8.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?				X
Discussion: No habitable structures are proposed with this project. The CDLT creek corridor itself is not an area that would be susceptible to wildland fire in general. **Source:** Project Plans; Site Visit; County GIS database.					
8.i.	Place housing within an existing 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
Discussion: The project will not create housing or other habitable structures. **Source:** Project Plans; Site Visit; County GIS database.					

8.j.	Place within an existing 100-year flood hazard area structures that would impede or redirect flood flows?			X	

Discussion: CDLT Creek is designated as a Flood Zone A (Areas with a 1% annual chance of flooding. Base Flood elevations not determined). Hydrological analysis performed for this project by the applicant's engineer indicates that overall, the creek's channel has capacity to carry the 100-year storm discharge with the exception of the 200' segment upstream from the Highway 92 crossing. This crossing is a 4' high by 6' wide concrete box culvert with a capacity of approximately 300 cfs. Therefore, flooding occurs at Highway 92 during flow greater than the 2-year event, and the backwater effect of the undersized pipe also causes upstream flooding. The proposed grade control structures will not significantly impede 100-year flood flows. As proposed, the project will only reduce the volume of the creek channel approximately 1 foot within the upper reach of Work Area 1. Given the overall capacity of the creek, this is a less than significant impact.

Source: Project Plans; Site Visit; County GIS database.

8.k.	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?				X

Discussion: No habitable structures or structures with monetary value will be constructed within or immediately adjacent to CDLT creek.

Source: Project Plans.

8.l.	Inundation by seiche, tsunami, or mudflow?				X

Discussion: The project site is not near the ocean or any lakes, which precludes inundation by tsunami or seiche. There are no unstable slopes immediately adjacent to the creek from which a mudflow would originate.

Source: Project Plans; Site Visit; County GIS database.

9. HYDROLOGY AND WATER QUALITY. Would the project:					
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
9.a.	Violate any water quality standards or waste discharge requirements (consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical stormwater pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash))?		X		

Discussion: Construction activities associated with the project will result in land disturbing activities such as grading, earthmoving, backfilling, and compaction. Additionally, project construction will involve use of chemicals and solvents such as fuel and lubricating grease for motorized heavy equipment. Such construction activities could dislodge soil and cause erosion or inadvertent spills of construction related chemicals into waterways resulting in adverse water quality impacts. Construction and ground disturbance activities associated with the project will occur within and directly adjacent to Corinda de Los Trancos Creek and water quality impacts could be significant in the immediate vicinity of construction activities as well as further downstream. Exposed soil from stockpiles and excavated areas could be transported by wind or stormwater and, if not properly managed, could increase the sediment load (turbidity) in stormwater runoff and the Creek. In addition, construction activities will require the use of hazardous materials such as fuels and oils, which, if not managed appropriately, could become mobilized by run-off and contribute to non-point source pollution and degradation of water quality. Temporary storage of construction materials and equipment in work areas and staging areas also creates the potential for a release of hazardous materials, trash, or sediment into the Creek.

In most years, Corinda de Los Trancos Creek runs year round, albeit at a much reduced rate during the summer months. There is the potential that there will be some water flow in the Creek at the time of project construction. If that is the case, then the applicant will be required to dewater the section of the Creek where work is proposed. This is typically achieved thru the construction of a cofferdam and clean water bypass. Water resulting from dewatering operations will be required to comply with local stormwater requirements prior to discharge (e.g., San Mateo County NPDES Permit CA0029921 as stated under Section 4.100.070 of the San Mateo County Municipal Code). However, dewatering activities have the potential to result in degradation of water quality if water is discharged in a manner that results in erosion or contamination of Corinda de Los Trancos Creek. Implementation of Mitigation Measure 23 (below), which requires installation of a cofferdam, flow bypass pipes, or a diversion dam to divert water around the work area and includes sediment and turbidity control measures, will reduce potential water quality impacts associated with dewatering to a less than significant level.

Mitigation Measure 23: If surface water is present during construction, the applicant shall implement the following:

a. Cofferdams, flow bypass pipes, or diversion dams shall be used to ensure continued flow around the work area.

b. Adequate sediment and turbidity control measures shall be implemented. One or more fences of filter fabric shall be constructed across stream channels downstream of the lowermost cofferdams to reduce turbidity and sedimentation downstream of the stream construction sites during removal of cofferdams and until water clarity is re-established once stream flow is re-introduced to the stream channel in the work area.

c. The presence of surface water, such as in-stream flow or pool habitat, could mean the potential for salmonids to occur in the work area. To relocate salmonids from the work area following installation of a cofferdam or diversion dam/bypass pipes, a fish rescue and relocation effort shall be conducted by qualified biologists utilizing NMFS prescribed methods for the safe handling of salmonids.

d. The applicant shall have a biologist monitor the construction site during placement and removal of cofferdams, channel diversions, and access ramps to ensure that any adverse effects to salmonids are minimized. The biologist shall be on site during all dewatering events to capture, handle, and safely relocate steelhead, if present.

e. Consistent with **Mitigation Measures 24** and **25**, contractors shall have a supply of erosion control materials, and fuel and hydraulic fluid spill containment supplies onsite to facilitate a quick response to unanticipated storm events, or fuel or hydraulic fluid spill emergencies.

f. Consistent with **Mitigation Measure 26**, construction equipment used within the creek channel shall be checked each day prior to work within the creek

Implementation of silt fences and fiber rolls, as proposed in the applicant's plans, will control the discharge of sediment and pollutants from the construction site. Because proposed land disturbing activities will occur over an area of less than one acre, the Project is not be subject to a General Construction Permit under the National Pollutant Discharge Elimination System (NPDES) permit program under section 402(p) of the federal Clean Water Act. Therefore, the project would not be required to implement a Storm Water Pollution Prevention Plan and could result in the discharge of sediment or pollutants from the construction site, which could potentially result in a violation of water quality standards. **Mitigation Measures 23** (above) and **24** (below) specify best management practices to protect cold water habitat. Additionally, implementation of **Mitigation Measure 25** as well as **Mitigation Measure 26** (below) will reduce this impact to a less than significant level.

Mitigation Measure 24: Project materials shall be placed in locations and manners that will not impair surface water flow into or out of any water of the United States. If surface flow is present during construction, dewatering activities shall ensure that near-normal downstream flows are maintained. Fill shall consist of suitable material and placement such that it will not be eroded by future high flows. Following completion of construction, temporary fill shall be removed to upland areas, dredged material shall be returned to its original location, and the affected areas shall be restored to preconstruction elevations. The area upstream and downstream of the project reach shall be monitored annually for a two year period post construction to qualitatively assess channel conditions.

Mitigation Measure 25: The applicant shall prepare a comprehensive stormwater pollution and erosion control plan for the project. Erosion control measures shall be in place prior to the start of construction activities and remain in place throughout all phases of project construction. The plan must provide a BMP monitoring and maintenance schedule and identify parties responsible for monitoring and maintenance of construction-phase BMPs. Erosion and water quality control measures identified in the plan must comply with the County of San Mateo Department of Public Work's Contract Requirements for Erosion and Sediment Control and Contract Requirements for Water Pollution Control for Construction in Sensitive Areas, and at a minimum include the following

measures (County of San Mateo 2013a; County of San Mateo, 2013b):

a. Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place.

b. Sediment shall be retained on-site by a system of sediment basins, traps, or other appropriate measures.

c. A spill prevention and countermeasure plan shall be developed that will identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used on-site. The plan will also require the proper storage, handling, use, and disposal of petroleum products.

d. Construction activities shall be scheduled to minimize land disturbance during peak runoff periods and to the immediate area required for construction. Existing vegetation shall be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.

e. Surface waters, including ponded waters, must be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity which may result in a discharge to the receiving water. Diversion activities must not result in the degradation of beneficial uses or exceedance of water quality objectives of the receiving waters. Any temporary dam or other artificial obstruction constructed must only be built from materials such as clean gravel which will cause little or no siltation. Normal flows must be restored to the affected stream immediately upon completion of work at that location.

f. Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff losses and contamination of groundwater.

g. Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events. All removed topsoil shall be reused during construction to the extent feasible. Unused topsoil, if any, shall be broadly redistributed to the surrounding areas in such a manner that topography and vegetation cover would not be adversely impacted.

h. Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff.

i. Disturbed areas will be re-vegetated after completion of construction activities.

j. Provide sanitary facilities for construction workers.

Mitigation Measure 26: The applicant shall use the following best management practices (BMPs) to minimize potential adverse effects of the project to groundwater and soils from chemicals used during construction activities:

a. Follow manufacturer's recommendations on use, storage and disposal of chemical products used in construction;

b. Avoid overtopping construction equipment fuel gas tanks;

c. Provide secondary containment for any hazardous materials temporarily stored onsite;

d. During routine maintenance of construction equipment, properly contain and remove grease and oils;

e. Perform regular inspections of construction equipment and materials storage areas for leaks and maintain records documenting compliance with the storage, handling and disposal of hazardous materials; and

f. Properly dispose of discarded containers of fuels and other chemicals

The operation and maintenance activities associated with the project will result in minimal effects on water quality. After construction is completed, disturbed areas will be restored with biotechnical stabilization methods and plantings of native vegetation to minimize the potential for future erosion. Operation and maintenance activities would be similar to those under existing conditions, primarily monitoring of replanted vegetation. Such activities shall not involve soil disturbance and are not expected to result in discharge of pollutants or violation of water quality standards or waste discharge requirements.

Source: Project Plans, County of San Mateo Department of Public Works Contract Requirements: Erosion and Sediment Control and Water Pollution Control for Construction in Sensitive Areas.

9.b.	Significantly deplete groundwater supplies or interfere significantly 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)?			X	

Discussion: The proposed project does not require substantial withdrawal of groundwater nor are any withdrawals proposed. It is possible that grading activities during project construction could intercept the local groundwater table and the proposed project may require short-term dewatering to accommodate installation of the bank stabilization measures. Such dewatering activities would be minimal and temporary in nature and as such, there would be no impacts to groundwater supplies or aquifers. Any effects related to lowering the groundwater table would be temporary since dewatering would be required for only a limited period during construction activities and highly localized within the vicinity of excavation activities. Therefore, if construction related groundwater dewatering is required, it would not affect local wells in the project area. As a result, impacts related to the depletion of groundwater resources would be less than significant.

The proposed project would not result in a substantial increase in impervious surface area and would not interfere significantly with groundwater recharge. Added impervious surfaces would be minimal and would consist of the rip-rap drop structure and the creek bank armoring. The bank armoring will be replanted with willows or other live plant materials. As a result, impacts related to

local groundwater recharge would be less than significant. **Source:** Project Plans.					
9.c.	Significantly 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 that would result in significant erosion or siltation on- or off-site?			X	
Discussion: The proposed project will not result in the alteration of the course of Corinda de Los Trancos Creek. Laying back portions of the creek banks will not substantially alter the existing drainage pattern of the project area. In fact, laying back the creek banks to a more stable slope will reduce the potential for erosion and sedimentation into the creek due to bank failure caused by near vertical slopes. Stormwater runoff will continue to flow directly into the creek off of adjacent top of bank areas and there will be no substantial change above the current baseline in runoff flow rates nor will the project increase erosion or siltation offsite after construction is completed. In the long-term, the proposed project is expected to reduce erosion and siltation in Corinda de Los Trancos Creek. The proposed bank stabilization methods will include a combination of structural materials, which provide short-term protection from erosion and live cuttings. As the live cuttings become established, the roots provide long-term stabilization to the soils, while the vegetation reduces flow velocities and sheer stresses on the bank surface. In the long term, these measures will provide a benefit to the Creek by reducing erosion and siltation, and providing increased habitat value. **Source:** Project Plans					
9.d.	Significantly alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or significantly increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?				X
Discussion: There will be no substantial change in runoff flow rates. The project will restore failing banks but will not alter the drainage pattern of the area nor will it substantially alter flows within the channel. Therefore, there will be no increase in the rate or volume of surface runoff that could result in on- or off-site flooding. **Source:** Project Plans.					
9.e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide significant additional sources of polluted runoff?		X		
Discussion: As discussed previously, the project will create minimal new amounts of impervious surfaces in the form of rip-rap to be used to armor the creek banks. However, it is not anticipated that this increase will cause significant amounts of new runoff. Construction activities associated with the project have the potential to result in polluted runoff, a potentially significant impact. However, construction is expected to occur in the summer when runoff-generating rain events are					

not likely. Refer to Question 9(a) above for description of BMPs that will be implemented to prevent discharge of polluted runoff from the construction site. With implementation of these mitigation measures, the impact will be less than significant. **Source:** Project Plans.					
9.f.	Significantly degrade surface or ground-water water quality?		X		
Discussion: See response to Question 9(a) above. **Source:**					
9.g.	Result in increased impervious surfaces and associated increased runoff?			X	
Discussion: See response to Questions 9(b) and 9(e) above. **Source:**					

10.	**LAND USE AND PLANNING**. Would the project:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
10.a.	Physically divide an established community?				X
Discussion: There is no community adjacent to the project site. **Source:** Project Plans; Site visit; County GIS database.					
10.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?				X
Discussion: The project is intended to address an on-going erosion issue that is negatively impacting both CDLT Creek and the larger Pilarcitos Creek watershed. The County General Plan contains policies that encourage land owners to address erosion problems on their property to avoid impacting public resources and infrastructure. This project is in keeping with those policies. Policies to protect biological and other resources have been included in the relevant sections of this Initial Study. **Source:** Project Plans; County General Plan; LCP, Zoning Regulation.					
10.c.	Conflict with any applicable habitat conservation plan or natural community				X

conservation plan?				
Discussion: The project site is not within the boundaries of an approved habitat conservation plan or natural community conservation plan. **Source:** Project Plans; County GIS database.				
10.d. Result in the congregating of more than 50 people on a regular basis?				X
Discussion: There is no evidence to suggest that the project will result in the congregating of more than 50 people on a regular basis. **Source:** Project Plans.				
10.e. Result in the introduction of activities not currently found within the community?				X
Discussion: There is no evidence to suggest that the project will result in the introduction of new activities to the project site, after completion of the project. **Source:** Project Plans				
10.f. Serve to encourage off-site development of presently undeveloped areas or increase development intensity of already developed areas (examples include the introduction of new or expanded public utilities, new industry, commercial facilities or recreation activities)?				X
Discussion: There is no evidence to suggest that the project will encourage further off-site development or encourage increased on-site development. **Source:** Project Plans.				
10.g. Create a significant new demand for housing?				X
Discussion: There is no evidence to suggest that the project will create additional demand for housing. **Source:** Project Plans.				

11. MINERAL RESOURCES. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
11.a. Result in the loss of availability of a known mineral resource that would be of				X

	value to the region or the residents of the State?				
Discussion: There are no identified mineral resources on the project site. **Source:** SMC General Plan.					
11.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?				X
Discussion: The project site is not designated as a mineral resource recovery site. **Source:** SMC General Plan.					

12.	**NOISE**. Would the project result in:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
12.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?			X	
Discussion: The project could potentially generate noise levels above those set in the County Noise Ordinance during certain phases of the stream repair project. In particular when heavy equipment is being used to move the large boulders into place within the stream channel. The nearest sensitive receptor is the residence on the Leemos Ranch farm, which is approximately 150 feet away from the Area 1 construction site. Additional noise sources in the area include traffic on Highway 92 and operational noise originating at the landfill. The San Mateo County Code, Section 4.88.360 (Noise Ordinance), provides the following exemption for construction related noise: "noise sources associated with demolition, construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 6:00 p.m. and 7:00 a.m. weekdays, 5:00 p.m. and 9:00 a.m. on Saturdays or at any time on Sundays, Thanksgiving and Christmas (are exempt from the restrictions of the Noise Ordinance)". None of the proposed project activities would occur during the above periods. As a result, the project would have a less-than-significant impact with respect to County noise standards. **Source:** Project Plans; County GIS database; County Noise Ordinance.					
12.b.	Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?				X
Discussion: It is not anticipated that this project will utilize heavy equipment that creates large amounts of vibration, such as vibratory rollers which are typically used in road construction.					

Source: Project Plans.				
12.c. A significant permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X
Discussion: The project is a stream restoration. No habitable structures are proposed, nor permanent mechanical equipment placed on site which could generate noise, post construction. **Source:** Project Plans.				
12.d. A significant temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
Discussion: See response to Question 12(a) above. **Source:**				
12.e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposure to people residing or working in the project area to excessive noise levels?				X
Discussion: The project site is not within an airport land use plan or within 2 miles of a public or private airport/airstrip. **Source:** County GIS database.				
12.f. For a project within the vicinity of a private airstrip, exposure to people residing or working in the project area to excessive noise levels?				X
Discussion: See response to Question 12(e) above. **Source:**				

13. POPULATION AND HOUSING. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
13.a. Induce significant 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)?				X
Discussion: The project involves the restoration of a degraded stream. No infrastructure will be improved or extended to accommodate this project. No commercial, industrial or residential uses are proposed. **Source:** Project Plans.				
13.b. Displace existing housing **(including low- or moderate-income housing)**, in an area that is substantially deficient in housing, necessitating the construction of replacement housing elsewhere?				X
Discussion: There is no housing within or adjacent to the project site. **Source:** Project Plans; County GIS database; Site Visit.				

14. PUBLIC SERVICES. Would the project result in significant adverse physical impacts associated with the provision of new or physically altered government facilities, the 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:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
14.a. Fire protection?			X	
14.b. Police protection?			X	
14.c. Schools?				X
14.d. Parks?				X
14.e. Other public facilities or utilities (e.g., hospitals, or electrical/natural gas supply systems)?				X
Discussion: Because construction activities will be short-term and will involve a workforce of 4 to				

16 construction workers on any given day, project construction will not significantly increase demand for fire and police protection services throughout the project vicinity, and will not change any uses on the site. The project is not expected to significantly affect the Coastside Fire Protection District's or San Mateo County Sheriff's Office's ability to maintain service ratios, response times, and other performance objectives. No new or physically altered facilities will be required. For these reasons, the project's impact with respect to the provision of fire and police protection facilities will be less than significant. There is no aspect of the project that will result in an increase in demand on local school services. The proposed project will not result in an increase of permanent employees; therefore it will not result in a permanent increase in the use of existing park and recreation facilities and new or physically altered facilities will not be required. The proposed project will not involve new permanent employees and, therefore, it is not expected to increase the use of other public facilities such as libraries or hospitals.

Source: Project Plans.

15. RECREATION. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
15.a. Increase the use of existing neighborhood or regional parks or other recreational facilities such that significant physical deterioration of the facility would occur or be accelerated?				X
Discussion: There will be no impact as the project does not include any recreational facilities, is not in the vicinity of existing recreational facilities, and will not cause an increase in population or population densities or any other change that will result in an increase in the use of nearby parks. **Source:** Project Plans.				
15.b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X
Discussion: See response to Question 15(a) above. **Source:**				

16. TRANSPORTATION/TRAFFIC. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
16.a. Conflict with an applicable plan, ordi-			X	

	nance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				
Discussion: Project construction would incrementally increase traffic volumes on Highway 92 for a short period of time during project construction. The additional traffic would be due to construction worker trips and the delivery of construction equipment and materials to and from the project site. The expected increase in traffic would take place between the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, and 9:00 a.m. to 5:00 p.m. on Saturdays, for approximately 45 days. The estimated increase in trips along Highway 92 would be fewer than twelve round trips per day, based upon seven construction workers and four material delivery trips. Based on this estimate, the project would not result in a substantial increase in traffic during construction and would not cause an exceedance of any level of service standard or cause inadequate emergency access. As such, the project would be consistent with the C/CAG's Congestion Management Program (2011). For these reasons, the proposed project would have a less than-significant impact with respect to conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, or congestion management program. **Source:** City/County Association of Governments (C/CAG) of San Mateo County; 2011 Congestion Management Program; Project Plans.					
16.b.	Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways?			X	
Discussion: See response to Question 16(a) above. **Source:**					
16.c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in significant safety risks?				X
Discussion: The project site is not located close to any airport, and the project would not intrude into an airport's air space, nor would construction or operational activities affect air traffic patterns; therefore, no impact would occur. **Source:** County GIS database.					
16.d.	Significantly increase hazards to a design feature (e.g., sharp curves or		X		

dangerous intersections) or incompatible uses (e.g., farm equipment)?				

Discussion: The project will not alter any existing roadways or permanently utilize equipment that would be incompatible with existing vehicular traffic. The project could however, temporarily constrict the access road into the Ox Mountain landfill if vehicles, including construction equipment, need to be parked on the road in order to access work areas within the creek channel. This restricted access could create a temporary safety hazard with the larger semi-trucks delivering trash to the landfill. To mitigate this potential impact, the following measure is proposed:

Mitigation Measure 27: The construction contractor(s) shall develop a construction management plan for review and approval by the County's Planning and Public Works Departments. The plan shall include at least the following items and requirements to reduce, to the maximum extent feasible, any safety hazards and traffic congestion during construction:

a. A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours, signs, and designated construction access routes.

b. Identification of haul routes for movement of construction vehicles that would minimize impacts on motor vehicular traffic, and circulation and safety. Impacts to Highway 92 shall be minimized to the greatest extent possible.

c. Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur.

d. Provisions for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project sponsor.

Source: County GIS; Project Plans.

16.e.	Result in inadequate emergency access?		X		

Discussion: See response to Question 16(d) above.

Source:

16.f.	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				X

Discussion: The project involves the repair of a degraded stream channel. It is not expected to generate, or otherwise affect, existing public transit, bicycle, or pedestrian facilities or users of such facilities. Therefore, the project would have no impact with respect to these issues.

Source: Project Plans.

16.g.	Cause noticeable increase in pedestrian traffic or a change in pedestrian				X

	patterns?				
Discussion: The project involves the repair of a degraded stream channel. As such there is no evidence to suggest that the project will have a permanent impact upon pedestrian traffic or patterns. There will be a minor, temporary increase in pedestrian traffic (5-10 pedestrians where there are currently none) during construction as project workers navigate through the project site performing their duties. **Source:** Project Plans.				
16.h.	Result in inadequate parking capacity?				X
Discussion: There is adequate parking for the construction workers within the Ox Mountain Landfill processing area. The construction management plan required above under Mitigation Measure 27 will address parking of construction equipment. There is no evidence to suggest that the project will result in parking problems on the project site post construction. **Source:** Project Plans.					

17.	**TRIBAL CULTURAL RESOURCES**. Would the project:				
		Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
17.a.	Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				X
	i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)				X
Discussion: The overall project site (Ox Mountain Landfill) has been utilized as the County's landfill for over 30 years. The Environmental Impact Report prepared for the Landfill, including subsequent environmental documents for later phases, have not identified Corinda de Los Trancos Creek as a specific, culturally significant location. There is no evidence that the project site has ever been utilized as a cultural resource. Both the upper watershed for the creek, as well as the creek itself, have been irreparably altered by creation of the landfill. The project site is not listed on the California Register.					

Source: County General Plan; County Cultural Resources database.				
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Subdivision (c) of Public Resources Code Section 5024.1. (In applying the criteria set forth in Subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.)				X
Discussion: See response to Question 17(a). **Source:**				

18. UTILITIES AND SERVICE SYSTEMS. Would the project:				
	Potentially Significant Impacts	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
18.a. Exceed wastewater treatment require-ments of the applicable Regional Water Quality Control Board?				X
Discussion: The proposed project will not produce any wastewater nor will it require the construction of new water or wastewater treatment facilities or expansion of such facilities. Therefore, the project will not conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board and will not affect capacity of the County's wastewater treatment system; no impact will occur. **Source:** Project Plans.				
18.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?				X
Discussion: See response to Question 18(a). **Source:**				
18.c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause				X

	significant environmental effects?				
Discussion: The project involves the repair of a degraded stream channel. The project does not propose to construct new storm drainage facilities or expand existing facilities. Therefore, no impact would occur from project implementation. **Source:** Project Plans.					
18.d.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
Discussion: The project will not result in habitable structures which require water for either consumption or fire suppression. There is no evidence to suggest that the project will require water beyond that necessary for dust control and initial irrigation of the re-vegetated slopes. This demand can be met by the landfill's existing supply. **Source:** Project Plans.					
18.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?				X
Discussion: The project will not result in habitable structures which require wastewater treatment. There is no evidence to suggest that the project will produce wastewater. **Source:** Project Plans.					
18.f.	Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?				X
Discussion: The project will not generate significant solid waste. There will be some solid waste generated during the re-vegetation phase as packaging from plant material is disposed. It is not anticipated that this will be a significant amount. **Source:** Project Plans.					
18.g.	Comply with Federal, State, and local statutes and regulations related to solid waste?				X
Discussion: See response to Question 18(f). **Source:**					

18.h.	Be sited, oriented, and/or designed to minimize energy consumption, including transportation energy; incorporate water conservation and solid waste reduction measures; and incorporate solar or other alternative energy sources?				X
Discussion: The above cited measures are applicable to built structures such as homes or industrial buildings. Such measures are not applicable to this project, which is a stream restoration project. **Source:** Project Plans.					
18.i.	Generate any demands that will cause a public facility or utility to reach or exceed its capacity?				X
Discussion: There is no evidence to suggest that this project will cause a public facility or utility to reach or exceed its capacity. **Source:** Project Plans.					

19.	**MANDATORY FINDINGS OF SIGNIFICANCE**.	***Potentially Significant Impacts***	***Significant Unless Mitigated***	***Less Than Significant Impact***	***No Impact***
19.a.	Does the project have the potential to degrade the quality of the environment, significantly 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?		X		
Discussion: Potentially significant impacts were identified for biological resources and mitigation measures were proposed which will reduce these impacts to a less than significant level and are not expected to degrade environmental quality, or substantially reduce the habitat or affect populations of any wildlife, fish, or plant species. It has been determined that construction of the proposed project would not have any impact on any examples of the major periods of California history or prehistory. **Source:**					
19.b.	Does the project have impacts that are individually limited, but cumulatively			X	

	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.)				
Discussion: The project will not have impacts to agriculture or forestry resources, mineral resources, or population and housing that would combine with other projects. The proposed activities could have potential impacts with respect to aesthetics, biological resources, hydrology and water quality, and transportation and traffic. However, such impacts would be limited to the project site and, where necessary, mitigated such that they would not substantially combine with other off-site impacts. The project's potential impacts with respect to air quality and greenhouse gas emissions, however, could extend beyond the site to combine with impacts from other projects. As described in Sections 3 and 7, Air Quality and Climate Change, respectively, the BAAQMD considered the emission levels at which a project's individual emissions would be cumulatively considerable in developing its CEQA significance thresholds. The BAAQMD considers projects that result in emissions that exceed its CEQA significance thresholds to result in individual impacts that are cumulatively considerable and significant. As discussed in the above sections, the proposed project's emissions would be limited to the construction period and would be below the BAAQMD cumulatively considerable threshold. For the reasons presented above, the proposed project is not expected to result in adverse impacts to human beings, either directly or indirectly. All impacts identified in this document are less than significant, or reduced to less than significant levels with implementation of mitigation measures, and the project's incremental contribution to potential cumulative impacts will not be cumulatively considerable. Therefore, the project's impact is considered less than significant. **Source:**				
19.c.	Does the project have environmental effects which will cause significant adverse effects on human beings, either directly or indirectly?			X	
Discussion: See Question 19(b) above. **Source:**					

RESPONSIBLE AGENCIES. Check what agency has permit authority or other approval for the project.

AGENCY	YES	NO	TYPE OF APPROVAL
U.S. Army Corps of Engineers (CE)	X		Section 404 permit
State Water Resources Control Board	X		Construction General Permit
Regional Water Quality Control Board	X		Section 401 Water Quality Certification and/or Waste Discharge Requirements
State Department of Public Health			
San Francisco Bay Conservation and Development Commission (BCDC)			
U.S. Environmental Protection Agency (EPA)			
County Airport Land Use Commission (ALUC)			
Caltrans			
Bay Area Air Quality Management District			
U.S. Fish and Wildlife Service	X		Biological Opinion
CA Dept. of Fish and Wildlife	X		Streambed Alteration Agreement
Coastal Commission			
City			
Sewer/Water District:			
Other:			

MITIGATION MEASURES		
	Yes	No
Mitigation measures have been proposed in project application.		X
Other mitigation measures are needed.	X	

The following measures are included in the project plans or proposals pursuant to Section 15070(b)(1) of the State CEQA Guidelines:

Mitigation Measure 1: The applicant shall implement the proposed re-vegetation plan as depicted in the project plans immediately upon completion of grading activities.

Mitigation Measure 2: To ensure that re-vegetation efforts are successful, the applicant shall implement a five year monitoring program for those areas affected by the project. Woody plant

survivorship and canopy cover progress will be measured using either the line-intercept methodology or direct counting of healthy, live plantings in a representative segment of the restoration area. Natural recruitment of native woody trees and shrubs will be recorded and included in the estimates. Tree and shrub density will be calculated using the as-built acreage of planting areas. A comprehensive species list will be recorded for the monitoring area to document species richness and relative cover by native and non-native plant species. Photographs representative of the overall progress of riparian establishment will be taken in each year to provide visual documentation of vegetation establishment. By the fifth growing season following planting, the total number of planted and naturally recruited native trees and shrubs in the re-vegetation areas shall be equal to at least 60 percent of the number of trees and shrubs originally planted. All planted and recruited trees and shrubs counted must be alive and in good health. If by the fifth year the 60 percent target has not been met, then the applicant shall replant as necessary and monitor for an additional five years. The applicant shall submit annual monitoring reports to the County Planning Department outlining the progress of re-vegetation efforts.

Mitigation Measure 3: The County shall require construction contractors to implement the following BAAQMD's Basic Construction Mitigation Measures, listed below:

a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

b. All haul trucks transporting soil, sand, or other loose material into or off-site shall be covered.

c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

d. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.

e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.

f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

h. Post a publicly visible sign with the telephone number and person to contact at the County regarding the project. The County shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure 4: The applicant/project sponsor shall submit the names and credentials of biologists proposed to perform preconstruction surveys and monitoring to the USFWS for written approval at least 30 days prior to commencement of any activities.

Mitigation Measure 5: Each construction area will be surrounded by snake exclusionary fencing one week prior to the start of construction.

Mitigation Measure 6: A USFWS-approved biologist will survey the work areas no more than 24 hours prior to the onset of activities and after the snake exclusion fencing has been installed.

Mitigation Measure 7: If California red-legged frogs, tadpoles, or eggs are found, the approved biologist will contact the USFWS to determine if moving any of these life-stages is appropriate. In making this determination the USFWS shall consider if an appropriate relocation site exists. If the Service approves moving animals, the approved biologist shall be allowed sufficient time to move CRLF from the work areas before work activities begin. Only USFWS-approved biologists will participate in activities associated with the capture, handling, and monitoring of CRLF. If a CRLF is found nearby, but outside a proposed work area, it will not be disturbed and USFWS will be notified. The biologist will also report any observations of other listed species addressed in this biological assessment.

Mitigation Measure 8: Before any construction activities begin on the project, a USFWS-approved biologist will conduct a training session for all construction personnel. The training will include a description of the listed species with potential to occur, their habitat, and the general measures that are being implemented to conserve the species as they relate to the project and the boundaries within which the project may accomplished (i.e. work areas).

Mitigation Measure 9: A qualified construction monitor shall be present on-site, as required by regulatory permit conditions, during the initial clearing and grubbing of each work area. All vegetation clearing shall be done by hand and supervised by a qualified biological monitor.

Mitigation Measure 10: During project activities, all trash will be properly contained, removed from the work area and disposed of regularly. Following construction, all trash and construction debris from work areas will be removed.

Mitigation Measure 11: All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 15 meters (50 feet) from any riparian habitat or water body. The applicant/project sponsor will ensure contamination of habitat does not occur during such operations. Prior to the start of construction, the applicant/project sponsor will prepare a plan to ensure a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

Mitigation Measure 12: A USFWS-approved biologist will ensure that the spread or introduction of invasive plant species will be avoided to the maximum extent possible. When practical, invasive exotic plants in the project area will be removed. The biologist will permanently remove, from within the project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes to the maximum extent possible.

Mitigation Measure 13: Project areas that are disturbed will be revegetated with an appropriate assemblage of native riparian, wetland and upland vegetation.

Mitigation Measure 14: Stream contours will be returned to their original condition at the end of project activities, unless consultation with USFWS has determined that it is not beneficial to the species or feasible.

Mitigation Measure 15: The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and these areas will be outside of riparian and wetland areas where feasible. Where impacts occur in staging areas and access routes, restoration will be performed.

Mitigation Measure 16: If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than five millimeters to prevent California red-legged frogs from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of

construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

Mitigation Measure 17: Ground-disturbing activities will be completed between April 1 and October 31. Should activities be necessary to conduct outside this period, the U.S. Army Corp of Engineers may authorize such activities after obtaining the Service's approval.

Mitigation Measure 18: To control erosion during and after project implementation, best management practices will be utilized.

Mitigation Measure 19: A qualified biologist will monitor the removal and relocation of woodrat houses and placement of refuge structures (e.g. half wine barrels and slash piles) for any woodrat nests located within the access road footprint. If young woodrats are found in any house, all removed material will be replaced and removal of that house will not continue until the young have left the house. Prior to dismantling houses, data will be collected to document the following characteristics of the house: house-building materials, contents of house cavities (particularly stored food and plants), percent and type of ground cover immediately around each house, tree and shrub species surrounding the house, and the house substrate (e.g., ground, tree, etc.). New houses will be established on site for each house removed. New house designs will be constructed of a half wine barrel placed upside down in appropriate microhabitat with materials from the nest chamber of the dismantled house placed inside, and other house materials placed over and around the barrel, including a long tunnel-shaped entrance that leads only into the receptacle.

Mitigation Measure 20: Vegetation clearing and other construction work will occur outside the nesting birds season (February 1 to August 15). If work is initiated during the nesting season, a preconstruction survey for nesting birds will be performed by a qualified biologist. Any active nests will be avoided until all the young have fledged and are independent.

Mitigation Measure 21: Unexpected Discovery of Cultural Resources: Not all cultural resources are visible on the ground surface. Prior to the start of construction or ground-disturbing activities, the applicant shall ensure all field personnel are educated of the possibility of encountering buried prehistoric or historic cultural resources. Personnel will be trained that upon discovery of buried cultural resources, work within 50 feet of the find must cease and the applicant shall contact a qualified archaeologist immediately to evaluate the find. Once the find has been identified and found eligible for listing on the National Register of Historic Places or the California Register of Historical Resources, plans for treatment, evaluation, and mitigation of impacts to the find shall be developed and implemented according to the qualified archaeologist's recommendations. This measure will ensure that prehistoric and historic cultural resources are appropriately protected.

Mitigation Measure 22: Unanticipated Discovery of Human Remains: The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the 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 PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the County coroner shall be notified immediately. If the human remains are determined to be prehistoric, the coroner shall notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

Mitigation Measure 23: If surface water is present during construction, the applicant shall implement the following:

a. Cofferdams, flow bypass pipes, or diversion dams shall be used to ensure continued flow

around the work area.

b. Adequate sediment and turbidity control measures shall be implemented. One or more fences of filter fabric shall be constructed across stream channels downstream of the lowermost cofferdams to reduce turbidity and sedimentation downstream of the stream construction sites during removal of cofferdams and until water clarity is re-established once stream flow is re-introduced to the stream channel in the work area.

c. The presence of surface water, such as in-stream flow or pool habitat, could mean the potential for salmonids to occur in the work area. To relocate salmonids from the work area following installation of a cofferdam or diversion dam/bypass pipes, a fish rescue and relocation effort shall be conducted by qualified biologists utilizing NMFS prescribed methods for the safe handling of salmonids.

d. The applicant shall have a biologist monitor the construction site during placement and removal of cofferdams, channel diversions, and access ramps to ensure that any adverse effects to salmonids are minimized. The biologist shall be on site during all dewatering events to capture, handle, and safely relocate steelhead, if present.

e. Consistent with **Mitigation Measures 24** and **25**, contractors shall have a supply of erosion control materials, and fuel and hydraulic fluid spill containment supplies onsite to facilitate a quick response to unanticipated storm events, or fuel or hydraulic fluid spill emergencies.

f. Consistent with **Mitigation Measure 26**, construction equipment used within the creek channel shall be checked each day prior to work within the creek.

Mitigation Measure 24: Project materials shall be placed in locations and manners that will not impair surface water flow into or out of any water of the United States. If surface flow is present during construction, dewatering activities shall ensure that near-normal downstream flows are maintained. Fill shall consist of suitable material and placement such that it will not be eroded by future high flows. Following completion of construction, temporary fill shall be removed to upland areas, dredged material shall be returned to its original location, and the affected areas shall be restored to preconstruction elevations. The area upstream and downstream of the project reach shall be monitored annually for a two year period post construction to qualitatively assess channel conditions.

Mitigation Measure 25: The applicant shall prepare a comprehensive stormwater pollution and erosion control plan for the project. Erosion control measures shall be in place prior to the start of construction activities and remain in place throughout all phases of project construction. The plan must provide a BMP monitoring and maintenance schedule and identify parties responsible for monitoring and maintenance of construction-phase BMPs. Erosion and water quality control measures identified in the plan must comply with the County of San Mateo Department of Public Work's Contract Requirements for Erosion and Sediment Control and Contract Requirements for Water Pollution Control for Construction in Sensitive Areas, and at a minimum include the following measures (County of San Mateo 2013a; County of San Mateo, 2013b):

a. Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place.

b. Sediment shall be retained on-site by a system of sediment basins, traps, or other appropriate

measures.

c. A spill prevention and countermeasure plan shall be developed that will identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used on-site. The plan will also require the proper storage, handling, use, and disposal of petroleum products.

d. Construction activities shall be scheduled to minimize land disturbance during peak runoff periods and to the immediate area required for construction. Existing vegetation shall be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.

e. Surface waters, including ponded waters, must be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity which may result in a discharge to the receiving water. Diversion activities must not result in the degradation of beneficial uses or exceedance of water quality objectives of the receiving waters. Any temporary dam or other artificial obstruction constructed must only be built from materials such as clean gravel which will cause little or no siltation. Normal flows must be restored to the affected stream immediately upon completion of work at that location.

f. Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff losses and contamination of groundwater.

g. Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events. All removed topsoil shall be reused during construction to the extent feasible. Unused topsoil, if any, shall be broadly redistributed to the surrounding areas in such a manner that topography and vegetation cover would not be adversely impacted.

h. Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff.

i. Disturbed areas will be re-vegetated after completion of construction activities.

j. Provide sanitary facilities for construction workers.

Mitigation Measure 26: The applicant shall use the following best management practices (BMPs) to minimize potential adverse effects of the project to groundwater and soils from chemicals used during construction activities:

a. Follow manufacturer's recommendations on use, storage and disposal of chemical products used in construction;

b. Avoid overtopping construction equipment fuel gas tanks;

c. Provide secondary containment for any hazardous materials temporarily stored onsite;

d. During routine maintenance of construction equipment, properly contain and remove grease and oils;

e. Perform regular inspections of construction equipment and materials storage areas for leaks and maintain records documenting compliance with the storage, handling and disposal of hazardous materials; and

f. Properly dispose of discarded containers of fuels and other chemicals.

Mitigation Measure 27: The construction contractor(s) shall develop a construction management plan for review and approval by the County's Planning and Public Works Departments. The plan shall include at least the following items and requirements to reduce, to the maximum extent feasible, any safety hazards and traffic congestion during construction:

a. A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours, signs, and designated construction access routes.

b. Identification of haul routes for movement of construction vehicles that would minimize impacts on motor vehicular traffic, and circulation and safety. Impacts to Highway 92 shall be minimized to the greatest extent possible.

c. Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur.

d. Provisions for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project sponsor.

DETERMINATION (to be completed by the Lead Agency).

On the basis of this initial evaluation:

_____ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Planning Department.

__X__ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because of the mitigation measures in the discussion have been included as part of the proposed project. A MITIGATED NEGATIVE DECLARATION will be prepared.

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

M. Schaller

(Signature)

11/13/18

Date

SENIOR PLANNER

(Title)

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BIOLOGICAL ASSESSMENT
FOR CORINDA LOS TRANCOS CHANNEL STABILIZATION PROJECT, SAN MATEO COUNTY, CALIFORNIA

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Executive Summary

The Ox Mountain Landfill is proposing treatments to stabilize channel segments along Corinda Los Trancos Creek. This Biological Assessment provides essential information about the project's potential impacts to federally-listed species for the purpose of Section 7 consultation between the U.S. Fish and Wildlife Service (USFWS) and the U.S. Army Corps of Engineers and for project review under the California Environmental Quality Act.

A total of 25 listed species were assessed for potential to occur within the project area from the USFWS species list and the California Natural Diversity Database (CNDDB). The project will have no effect on 19 of these species due to lack of suitable habitat or because the project area is outside of their known range. A total of six species have potential to occur within the project area.

California red-legged frogs (CRLF) are present within the project area which lies within designated critical habitat Unit SNM-1 (USFWS 2010). San Francisco dusky-footed woodrat is present in the project work area. There is also potential for San Francisco garter snake to occur within the project area or immediate vicinity. Central California Coastal Steelhead, Kellogg's Horkelia, and monarch butterflies have potential to occur within the general project vicinity but would not likely be affected by project related activities as long as Best Practices are followed.

The project will temporarily affect a total of 0.92 acres (ac) of CRLF habitat (0.62 acres upland habitat, 0.3 acres aquatic non-breeding habitat) by construction of temporary access roads through riparian willow forest and installing channel stabilization features. Potential impacts to CRLF individuals and their habitat will be minimized by conducting the project in accordance with provisions provided in the Programmatic Biological Opinion under the Clean Water Act for projects that may affect California red-legged frogs (USFWS 2014a). This approach will also reduce the potential for impacts to other listed species with potential to occur in the project area.

Introduction

This Biological Assessment was prepared for the Corinda Los Trancos Channel Stabilization Project. The intent of this assessment is to provide essential information about the project's potential impacts to listed species for the purpose of Section 7 consultation between the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers (USACE). The project has potential to impact or take California red-legged frog, San Francisco garter snake, and San Francisco dusky-footed woodrat. Other species including monarch butterfly and Central California Coastal Steelhead may occur in the broader project vicinity but are not expected to be impacted by project activities.

Corinda Los Trancos Creek is not used by rainbow trout, Central California Coastal steelhead, or Coho salmon. The Highway 92 culvert prevents access to the creek and the sandy substrate is unsuitable for successful steelhead/coho spawning. The project area is located within designated critical habitat SNM-1 for California red-legged frog (USFWS 2010). Republic Services proposes to minimize the potential for any negative effects to these species by incorporating the measures described in the Programmatic Biological Opinion for California red-legged frog (USFWS 2014a; Appendix A).

Project Location

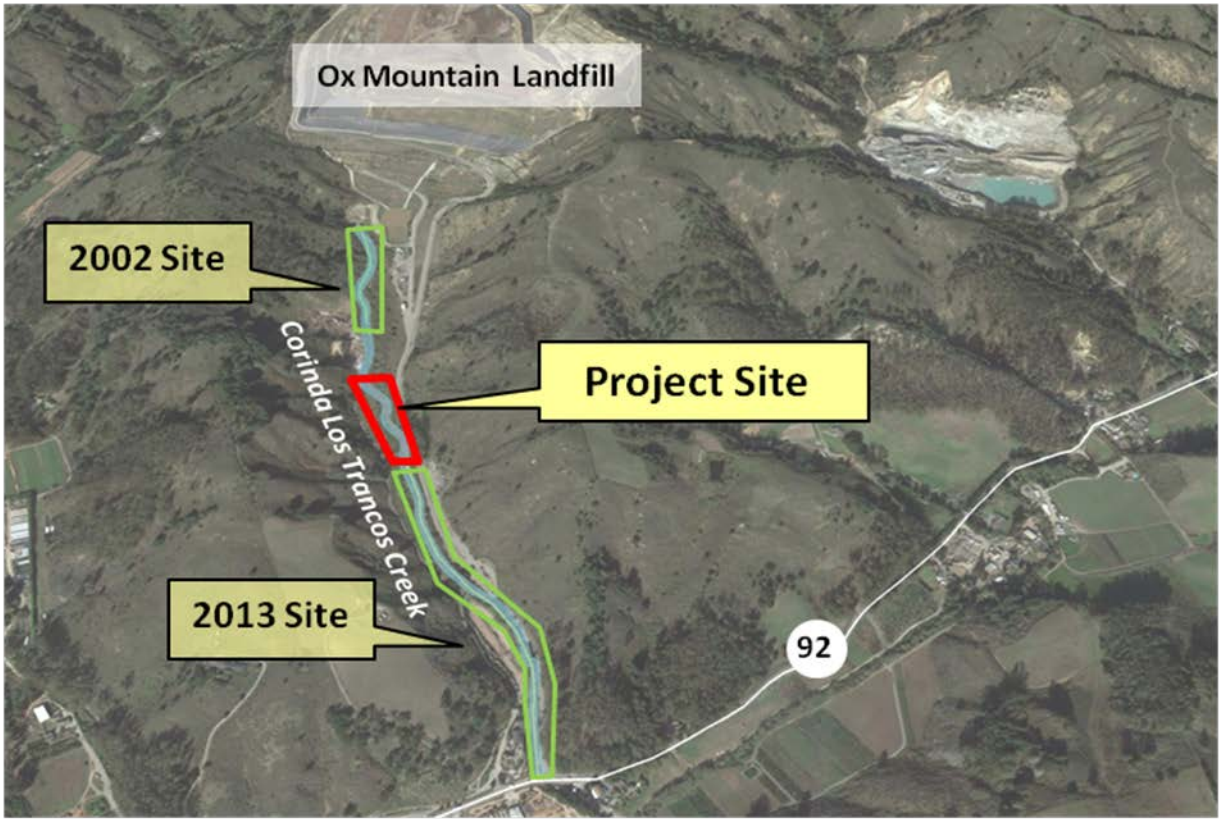
Corinda Los Trancos Creek is located in the western portion of San Mateo County, east of Half Moon Bay (Figure 1). The creek runs north and south draining the Ox Mountain Landfill before flowing under Highway 92 and draining into Pilarcitos Creek approximately 0.5 miles (mi) downstream from project area. The proposed channel stabilization reach is approximately 800 feet in length and is bordered to the west by the Lemos Farm and to the east by the Ox Mountain Landfill access road.

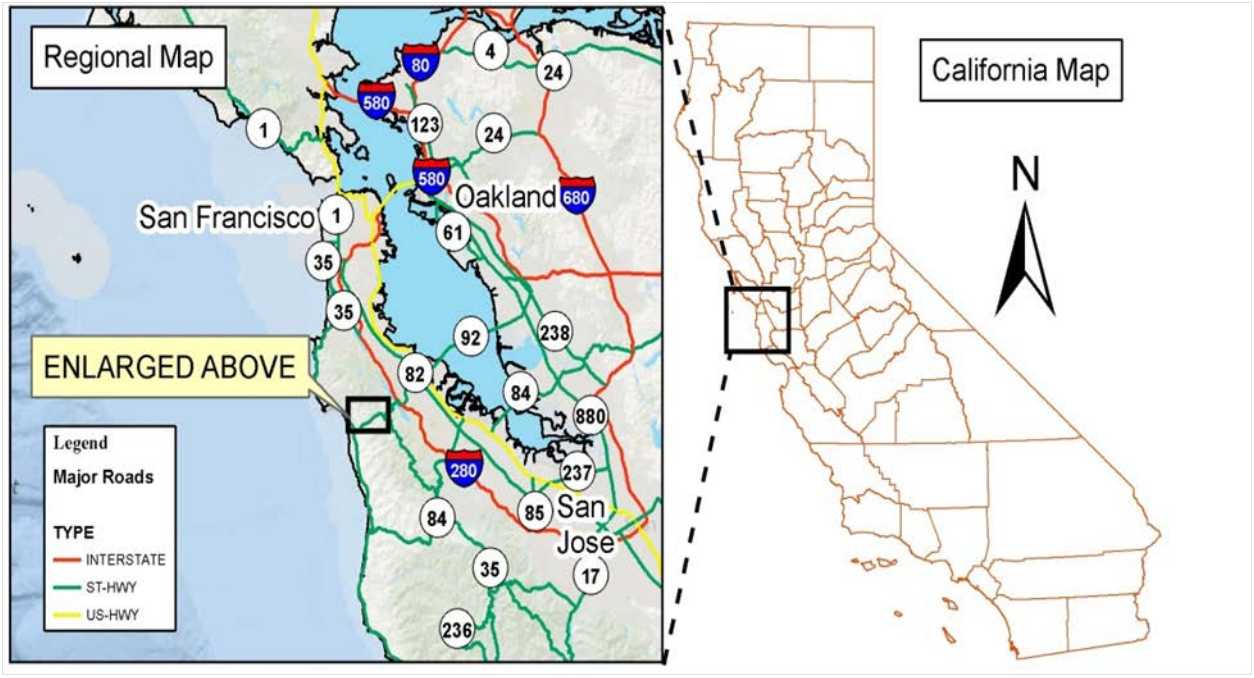
Project Description and Purpose

Segments of Corinda Los Trancos Creek have experienced significant bank erosion and channel downcutting in recent years. The upstream landfill has changed the hydrologic and geomorphic drivers of channel stability. Landfill activities have reduced infiltration rates and thereby increased peak discharges in Corinda Los Trancos Creek while also reducing bedload inputs due to the construction of a large sediment control pond. The combination of these effects has lead to channel degradation and failure of numerous creek banks throughout the project reach. Mature riparian vegetation is toppling and sliding into the creek, causing debris dams and further exacerbating the channel and bank erosion. Past bank stabilization work has been conducted in Corinda Los Trancos Creek in 2002 and 2013 (Figure 1).

To treat the extensive erosion, willow planted rock armoring, riparian revegetation, and erosion control best management practices will be employed to stabilize the channel and banks. Primary project components will include: (1) environmental protection and dewatering activities; (2) installation of ten willow planted riprap grade control structures; (3) construction of 800 linear feet of willow planted rock slope protection;

Figure 1. Corinda Los Trancos Channel Stabilization Project Location.





(4) Riparian revegetation of willow, alder, and other native species; and (5) installation of erosion fabric and mulch.

Affected Environment

The project area is located along Corinda Los Trancos Creek in coastal San Mateo County, approximately one mile east of Half Moon Bay, California, along Highway 92 (Figure 1). The project area is bordered to the east by the Ox Mountain Landfill Access Road, to the south by Highway 92, to the west by the Lemos Farm, and to the north by the landfill. The project is located within the Pilarcitos Creek watershed, a basin which hosts a variety of plant communities. Representative plant communities within the watershed include coastal scrub/chaparral, non-native grassland, riparian woodlands, and mixed evergreen woodland.

Vegetation and Wildlife

The Pilarcitos Creek watershed supports aquatic faunal species typical of the coastal drainages of the Santa Cruz Mountains, including Pacific chorus frog (*Pseudacris regilla*), California red-legged frog (*Rana draytonii*), sculpin, three-spine stickleback (*Gasterosteus aculeatus*), and various aquatic insects (San Mateo County 1991). Corinda Los Trancos Creek supports fragmented mature riparian woodland consisting of alders and willows. The upper slopes of the canyon are dominated by coastal scrub/chaparral and grassland. The chaparral plant community is dominated by coyote brush (*Baccharis pilularis*), California sage (*Artemisia californica*), and sticky monkey flower (*Mimulus aurantiacus*). Portions of the western slope of the canyon consist of Douglas fir (*Pseudotsuga menziesii*) woodland. The agricultural fields operated by Mr. Lemos are currently used to grow pumpkins, cut flowers, and Christmas trees. The chaparral vegetation provides a food source for seed-eating species such as California quail (*Callipepla californica*), dark-eyed junco (*Junco hyemalis*), western harvest mouse (*Reithrodontomys megalotis*), and browse for black-tailed deer (*Odocoileus hemionus*). In addition, these woodlands provide nesting habitat for a variety of birds including Swainson's thrush (*Catharus ustulatus*), brown creeper (*Certhia americana*) and raptors such as red-tailed hawk (*Buteo jamaicensis*) and great horned owl (*Bubo virginianus*).

Riparian Woodland

Riparian woodland vegetation lines the deeply incised Corinda Los Trancos Creek channel. Dominant plant species within the riparian zone include willow (*Salix sp.*) and red alder (*Alnus rubra*) which form a dense canopy along the majority of the channel. Understory vegetation consists of Californian blackberry (*Rubus ursinus*), California black current (*Ribes malvaceum*), thimbleberry (*Rubus parviflorus*), bracken fern (*Pteridium aquilinum*), western sword fern (*Polystichum munitum*), and stinging nettle (*Urtica dioica*).

The Corinda Los Trancos Creek corridor provides habitat for a variety of wildlife including Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*),

California meadow vole (*Microtus californicus*), black tailed deer (*Odocoileus hemionus*), raccoon (*Procyon lotor*), and brush rabbit (*Sylvilagus bachmani*).

Listed Species

The USFWS endangered and threatened species list for the Project Area includes 18 federally listed animals (Table 1; Appendix B). The California Natural Diversity Database (CNDDB) for the Half Moon Bay quadrangle includes records for five additional California Species of Special Concern or California Native Plant Society (CNPS) listed species including three animals and two plants. Two additional fish species (Coho salmon and Central Coast steelhead) not present in the USFWS species list were included in this assessment. Table 1 summarizes the status, habitat, and potential occurrence of these 25 species.

Nineteen species (Mission Blue butterfly, Myrtle's Silverspot butterfly, San Bruno Elfin butterfly, tidewater goby, delta smelt, coho salmon, green turtle, marbled murrelet, western snowy plover, Ridgeway's rail, short-tailed albatross, California least tern, southern sea otter, saltmarsh harvest mouse, saltmarsh common yellowthroat, Hickman's Potentilla, San Mateo Woolly Sunflower, White-rayed Pentachaeta, and Choris' popcorn flower) have no potential to occur within the project area due to lack of suitable habitat. These 19 species will not be affected by the proposed project.

The six species that occur or may be affected by the proposed project include:

- Present: California red-legged frog, San Francisco dusky footed woodrat
- Moderate Potential: San Francisco garter snake,
- Low Potential: Monarch butterfly, Central California Coastal Steelhead, Kellogg's Horkelia

The primary species of concern for this project is the California red-legged frog which is present in Corinda Los Trancos Creek (CNDDB 2017).

Table 1. Listed species with potential to occur in the Corinda Los Trancos Channel Stabilization Project Area.

Species	Federal/State/CNPS Status[1]	Habitat	Potential to Occur
Invertebrates			
Mission Blue Butterfly *Icaricia icarioides missionensis*	FE/-/-	Grassland and coastal scrub containing host lupine species	**No potential.** Lack of suitable host plants within project area.
Myrtle's Silverspot Butterfly *Speyeria zerene myrtleae*	FE/-/-	Coastal dune or prairie habitat with violet host plants	**No potential.** Believed to be extirpated south of the Golden Gate.
San Bruno Elfin Butterfly *Callophrys mossii bayensis*	FE/-/-	Rocky outcrops and cliffs in coastal scrub in San Mateo	**No potential.** Lack of suitable habitat in project area.

Species	Federal/State/CNPS Status[1]	Habitat	Potential to Occur
		County with stonecrop host plants	
Monarch Butterfly *Danaus plexippus*	-/CSC/-	Groves of Eucalyptus, Cyprus and willow trees	**Low potential.** Suitable habitat exists within the project area although they have typically been found in forest groves more near to the coast.
Fish			
Tidewater goby *Eucyclogobius newberryi*	FE/CSC/-	Shallow coastal lagoons, brackish marshes and lower stream reaches with still water; ranges from San Diego to Humboldt County	**No Potential.** There is some potential for this species to occur in the lower reaches of Pilarcitos Creek, but no possibility that they could enter CLT and pass under Highway 92.
Delta smelt *Hypomesus transpacificus*	FT/-/-	Shallow coastal lagoons, brackish marshes and lower stream reaches with still water.	**No Potential.** There is some potential for this species to occur in the lower reaches of Pilarcitos Creek, but no possibility that they could enter CLT and pass under Highway 92
Central Valley Steelhead and Central California Coastal Steelhead *Oncorhynchus mykiss*	FT/-/-	Clear, cold, freshwater streams with suitable spawning gravel	**Low Potential.** Known to occur within Pilarcitos Creek. No known sightings in CLT. Lack of spawning gravels and passage under Highway 92.
Central California coast coho salmon *Oncorhynchus kisutch*	FE/-/-	Anadromous; migrates through and spawns in coastal rivers and streams from Santa Cruz to Mendocino County	**No Potential.** Not known to currently inhabit Pilarcitos Creek. No possibility that they could enter CLT and pass under Highway 92.
Amphibians			
California red-legged frog *Rana draytonii*	FT/CSC/-	Ponds, pools, and slow-moving streams	**Present.** Species is present within Corinda Los Trancos Creek, project area within Critical Habitat Unit SNM-1.
Reptiles			

Species	Federal/State/CNPS Status[1]	Habitat	Potential to Occur
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	FE/CE/-	Permanent or seasonal freshwater ponds, wetlands, or marshes with dense riparian vegetation containing amphibian prey.	**Moderate potential.** Project area contains suitable habitat.
Green Sea turtle *Chelonia mydas*	FT/-/-	Oceanic.	**No potential.** Project area does not contain suitable habitat.
Birds			
Ridgeway's rail *Rallus longirostris obsoletus*	FE/-/-	Tidal marshes	**No potential.** Lack of suitable habitat within project area.
California least tern *Sterna antillarum browni*	FE/CE/-	Nests on barren to sparsely vegetated areas near water	**No potential.** Project area is outside of the known species breeding area. Nearest nesting area is located in San Francisco Bay.
Western Snowy Plover *Charadrius alexandrinus*	FT/CSC/-	Nests on beaches, gravel bars and barren ground	**No Potential.** Project area is outside of the known species breeding and area. Nesting activity in 2016 observed at mouth of Pilarcitos Creek.
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	-/CSC/-	Coastal Alluvial Fan/Terrace Deposits	**No potential.** Lack of suitable habitat within project area. Nearest CNDDB record is located 2 mi to west.
Short-tailed albatross *Diomedea albatrus*	FE/-/-	Nests on large open coastal areas near to grass.	**No potential.** Lack of suitable habitat within project area.
Marbled Murrelet *Brachyramphus marmoratus marmoratus*	FT/CE/-	Nests in coastal redwood and Douglas-fir forests, up to 50 miles inland of Pacific Ocean	**No potential.** Lack of suitable nesting habitat within project area.
Mammals			
Salt marsh harvest mouse *Reithrodontomys raviventris*	FE/-/-	Tidal salt marshes	**No potential.** Lack of suitable habitat within project area.
Southern Sea Otter *Enhydra lutris nereis*	FT/-/-	Coastal waters, particularly dense kelp forests	**No potential.** Lack of suitable habitat within project area.
San Francisco Dusky-footed woodrat *Neotoma fuscipes annectans*	-/CSC/-	Brushy and forested habitats, particularly areas with dense stands	**Present.** Suitable habitat, known occurrence 2 miles to the NE. One house

Species	Federal/State/CNPS Status[1]	Habitat	Potential to Occur
		of poison oak	observed in project work area along proposed access road.
Plants			
Hickman's Potentilla *Potentilla hickmanii*	FE/CE/1B.1	Coastal meadows, freshwater-marsh	**No potential.** Lack of suitable habitat in project area. Nearest CNDDB record occurs three miles north at Scarpet Peak from 2010.
San Mateo Woolly Sunflower *Eriophyllum latilobum*	FE/CE/1B.1	Moist, steep slopes of serpentine-influenced rocky soil	**No potential.** Lack of suitable habitat in project area. Nearest CNDDB record occurs three miles east along Highway 92 near Upper Crystal Springs Reservoir.
White-rayed Pentachaeta *Pentachaeta bellidiflora*	FE/CE/1B.1	Serpentine bunchgrass communities and native prairies in two small areas of San Mateo County	**No potential.** Lack of suitable habitat in project area. Nearest CNDDB record occurs 3.1 miles northeast near Lower Crystal Springs Reservoir.
Kellogg's Horkelia *Horkelia cuneata var. sericea*	-/-/1B.1	Northern Coastal Scrub, Coastal Sage Scrub, Closed-cone Pine Forest	**Low potential.** Marginal suitable habitat in project area known occurrence 1 mile to NW.
Choris' popcornflower *Plagiobothrys chorisianus var. chorisianus*	-/-/1B.2	Coastal ocean bluffs	**No potential.** No suitable habitat, nearest known occurrence 3.2 miles to SW.

[1]Status codes are defined as follows:

Federal status: USFWS Listing

FE = Listed as endangered under Endangered Species Act.
FT = Listed as threatened under Endangered Species Act.

California State Status: CDFW Listing

CE = Listed as endangered under California Endangered Species Act.
CT = Listed as threatened under California Endangered Species Act.\
CSC = California Species of Special Concern
FP= Fully Protected

California Native Plant Society (CNPS) status:

1B.1 = Plant species that are seriously endangered in California.
1B.2 = Plant species fairly endangered in California.

California red-legged frog (*Rana draytonii*)

The federally threatened California red-legged frog occurs primarily in ponds or pools of streams that retain water long enough for breeding and development of young (about 15 weeks). The adults often prefer dense, emergent or shoreline riparian vegetation closely associated with deep, still or slow-moving water (Jennings and Hayes 1994), but may also be found in unvegetated streamside areas that provide shade and shelter. Other key habitat features include good water quality and absence of introduced predators such as bullfrogs and predatory fishes. California red-legged frogs can estivate in small mammal burrows and moist leaf litter within 200 feet of aquatic habitat, and they can disperse through upland habitats for distances up to 1.7 mile or more at any time of year (USFWS 2002). Four main CRLF habitat types are identified using definitions of the primary constituent elements (PCE's): 1) aquatic breeding; 2) aquatic non-breeding; 3) upland; and 4) dispersal (USFWS 2010).

The project area lies within designated California red-legged frog critical habitat unit SNM-1 (USFWS 2010) and contains aquatic non-breeding (0.3 acres) and upland habitat (0.62 acres). Aquatic breeding habitat is not present within the project area due to a lack of slower-moving pool habitat observed during a site visit by herpetologist Kevin Wiseman of Garcia and Associates on December 13, 2017. The nearest breeding habitats, consisting of an instream impoundment and off-channel sediment detention basin are located approximately 0.5 mi upstream, and would not be affected by project-related activities.

Potential project-related impacts to California red-legged frog include direct and indirect impacts. Direct impacts include crushing or injuring frogs present in work areas with equipment or vehicles. Indirect impacts include temporary or permanent alteration of habitats such that they cannot be used by California red-legged frogs, introduction of non-native invasive plants, trash left on site that could attract predators, and sedimentation of aquatic habitats from vehicles crossing aquatic areas. During bank stabilization work conducted within the lower reaches of CLT during 2014-2016, two adult CRLF were observed within the project area and successfully relocated to upstream pond habitat in consultation with USFWS (USFWS 2014b).

San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)

The San Francisco garter snake (SFGS) is listed as a Federal and State endangered species (32 Federal Register 4001). It is currently distributed throughout San Mateo County and northern Santa Cruz County (USFWS 2006). The SFGS is one of twelve subspecies of *Thamnophis sirtalis*, the most widely distributed snake in North America (Behler 1988; Janzen et. al. 2002). Within the range of the SFGS, the California red-sided garter snake (*Thamnophis sirtalis infernalis*) co-occurs and hybridizes with the SFGS at some localities (Barry 1994). The SFGS can generally be distinguished by the presence of a lateral red longitudinal stripe bordered by black on both sides, whereas the California red-sided garter snake has reddish bars which break up the black lateral coloration (Stebbins 2003).

SFGS are typically found near aquatic habitats including ponds, creeks, canals, and freshwater marshes that support breeding populations of their primary prey, California

red-legged frogs and Pacific treefrogs (USFWS 2006). At some localities, SFGS are known to predate bullfrogs (*Lithobates catesbeianus*) which have facilitated the colonization of habitats by SFGS (Barry 2005). SFGS are primarily active above ground from early March to July during mating and feeding activities. During the winter, SFGS are known to retreat to upland hibernacula which include rodent burrows and dense mats of grass, but may be found basking outside these winter hibernacula during warm days (Larsen 1994). These important upland hibernacula are often found on south-facing slopes that support grassland and coastal scrub (USFWS 2006).

Within suitable aquatic habitat, SFGS are capable of conducting movements of 1.33 miles over 111 days and 1.05 miles over 74 days (Wharton 1989). Larsen (1994) documented snakes moving a maximum distance of 0.4 miles (671 m) at the West of Bayshore site near the San Francisco International Airport. SFGS at Año Nuevo State Reserve and Pearson Ranch remained within 100-200 m of pond foraging habitats and upland sites (McGinnis 2002, in USFWS 2006).

There is moderate potential for SFGS to occur within the project area, as there is suitable habitat present which is bolstered by the presence of California red-legged frogs, the primary prey species of SFGS. However, during bank stabilization work conducted within the lower reaches of Corinda Los Trancos Creek during 2014-2016, no SFGS were observed. Avoidance and mitigation measures (USFWS 2014a; Appendix A) employed in order to minimize impacts to CRLF should also minimize potential impacts to SFGS.

Central Valley Steelhead and Central California Coastal Steelhead
(*Oncorhynchus mykiss*)

Steelhead is the anadromous form of rainbow trout, a salmonid native to western North America and the Pacific Coast of Asia. The term anadromous refers to the life history of fish species born in freshwater streams that migrate to the ocean for their adult phase. After birth, steelhead spend their first 1-3 years of life in their natal streams before emigrating to the ocean. Steelhead spend between one to four growing seasons in the ocean before returning to their native freshwater streams to spawn. Unlike Pacific salmon, steelhead do not always die after spawning and are able to spawn more than once. In California, most steelhead spawn from December through April in small streams and tributaries where cool, well-oxygenated water is available year-round.

Central California Coastal Steelhead and Central Valley Steelhead are distinct population segments (DPS) listed as threatened under the Endangered Species Act (ESA) in 1997. The Central California Coastal DPS includes all naturally spawned anadromous *O. mykiss* populations in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers (NOAA 2006). The Central Valley DPS includes all naturally spawned anadromous steelhead populations in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries, as well as two artificial propagation programs.

Steelhead have been documented in several coastal streams in the project vicinity including Pilarcitos Creek (NOAA 2005; CNDDB 2017). Pilarcitos Creek is also located in designated critical habitat for steelhead (Federal Register 2005). However, no steelhead have been documented in Corinda Los Trancos Creek upstream from Highway 92. The Highway 92 culvert prevents access to the creek and the sandy substrate of the creek does not provide suitable spawning and rearing habitat. Indirect impacts to the downstream Steelhead population can be minimized by following Best Management Practices during construction such as dewatering and erosion control. In the long term, the project is intended to benefit steelhead reducing fine sediment input to their downstream habitat.

San Francisco Dusky-footed woodrat (*Neotoma fuscipes annectans*)

San Francisco dusky-footed woodrat is a California Species of Special Concern. They are medium-sized rodent, with a body around seven inches long, nose to rump, and a furred tail. They are herbivores and eat grasses, leaves, fresh fruits, small bulbs, bark, and flowers. They live in a variety of brushy and forested habitats. Woodrats build mounded stick houses that may range in size from 3 to 8 feet across at the base and as much as 6 feet tall, and they tend to live in colonies of 3 to 15 or more houses. Individual houses may persist for 20 to 30 years. In addition to woodrats their houses are often occupied by other animals including reptiles, amphibians, small mammals, and invertebrates. Woodrat houses provide protection from temperature and moisture extremes and allow animals that might not otherwise tolerate local conditions to live there, increasing the biotic diversity.

San Francisco dusky-footed woodrats are present within the project area. One woodrat house was observed within the project area and it is anticipated that several additional houses may be present. Temporary access roads will attempt to avoid woodrat nests where possible. Impacts will be minimized by using a qualified biological monitor to oversee any removal and relocation of the woodrat houses and placement of refugee structures (e.g. half wine barrels and slash piles).

Monarch Butterfly (*Danaus plexippus*)

Monarch butterflies have complex life stages and migrate south and west each autumn to escape the cold weather. The monarch migration usually starts in about October of each year, but can start earlier if the weather turns cold earlier. Migrating butterflies have been identified within the Half Moon Bay quadrangle. By reducing unnecessary damage to the existing vegetation within the vicinity of the project, and following the additional avoidance and mitigation measures, impacts to monarch butterflies will be minimized.

Avoidance and Mitigation

Republic Services will implement measures to minimize and avoid the potential for take of the California red-legged frog, San Francisco garter snake, and other listed species with potential to occur in the project area. These measures include all of the

minimization measures described in the Programmatic Formal Endangered Species Act Consultation on Issuance of Permits under Section 404 of the Clean Water Act or Authorizations under the Nationwide Permit Program for Projects that May Affect the California Red-legged Frog (hereafter referred to as the CRLF PBO (California Red-legged Frog Programmatic Biological Opinion; USFWS 2014a; Appendix A). These measures are listed below and in some cases, modified to be project-specific. These measures will also serve to avoid and/or minimize impacts steelhead. Republic Services will also minimize impacts to San Francisco dusky-footed woodrat and monarch butterfly through a combination of avoidance and mitigation measures detailed below.

Avoidance and Minimization Measures:

1. Republic Services will submit the names and credentials of biologists proposed to perform preconstruction surveys and monitoring to the USFWS for written approval at least 30 days prior to commencement of any activities. (CRLF PBO Measure #5)

2. Each construction area will be surrounded by herpetological exclusionary fencing 1 week prior to the start of construction. (CRLF PBO Measure #9)

3. A USFWS-approved biologist will survey the work areas no more than 24 hours prior to the onset of activities and after the herpetological fence has been installed.

4. If California red-legged frogs are found, the approved biologist will contact the USFWS to determine if moving any of these life-stages is appropriate. In making this determination the USFWS shall consider if an appropriate relocation site exists. If the Service approves moving animals, the approved biologist shall be allowed sufficient time to move California red-legged frogs from the work areas before work activities begin. Only USFWS-approved biologists will participate in activities associated with the capture, handling, and monitoring of California red-legged frogs. If a California red-legged frog is found nearby, but outside a proposed work area, it will not be disturbed and USFWS will be notified. The biologist will also report any observations of other listed species addressed in this biological assessment. (CRLF PBO Measure # 6)

5. Before any construction activities begin on the project, a USFWS-approved biologist will conduct a training session for all construction personnel. The training will include a description of the listed species with potential to occur, their habitat, and the general measures that are being implemented to conserve the species as they relate to the project and the boundaries within which the project may accomplished (i.e. work areas). (CRLF PBO Measure # 8)

6. A qualified construction monitor shall be present on-site, as required by regulatory permit conditions, during the initial clearing and grubbing of each work area. All vegetation clearing shall be done by hand and supervised by a qualified biological monitor. (CRLF PBO Measure # 6)

7. During project activities, all trash will be properly contained, removed from the work areas and disposed of regularly. Following construction, all trash and construction debris from work areas will be removed. (CRLF PBO Measure #18)

8. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 15 meters (50 feet) from any riparian habitat or water body. Republic Services will ensure contamination of habitat does not occur during such operations. Prior to the start of construction, Republic Services will prepare a plan to ensure a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. (CRLF PBO Measures # 14, #16)

9. A USFWS-approved biologist will ensure that the spread or introduction of invasive plant species will be avoided to the maximum extent possible. When practical, invasive exotic plants in the project area will be removed. The biologist will permanently remove, from within the project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes to the maximum extent possible. (CRLF PBO Measures #20 and #31)

10. Project areas that are disturbed will be revegetated with an appropriate assemblage of native riparian, wetland and upland vegetation. (CRLF PBO Measure #20)

11. Stream contours will be returned to their original condition at the end of project activities, unless consultation with USFWS has determined that it is not beneficial to the species or feasible.

12. The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and these areas will be outside of riparian and wetland areas where feasible. Where impacts occur in staging areas and access routes, restoration will be performed. (CRLF PBO Measure # 12)

13. If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than five millimeters to prevent California red-legged frogs from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any

barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate. (CRLF PBO Measure #15)

14. Ground-disturbing activities will be completed between April 1 and October 31. Should activities be necessary to conduct outside this period, the USACE may authorize such activities after obtaining the Service's approval. (CRLF PBO Measure #11)

15. To control erosion during and after project implementation, best management practices will be utilized. (CRLF PBO Measures #14 and #21)

16. Vegetation clearing and other construction work will occur outside the nesting birds season (February 1 to August 15). If work is initiated during the nesting season, a preconstruction survey for nesting birds will be performed by a qualified biologist. Any active nests will be avoided until all the young have fledged and are independent.

17. A qualified biologist will monitor the removal and relocation of woodrat houses and placement of refuge structures (e.g. half wine barrels and slash piles) for any woodrat house located within the access road footprint. If young woodrats are found in any house, all removed material will be replaced and removal of that house will not continue until the young have left the house. Prior to dismantling houses, data will be collected to document the following characteristics of the house: house-building materials, contents of house cavities (particularly stored food and plants), percent and type of ground cover immediately around each house, tree and shrub species surrounding the house, and the house substrate (e.g., ground, tree, etc.). New houses will be established on site for each house removed. New house designs will be constructed of a half wine barrel placed upside down in appropriate microhabitat with materials from the nest chamber of the dismantled house placed inside, and other house materials placed over and around the barrel, including a long tunnel-shaped entrance that leads only into the receptacle.

Conclusion and Determination

No long term, permanent impact to California red-legged frog or other listed species habitat is anticipated from this project. However, the project will temporarily impact a total of 0.92 acres of CRLF habitat (0.62 acres of upland habitat, 0.3 acres of aquatic non-breeding habitat) within critical habitat unit SNM-1, from construction of temporary access roads and construction activities within the riparian forest. Temporary access roads and work areas will be protected with a perimeter of approved ESA fencing to avoid negative impacts outside of the work areas and to prevent migration of frogs into the immediate project vicinity. Channel stabilization activities will be conducted during the late summer dry season, when CLT will have low flows. In order to avoid and minimize negative impacts to CRLF and other potentially occurring special-status

species, Republic Services will implement conservation measures described in the CRLF PBO (Appendix A) and summarized above. Although all avoidance and minimization techniques will be utilized, we cannot rule out the possibility that some individual CRLF or San Francisco garter snakes could be killed or injured accidentally during the project. However, with careful consideration and implementation of these proposed conservation measures, the amount of potential take to the species and their habitat will be low.

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Appendix A: California Red-legged Frog Programmatic Biological Opinion (USFWS 2014a)

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In Reply Refer To:
FF08ESMF00-2014-F-0389

JUN 18 2014

Ms. Jane M. Hicks
Regulatory Division
U.S. Army Corps of Engineers
1455 Market Street 16th Floor
San Francisco, California 94103-1398

Subject: Programmatic Biological Opinion for Issuance of Permits under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, including Authorizations Under 22 Nationwide Permits, for Projects that May Affect the Threatened California Red-Legged Frog in Nine San Francisco Bay Area Counties, California

Dear Ms. Hicks:

This is the U.S. Fish and Wildlife Service's (Service) programmatic biological opinion for issuance of permits under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (RHA), including 22 Nationwide Permits, in Marin, Napa, Solano, Sonoma, Contra Costa, Alameda, San Francisco, San Mateo, and Santa Clara counties, California. Nationwide Permits are authorized by the U.S. Army Corps of Engineers (Corps) under the Clean Water Act (33 U.S.C. 1251 *et seq.*). At issue are the adverse effects on the threatened California red-legged frog (*Rana draytonii*) and its designated critical habitat. This programmatic biological opinion was prepared under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*)(Act).

The Corps may append activities authorized under CWA and RHA permits in the nine San Francisco Bay Area counties (Bay Area counties) to this programmatic biological opinion with the concurrence of the Service provided the activities meet the suitability criteria for the threatened amphibian and its critical habitat, or the Service determines that implementation of appropriate additional conservation measures sufficiently reduces the effects of the action consistent with the intent of this programmatic biological opinion.

This programmatic biological opinion is based on: (1) recovery plan for the California red-legged frog (Service 2002); (2) designated critical habitat for the California red-legged frog (Service 2010); and (3) other information available to the Service.

ADMINISTRATION OF THE PROGRAMMATIC BIOLOGICAL OPINION

This programmatic consultation will be implemented when the Corps makes a determination that a proposed project that qualifies for authorization under one of the 22 Nationwide Permits described in the Project Description, or otherwise meets the suitability criteria set forth in this document, may affect the California red-legged frog and/or its critical habitat, as required by the implementing

regulations for section 7 of the Act. The Corps will then provide the Service with all of the written documentation utilized to formulate its determination. Upon receipt of the appropriate information, the Service will review the material and append the project to this programmatic biological opinion, or we will issue a letter stating the project is not likely to affect the California red-legged frog. At the Service's discretion, an individual biological opinion will be completed for the Nationwide or other Corps permit action; or if, in addition to the California red-legged frog, other listed species also will be adversely affected, the proposed action will be appended to this programmatic biological opinion and a biological opinion completed for the additional listed species. Both the appendage and the biological opinion will then be combined into a single document by the Service that will be issued to the Corps.

A key element of this programmatic biological opinion is that each separate permit action appended will have minimal effects and low levels of incidental take of the California red-legged frog. Projects not appropriate to be appended to this biological opinion are those that exceed minimal effects to this species, including direct, indirect, and cumulative effects and these would require separate consultation. At the Service's discretion, proposed actions that do not meet the suitability criteria may still be appended, if the complete implementation of appropriate additional conservation measures sufficiently reduces the effects of the action or that the project has minimal effects that are consistent with the intent of this programmatic biological opinion.

This programmatic biological opinion is effective for a period of five (5) calendar years from the date of its issuance and can be extended if deemed appropriate by both agencies The Service will review this programmatic consultation, as appropriate, to ensure that its application is consistent with the intended criteria.

BIOLOGICAL OPINION

Description of the Proposed Action

Project Description

For this programmatic biological opinion, actions authorized by the Corps that may be appended consist of a variety of activities that may result in the incidental take of the California red-legged frog on 1.0 acre or less per project of suitable upland red-legged frog habitat, including areas within 300 feet of the top of bank of a creek, stream, waterbody, or wetland, or up to 1.0 acre of aquatic habitat/waters of the United States, or a combination of uplands and wetlands that is not larger than 1.0 acre in size. The Corps and the Service may determine on a case by case basis that projects larger than one acre can be appended to this programmatic biological opinion. Based on the following criteria: the action has minimal effects to the frog, the action is consistent with the intent of the biological opinion and appropriate conservation measures are included. Each project appended to this programmatic biological opinion may result in temporary effects and/or permanent effects. For the purposes of this biological opinion, temporary effects and permanent effects are defined as:

1. Temporary effects: The effects resulting from a Nationwide or other Corps permit-authorized activity are short term and do not result in effects to California red-legged frog habitat that are longer than one year; all habitats will be restored to better or equal to before the impact within one calendar year following disturbance. Disturbance may include alteration or reduction in vegetative cover or suitable aestivation sites, such as root wads, rodent burrows, or other forms

of cover. An elevation in ambient noise level, for example, also may be considered a disturbance. Temporary effects are those that denude, manipulate, or otherwise modify habitats from their existing, pre-project conditions as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, borrow sites, disposal areas, vehicle parking, dredging, and vegetation removal. In order to be considered a temporary effect, the affected site must be restored to baseline habitat values or higher within one calendar year following the date of initial disturbance.

2. Permanent effects: The effects resulting from project activities which remove existing habitat or essential habitat components that cannot be restored to pre-project conditions of equal or greater value within one calendar year of the date of initial disturbance.

Projects that meet the suitability criteria and may involve some or all of the preceding activities are often authorized under the Corps' Nationwide Permit program. To guide the Corps during project evaluation, the Service has reviewed the Nationwide Permits the Corps has issued under 33 CFR 330.3 and has determined that projects typically authorized under the Nationwide Permits listed below may be appropriate for appendage to this programmatic biological opinion:

(#3) Maintenance.
(#5) Scientific Measuring Devices.
(#6) Survey Activities.
(#7) Outfall Structures.
(#12) Utility Line Discharges.
(#13) Bank Stabilization, provided that activity is less than fifty (50) feet in length.
(#14) Road Crossings.
(#15) U.S. Coast Guard Approved Bridges.
(#17) Hydropower Projects.
(#18) Minor Discharges.
(#19) Minor Dredging.
(#23) Approved Categorical Exclusions.
(#25) Structural Discharges.
(#27) Wetland and Riparian Restoration and Creation Activities.
(#31) Maintenance of Existing Flood Control Facilities.
(#32) Completed Enforcement Actions.
(#33) Temporary Construction, Access and Dewatering.
(#37) Emergency Watershed Protection and Rehabilitation.
(#38) Cleanup of Hazardous and Toxic Waste.
(#44) Mining Activities.
(#45) Repair of Uplands Damaged by Discrete Events.
(#46) Discharges in Ditches.

Suitability Criteria

To make use of this programmatic biological opinion, the Corps will ensure that each Nationwide or other permit activity that is proposed for appendage satisfies the following criteria:

1. The California red-legged frog has been found to inhabit or utilize the action area through the result of a Service-approved protocol survey; or, the action area contains suitable habitat for breeding, foraging, aestivation, movement, or other essential behaviors; or the Corps is assuming

the species will be affected by the proposed action.

2. Each Nationwide or other permit activity appended to this programmatic biological opinion adversely affects no more than 1.0 acre of suitable California red-legged frog upland habitat and no more than 1.0 acre of aquatic habitat. This includes equipment staging areas, site access routes, laydown areas, construction, equipment storage, vehicle parking areas; and stockpile and debris storage areas.

3. Activities authorized under Nationwide and other Corps permits may adversely affect the California red-legged frog through mortality, injury, harassment, capture, trap or harm, or temporary disturbance or permanent loss of the species' aquatic and upland habitats. This includes areas with suitable habitat for California red-legged frog movement. The projects will not occur in locations where the populations are so small and/or isolated that even the minor effects described in the programmatic biological opinion may have substantial adverse effects to the long-term survival and viability of the species within the recovery unit.

4. The measures to reduce and/or avoid adverse effects to the California red-legged frog described in the Conservation Measures of this programmatic biological opinion will be fully implemented by the Corps through the applicant. The measures may be modified on a project-specific basis upon written concurrence by the Service.

5. The Corps through the applicant will include enhancement, creation, or construction of habitat connectivity and safe wildlife passage across roads, whenever possible, as a conservation measure for Nationwide and other permit activities submitted for appendage to this programmatic biological opinion.

6. Nationwide and other permits appended to this programmatic biological opinion are not interdependent or interrelated with other projects being proposed or implemented by the Corps through the applicant, other government agencies, or other parties. This includes actions which have been separated from each other as a result of funding, authorizations, or other constraints.

7. The Corps through the applicant will provide the following information to the Service with their request for appending each Nationwide or other permit action to this programmatic biological opinion:

    a. Corps Permit Application including Assessor's Parcel Number(s), Universal Transverse Mercator (UTM) coordinates, and street address of the project;

    b. Corps-verified jurisdictional determination;

    c. Written description of the project, including but not limited to, construction methods, types and numbers of equipment, specific dates the work will occur, habitat restoration, conservation measures that will be fully implemented, and a monitoring plan for the California red-legged frog. The description will include the location and size of construction areas, borrow sites, laydown areas, parking areas, disposal sites, and other associated activities;

    d. A 7.5 minute U.S. Geological Survey topographic map or similar high-quality color topographic map clearly marked with the precise location of the project, construction areas,

borrow sites, laydown areas, parking areas, disposal sites, restoration sites, California red-legged frog relocation sites, and other associated activities;

e. A map showing known listed plant populations and listed animal sightings, from the California Department of Fish and Wildlife's Natural Diversity Data Base, and other sources, recorded within the action area and within a 10-mile radius of the project site;

f. A map (scale 1" =100') delineating the major vegetation communities present on and adjacent to the project site. Color photographs of the major vegetation communities present on the project site will be included with the document, with the locations of where they were taken indicated on the vegetation map;

g. One plan view and a minimum of one typical cross section indicating water bodies, vegetation types, work areas, roads, restoration sites, refueling, storage, parking, and staging areas;

h. The names and complete curriculum vitae of the biologist(s) who are being proposed to conduct pre-construction surveys, and monitor and handle California red-legged frog;

Conservation Measures

The Project Description includes the Conservation Measures that the Corps through the applicant will fully implement to avoid, minimize, and compensate for the direct effects, indirect effects, both temporary and permanent, and cumulative effects to the California red-legged frog from Nationwide and other Corps permits expected to occur in the nine San Francisco Bay Area counties.

1. For any project with greater than 0.5 acre of permanent impacts to suitable aquatic California red-legged frog habitat, and for any project with greater than 0.5 acre of suitable upland California re-legged frog habitat, the Corps will ensure harm to the California red-legged frog Nationwide or other permit action is minimized by the submittal of an appropriate habitat compensation proposal and, if appropriate, a restoration, monitoring, and management plan, at least thirty (30) calendar days prior to the date of initial ground disturbance (described in Compensation Section below) .

2. When constructing a road improvement, wherever possible, the Corps through the applicant will enhance or construct wildlife passage for the California red-legged frog across roads, highways, or other anthropogenic barriers. This includes upland culverts, tunnels, or overcrossings designed specifically for wildlife movement, as well as making accommodations for terrestrial wildlife movement through culverts that convey hydrology.

3. The Corps will ensure the applicant implements the conservation measures of this programmatic biological opinion, and the appendage. The Corps will ensure the applicant designates a point of contact for the project. The point of contact will maintain a copy of this biological opinion and the appendage onsite for the duration of the construction period. Their name and telephone number will be provided to the Service no more than thirty (30) calendar days prior to the date of initial ground disturbance. At least fourteen (14) calendar days prior to the date of initial ground disturbance, the Corps will ensure the applicant submits a signed letter to the Service verifying that they possess a copy of this programmatic biological opinion and the appendage, and have read and fully understand their responsibilities.

4. If verbally requested before, during, or upon completion of ground disturbance and construction activities, the applicant will ensure the Service, California Department of Fish and Wildlife, and/or their designated agents can immediately and without delay, access and inspect the project site for compliance with the project description, conservation measures, and reasonable and prudent measures of this programmatic biological opinion and appendage, and to evaluate project effects to the California red-legged frog and its habitat.

5. A Service-approved biologist(s) will be onsite during all activities that may result in take of the California red-legged frog. The qualifications of the biologist(s) will be submitted to the Service for review and written approval at least thirty (30) calendar days prior to the date earthmoving is initiated at the project site. The Service-approved biologist(s) will keep a copy of this programmatic biological opinion and the appendage in their possession when onsite.

6. No more than twenty-four (24) hours prior to the date of initial ground disturbance, a pre-construction survey for the California red-legged frog will be conducted by a Service-approved biologist at the project site. The survey will consist of walking the project limits and within the project site to ascertain the possible presence of the species. The Service-approved biologist will investigate all potential areas that could be used by the California red-legged frog for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows, such as California ground squirrels or gophers. If any adults, subadults, juveniles, tadpoles, or eggs are found, the Service-approved biologist will contact the Service to determine if moving any of the individuals is appropriate. In making this determination the Service will consider if an appropriate relocation site exists. If the Service approves moving animals, the Corps through the applicant will ensure the Service-approved biologist is given sufficient time to move the animals from the work site before ground disturbance is initiated. Only Service-approved biologists will capture, handle, and monitor the California red-legged frog.

7. The Service-approved biologist(s) will be given the authority to freely communicate verbally, by telephone, electronic mail, or in writing at any time with construction personnel, any other person(s) at the project site, otherwise associated with the project, the Service, the Department, or their designated agents. The Service-approved biologist will have oversight over implementation of all the conservation measures in this programmatic biological opinion, and, through the applicant, will have the authority and responsibility to stop project activities if they determine any of the associated requirements are not being fulfilled. If the Service-approved biologist(s) exercises this authority, the Service will be notified by telephone and electronic mail within twenty-four (24) hours. The Service contact is the Coast Bay Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at telephone (916) 414-6600.

8. The Service-approved biologist will conduct employee education training for employees working on earthmoving and/or construction activities. Personnel will be required to attend the presentation which will describe the California red-legged-frog, avoidance, minimization, and conservation measures, legal protection of the animal, and other related issues. All attendees will sign an attendance sheet along with their printed name, company or agency, email address, and telephone number. The original sign-in sheet will be sent to the Service within seven (7) calendar days of the completion of the training.

9. The Corps through the applicant will minimize adverse effects to the California red-legged frog by limiting, to the maximum extent possible, the number of access routes, construction areas, equipment staging, storage, parking, and stockpile areas. Prior to the date of initial ground disturbance at the project site, equipment staging areas, site access routes, construction equipment and personnel parking areas, debris storage areas, and any other areas that may be disturbed will be identified, surveyed by the Service-approved biologist, and clearly identified with 5-foot tall bright orange plastic fencing. The fencing will be inspected by the Service-approved biologist and maintained daily by the applicant until the last day that construction equipment are at the project.

11. To the extent practicable, initial ground-disturbing activities will be avoided between November 1 and March 31 because that is the time period when California red-legged frogs are most likely to be moving through upland areas. When ground-disturbing activities must take place between November 1 and March 31, the Corps through the applicant will ensure that daily monitoring by the Service-approved biologist is completed for the California red-legged frog.

12. To minimize harassment, injury death, and harm in the form of temporary habitat disturbances, all project-related vehicle traffic will be restricted to established roads, construction areas, equipment staging, storage, parking, and stockpile areas. These areas will be included in pre-construction surveys and, to the maximum extent possible, established in locations disturbed by previous activities to prevent further adverse effects. Project-related vehicles will observe a 20-mile per hour speed limit within construction areas, except on County roads, and State and Federal highways. Off-road traffic outside of designated and fenced project work areas will be prohibited.

13. The Corps through the applicant will ensure bio-swales and bio-filtration are installed at the project site adjacent to roadways to avoid and minimize sediment loading and point source pollutants.

14. Stormwater pollution prevention plans (SWPPPs) and erosion control BMPs will be developed and implemented to minimize any wind- or water-related erosion and will be in compliance with the requirements of the Corps. The applicant will include provisions in construction contracts for measures to protect sensitive areas and prevent and minimize stormwater and non-stormwater discharges. Protective measures will include, at a minimum, those listed below.

    a. No discharge of pollutants from vehicle or equipment cleaning will be allowed into any storm drains or water courses.

    b. Vehicle and equipment fueling and maintenance operations will be at least 50 feet away from water courses, except at established commercial gas stations or established vehicle maintenance facilities.

    c. Concrete waste and water from curing operations will be collected in washouts and will be disposed of and not allowed into water courses.

d. Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.

e. Dust control measures will include use of water trucks and organic tackifiers to control dust in excavation-and-fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require.

15. If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than five millimeters to prevent California red-legged frogs from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

16. The Corps through the applicant will maintain all construction equipment to prevent leaks of fuels, lubricants, or other fluids.

17. Each encounter with the California red-legged frog will be treated on a case-by-case basis in coordination with the Service, but the general procedure is as follows: (1) the animal will not be disturbed if it is not in danger; or (2) the animal will be moved to a secure location if it is in any danger. These procedures are further described below:

a. When a California red-legged frog is encountered in the action area, all activities which have the potential to result in the harassment, injury, or death of the individual will be immediately halted. The Service-approved biologist will then assess the situation in order to select a course of action that will avoid or minimize adverse effects to the animal. To the maximum extent possible, contact with the frog will be avoided and the applicant will allow it to move out of the potentially hazardous situation to a secure location on its own volition. This procedure applies to situations where a California red-legged frog is encountered while it is moving to another location. It does not apply to animals that are uncovered or otherwise exposed or in areas where there is not sufficient adjacent habitat to support the species should the individual move away from the hazardous location.

b. California red-legged frogs that are in danger will be relocated and released by the Service-approved biologist outside the construction area within the same riparian area or watershed. If relocation of the frog outside the fence is not feasible (i.e., there are too many individuals observed per day), the biologist will relocate the animals to a Service pre-approved location. Prior to the initial ground disturbance, the applicant will obtain approval of the relocation protocol from the Service in the event that a California red-legged frog is encountered and needs to be moved away from the project site. Under no circumstances will a California red-legged frog be released on a site unless the written permission of the landowner has been obtained by the applicant.

The Service-approved biologist will limit the duration of the handling and captivity of the California red-legged frog to the minimum amount of time necessary to complete the task. If the animal must be held in captivity, it will be kept in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket or plastic container with a damp sponge. The container used for holding or transporting the individual will not contain any standing water.

c. The applicant will immediately notify the Service once the California red-legged frog and the site is secure. The contact for this situation is the Coast Bay Foothills Division Chief of the Endangered Species Program by email and at telephone (916) 414-6600.

18. Uneaten human food and trash attracts crows, ravens, coyotes, and other predators of the California red-legged frog. A litter control program will be instituted at each project site. All workers will ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed trash containers. The trash containers will be removed from the project site at the end of each working day.

19. All grindings and asphaltic-concrete waste may be temporally stored within previously disturbed areas absent of habitat and at a minimum of 150 feet from any culvert, pond, creek, stream crossing, or other waterbody. On or before the date of project completion, the waste will be transported to an approved disposal site.

20. Restoration and re-vegetation work for temporary effects will be implemented using native California plant species collected on-site or from local sources (i.e., local ecotype). Native or non-native plant species and material from non-local sources will be utilized only with prior written authorization from the Service. All topsoil from natural lands will be removed, cached, and returned to the site according to Service-approved restoration protocols.

21. Loss of soil from run-off or erosion will be prevented with straw bales, straw wattles, or similar means provided they do not entangle, block escape or dispersal routes of the California red-legged frog.

22. The Corps through the applicant will not apply insecticides or herbicides at the project site during construction or long-term operational maintenance where there is the potential for these chemical agents to enter creeks, streams, waterbodies, or uplands that contain potential habitat for the California red-legged frog.

23. No pets will be permitted at the project site, to avoid and minimize the potential for harassment, injury and death of the California red-legged frog.

24. No firearms will be allowed at the project site except for those carried by authorized security personnel, or local, State, or Federal law enforcement officials to avoid and minimize the potential for harassment, injury and death of the California red-legged frog.

25. For onsite storage of pipes, conduits and other materials that could provide shelter for California red-legged frogs, an open-top trailer will be used to elevate the materials above ground. This is intended to reduce the potential for animals to climb into the conduits and other materials.

26. To the maximum extent practicable, no construction activities will occur during rain events or within 24-hours following a rain event. Prior to construction activities resuming, a Service-approved biologist will inspect the action area and all equipment/materials for the presence of California red-legged frogs. The animals will be allowed to move away from the project site of their own volition or moved by the Service-approved biologist.

27. To the maximum extent practicable, night-time construction will be minimized or avoided by the applicant. Because dusk and dawn are often the times when the California red-legged frog is most actively moving and foraging, to the maximum extent practicable, earthmoving and construction activities will cease no less than 30 minutes before sunset and will not begin again prior to no less than 30 minutes after sunrise. Except when necessary for driver or pedestrian safety, to the maximum extent practicable, artificial lighting at a project site will be prohibited during the hours of darkness.

28. Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form will not be used at the project site because California red-legged frogs can become entangled and trapped in them. Any such material found on site will be immediately removed by the Service-approved biologist, construction personnel, or the applicant. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer or other synthetic materials will not be used.

29. Dust control measures will be implemented during construction, or when necessary in the opinion of the Service-approved biologist, Service, California Department of Fish and Wildlife, or their authorized agent. These measures will consist of regular truck watering of construction access areas and disturbed soil areas with water or organic soil stabilizers to minimize airborne dust and soil particles generated from graded areas. Regular truck watering will be a requirement of the construction contract. Watering guidelines for truck watering will be established to avoid any excessive run-off that may flow into contiguous or adjacent areas containing potential habitat for the California red-legged frog.

30. Trenches or pits one (1) foot or deeper that are going to be left unfilled for more than forty-eight (48) hours will be securely covered with boards or other material to prevent the California red-legged frog from falling into them. If this is not possible, the applicant will ensure wooden ramps or other structures of suitable surface that provide adequate footing for the California red-legged frog are placed in the trench or pit to allow for their unaided escape. Auger holes or fence post holes that are greater than 0.10 inch in diameter will be immediately filled or securely covered so they do not become pitfall traps for the California red-legged frog. The Service-approved biologist will inspect the trenches, pits, or holes prior to their being filled to ensure there are no California red-legged frogs in them. The trench, pit, or hole also will be examined by the Service-approved biologist each workday morning at least one hour prior to initiation of work and in the late afternoon no more than one hour after work has ceased to ascertain whether any individuals have become trapped. If the escape ramps fail to allow the animal to escape, the Service-approved biologist will remove and transport it to a safe location, or contact the Service for guidance.

31. The Service-approved biologist(s) will permanently remove any aquatic exotic wildlife species, such as bullfrogs and crayfish from the project site, to the maximum extent possible.

32. The Corps will ensure the applicant reports any information to the Service about take or suspected take of listed wildlife species not exempted by this programmatic biological opinion. The Service will be notified via electronic mail and telephone within twenty-four (24) hours from the time the information is received by the applicant. Notification will include the species, number of individuals, sex (if known), date, time, location of the incident or of the finding of a dead or injured animal, how the individual was taken, photographs of the specific animal, and names of the persons who observe the take and/or found the animal. The

individual animal will be preserved, as appropriate, and held in a secure location until instructions are received from the Service regarding the disposition of the specimen or the Service takes custody of the specimen. The Service contacts are the Chief of the Coast Foothill Division, Endangered Species Program, Sacramento Fish and Wildlife Office at (916) 414-6600, and Resident Agent-in-Charge of the Service's Law Enforcement Division at (916) 569-8444.

Compensation

Compensation measures include protecting and managing habitat at a secure location to minimize the harm of the California red-legged frog caused by alteration, disturbance, or destruction of its habitat. The Corps through the applicant will provide compensation in the form of in-perpetuity habitat protection for any project appended to this BO with greater than 0.5 acre of permanent impacts to suitable California red-legged frog habitat. An area of non-habitat is not necessarily an area absent of vegetation. Shoulder areas or right-of way that lack vegetative cover may function in a landscape highly fragmented by linear structures, such as roads, railways, and canals, as a corridor for dispersal, or potential refugia areas despite the appearance of degradation The compensation ratios for adverse effects are as follows:

California Red-legged Frog Habitat Compensation

Level of Effect	**Compensation Ratio**
Permanent	3:1
Temporary	1:1*

* this often is in the form of on-site restoration in Waters of the United States.

The Corps will ensure the applicant provides in-kind habitat as part of the compensation for projects appended to this programmatic biological opinion. Aquatic habitat will be provided for adverse effects to aquatic habitat, and upland habitat will be protected for damage or loss of upland habitat. The applicant will compensate for adverse effects for temporary or permanent effects to the California red-legged frog by one of the following options: 1) acquire land, by itself, or possibly in conjunction with a conservation organization, State park, State Wildlife Area, National Wildlife Refuge, or local regional park that provides occupied habitat; 2) purchase the appropriate credit units at a Service-approved conservation bank; or 3) by restoration of Waters of the US of an area suitable to support the frog. The Service and the Corps will have to approve the applicability of restoration of a proposed site on a case-by-case basis.

Conservation credits or appropriate habitat obtained by the applicant will consist of the following measures:

1. At least thirty (30) calendar days prior to the date of initial ground disturbance, the applicant will acquire habitat occupied by the California red-legged frog or habitat that is important to this threatened animal, such as movement corridors, that the Service has concurred is appropriate in writing. The property will have a conservation easement or other appropriate entitlement; management plan, and endowment to manage the habitat in perpetuity. All of these documents will be reviewed and approved by the Service. The conservation easement will name the Service

as third-party beneficiaries and it will be held by an entity qualified to hold conservation easements subject to approval by the Service. An in-perpetuity endowment to manage the land and monitor the conservation easement will be secured using an escrow account or other funding assurance acceptable to and approved by the Service. The endowment will be held by a Service-approved entity in an amount agreed to by the Service. A Service-approved management plan will be developed prior to acquisition of land and it will include, but not limited to; a description of existing habitats and planned habitat creation, restoration and/or enhancement; monitoring criteria for the California red-legged frog; an integrated pest management and monitoring plan to control invasive species; habitat creation, restoration and/or enhancement success criteria; and adaptive management strategies if success criteria are not met or to incorporate new scientific data.

OR

2. The applicant will purchase an appropriate number of credits at a Service-approved conservation bank whose service area includes the action area for the proposed appendage to this programmatic biological opinion. Conservation credits will be purchased and documentation provided to the Service comprising the Agreement for Sale of Conservation Credits, Bill of Sale, Payment Receipt and Updated Credit Ledger at least fourteen (14) calendar days prior to the date of initial ground disturbance at the project.

OR

3. The applicant will provide a restoration, monitoring and management plan to the Service and the Corps at least 30 calendar days prior to ground disturbance for review and approval. The plan will include at a minimum success criteria and information regarding site preservation. The plan may also include the removal of invasive species. Because not in all cases will restoration benefit, the species this will be reviewed on a case-by-case basis.

Action Area

The action area is defined in 50 CFR 402.02 as "all areas to be affected directly or indirectly by the Federal action, and not merely the immediate area involved in the action." This programmatic consultation addresses minor projects within the following California counties: Napa, Solano, Contra Costa, Alameda, San Francisco, San Mateo, Santa Clara, Sonoma and Marin. Areas within 1,000 feet of the project footprint, parking, equipment storage, stockpile, access, and borrow site locations for each Nationwide or other permit are included within the action area.

Analytical Framework for the Jeopardy and Adverse Modification Analysis

Jeopardy Determination
The following analysis relies on four components to support the jeopardy determination for the California red-legged frog: (1) the **Status of the Species**, which evaluates the species' range wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the **Environmental Baseline**, which evaluates the condition of the species in the action area, the factors responsible for that condition, and the role of the action area in the species' survival and recovery; (3) the **Effects of the Action**, which determines the direct and indirect effects of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; and (4) **Cumulative Effects**, which evaluates the effects of future, non-Federal activities in

the action area on the species.
In accordance with the implementing regulations for section 7 and Service policy, the jeopardy determination is made in the following manner: the effects of the proposed Federal action are evaluated in the context of the aggregate effects of all factors that have contributed to the current status of the California red-legged frog and, for non-Federal activities in the action area, those actions likely to affect the species in the future, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild.

The following analysis places an emphasis on using the range-wide survival and recovery needs of the California red-legged frog and the role of the action area in providing for those needs as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Adverse Modification Determination
This programmatic biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR §402.02. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

In accordance with policy and regulation, the adverse modification analysis in this programmatic biological opinion relies on four components: (1) *Status of Critical Habitat*, which evaluates the range wide condition of designated critical habitat for the California red-legged frog in terms of PCEs, the factors responsible for that condition, and the intended recovery function of the critical habitat at the provincial and range-wide scale; (2) *Environmental Baseline*, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) *Effects of the Action*, which determines the direct and indirect effects of the proposed Federal action and the effects of any interrelated or interdependent activities on the PCEs and how that will influence the recovery role of affected critical habitat units; and (4) *Cumulative Effects* which evaluates the effects of future, non-Federal activities in the action area on the PCEs and how that will influence the recovery role of affected critical habitat units. For purposes of the adverse modification determination, the effects of the proposed Federal action on the California red-legged frog critical habitats are evaluated in the context of the range-wide condition of the critical habitat at the provincial and range-wide scales, taking into account any cumulative effects, to determine if the critical habitat range-wide would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve its intended recovery role for the California red-legged frog.

The analysis in this biological opinion places an emphasis on using the intended range-wide recovery function of the California red-legged frog critical habitat and the role of the action area relative to that intended function as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the adverse modification determination.

Status and Environmental Baseline of the California Red-Legged Frog

Listing Status: The California red-legged frog was listed as a threatened species on May 23, 1996 (61 FR 25813) (Service 1996). Critical habitat was designated for this species on April 13, 2006 (71 FR 19244) (Service 2006) and revisions to the critical habitat designation were published on March 17, 2010 (75 FR 12816) (Service 2010). At this time, the Service recognized the taxonomic

change from *Rana aurora draytonii* to *Rana draytonii* (Shaffer *et al.* 2010). A Recovery Plan was published for the California red-legged frog on September 12, 2002 (Service 2002).

Description: The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. Larvae (tadpoles) range from 0.6 to 3.1 inches in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

Distribution: The historic range of the California red-legged frog extended from the vicinity of Elk Creek in Mendocino County, California, along the coast inland to the vicinity of Redding in Shasta County, California, and southward to northwestern Baja California, Mexico (Fellers 2005; Jennings and Hayes 1985; Hayes and Krempels 1986). The species was historically documented in 46 counties but the taxa now remains in 238 streams or drainages within 23 counties, representing a loss of 70 percent of its former range (Service 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay Area and the Central California Coast. Isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse Ranges. The species is believed to be extirpated from the southern Transverse and Peninsular ranges, but is still present in Baja California, Mexico (CDFG 2013a).

Status and Natural History: California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and manmade ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994, Bulger *et al.* 2003, Stebbins 2003). However, they also inhabit ephemeral creeks, drainages and ponds with minimal riparian and emergent vegetation. California red-legged frogs breed from November to April, although earlier breeding records have been reported in southern localities. Breeding generally occurs in still or slow-moving water often associated with emergent vegetation, such as cattails, tules or overhanging willows (Storer 1925, Hayes and Jennings 1988). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984).

Habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer including vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees (Fellers 2005). Sheltering habitat for California red-legged frogs potentially includes all aquatic, riparian, and upland areas within the range of the species and includes any landscape feature that provides cover, such as animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned sheds, or hay stacks may also be used. Incised stream channels with portions narrower and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adults are often associated with permanent bodies of water. Some individuals remain at breeding sites year-round, while others disperse to neighboring water features. Dispersal distances are typically less than 0.5-mile, with a few individuals moving up to 1-2 miles (Fellers 2005). Movements are typically

along riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005).

In a study of California red-legged frog terrestrial activity in a mesic area of the Santa Cruz Mountains, Bulger *et al.* (2003) categorized terrestrial use as migratory and non-migratory. The latter occurred from one to several days and was associated with precipitation events. Migratory movements were characterized as the movement between aquatic sites and were most often associated with breeding activities. Bulger *et al.* (2003) reported that non-migrating frogs typically stayed within 200 feet of aquatic habitat 90 percent of the time and were most often associated with dense vegetative cover, i.e., California blackberry, poison oak and coyote brush. Dispersing frogs in northern Santa Cruz County traveled distances from 0.25-mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger *et al.* 2003).

In a study of California red-legged frog terrestrial activity in a xeric environment in eastern Contra Costa County, Tatarian (2008) noted that a 57 percent majority of frogs fitted with radio transmitters in the Round Valley study area stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. This study reported a peak seasonal terrestrial movement occurring in the fall months associated with the first 0.2-inch of precipitation and tapering off into spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the base of trees or rocks, logs, and under man-made structures; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1 to 4 days; however, one adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Upland refugia closer to aquatic sites were used more often and were more commonly associated with areas exhibiting higher object cover, e.g., woody debris, rocks, and vegetative cover. Subterranean cover was not significantly different between occupied upland habitat and non-occupied upland habitat.

California red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000 to 5,000 eggs are attached to vegetation below the surface and hatch after 6 to 14 days (Storer 1925, Jennings and Hayes 1994). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings *et al.* 1992). Eggs exposed to salinity levels greater than 4.5 parts per thousand resulted in 100 percent mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3½ to 7 months following hatching and reach sexual maturity 2 to 3 years of age (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). California red-legged frogs may live 8 to 10 years (Jennings *et al.* 1992). Populations can fluctuate from year to year; favorable conditions allow the species to have extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, the animal may temporarily disappear from an area when conditions are stressful (e.g., during periods of drought, disease, etc.).

The diet of California red-legged frogs is highly variable; changing with the life history stage. The diet of the larval stage has been the least studied and is thought to be similar to that of other ranid frogs, which feed on algae, diatoms, and detritus (Fellers 2005; Kupferberg 1996a, 1996b, 1997).

Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from Cañada de la Gaviota in Santa Barbara County during the winter of 1981 and found invertebrates (comprising 42 taxa) to be the most common prey item consumed; however, they speculated that this was opportunistic and varied based on prey availability. They ascertained that larger frogs consumed larger prey and were recorded to have preyed on Pacific chorus frog, three-spined stickleback and, to a limited extent, California mice, which were abundant at the study site (Hayes and Tennant 1985, Fellers 2005). Although larger vertebrate prey was consumed less frequently, it represented over half of the prey mass eaten by larger frogs suggesting that such prey may play an energetically important role in their diets (Hayes and Tennant 1985). Juvenile and subadult/adult frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985). Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination, feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).

Recovery Plan: The Recovery Plan for the California red-legged frog identifies eight recovery units (Service 2002). The establishment of these recovery units is based on the determination that various regional areas of the species' range are essential to its survival and recovery. These recovery units are delineated by major watershed boundaries as defined by U.S. Geological Survey hydrologic units and the limits of its range. The goal of the recovery plan is to protect the long-term viability of all extant populations within each recovery unit. Within each recovery unit, core areas have been delineated and represent contiguous areas of moderate to high California red-legged frog densities that are relatively free of exotic species such as bullfrogs. The goal of designating core areas is to protect metapopulations. Thus when combined with suitable dispersal habitat, will allow for the long term viability within existing populations. This management strategy identified within the Recovery Plan will allow for the recolonization of habitats within and adjacent to core areas that are naturally subjected to periodic localized extinctions, thus assuring the long-term survival and recovery of California red-legged frogs.

Threats: Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the California red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern red-legged frogs in systems supporting bullfrogs (Jennings and Hayes 1990; Twedt 1993), red swamp crayfish, signal crayfish, and several species of warm water fish including sunfish, goldfish, common carp, and mosquitofish (Moyle 1976; Barry 1992; Hunt 1993; Fisher and Schaffer 1996). This has been attributed to predation, competition, and reproduction interference. Twedt (1993) documented bullfrog predation of juvenile northern red-legged frogs, and suggested that bullfrogs could prey on subadult California red-legged frogs as well. Bullfrogs may also have a competitive advantage over California red-legged frogs. For instance, bullfrogs are larger and possess more generalized food habits (Bury and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). Bullfrogs also interfere with California red-legged frog reproduction by eating adult male California red-legged frogs. Both California and northern red-legged frogs have been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990; Twedt 1993; Jennings 1993). Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat.

The urbanization of land within and adjacent to California red-legged frog habitat has also affected the threatened amphibian. These declines are attributed to channelization of riparian areas,

enclosure of the channels by urban development that blocks dispersal, and the introduction of predatory fishes and bullfrogs. Diseases may also pose a significant threat, although the specific effects of disease on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson et al. 2003). Chytridiomycosis and ranaviruses are a potential threat because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson et al. 2003; Lips et al. 2006). Mao *et al.* (1999 cited in Fellers 2005) reported northern red-legged frogs infected with an iridovirus, which was also presented in sympatric threespine sticklebacks in northwestern California. Non-native species, such as bullfrogs and non-native tiger salamanders that live within the range of the California red-legged frog have been identified as potential carriers of these diseases (Garner *et al.* 2006). Humans can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (i.e., contaminated boots, waders or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in the listed species being more susceptible to the effects of disease.

The action area for the 22 Nationwide and other Corps permits in the nine Bay Area counties contains three recovery units that were designated in the recovery plan for the California red-legged frog (Service 2002). They are the North Coast and North San Francisco Bay Unit; South and East San Francisco Bay Unit; and the Central Coast Recovery Unit (Service 2002). Recovery Units are based on the identification of various regional areas of the species' range that are essential to its survival and recovery.

The entirety of the proposed project is located within the range and current distribution of the California red-legged frog. Ensure its survival and recovery in the action area is important because most of the known populations of this species are found in the San Francisco Bay region and the central coast range (Service 2002; Fellers 2005). The action area contains a mosaic of industrial, residential, agricultural, fallow, and open space land uses, although the majority of lands do not contain suitable habitat for the animal. The lands containing suitable habitat range from highly modified and degraded to high quality. The Point Reyes peninsula and associated areas in Marin County are known to contain large populations of the California red-legged frog, however, the majority of populations within the action area consist of a small number of individuals.

The California red-legged frog occurs within the action area as demonstrated by: (1) historic and recent observation of the species at numerous locations in all nine San Francisco Bay Area counties (Service 2002; California Department of Fish and Wildlife 2013a, 2013b); (2) the biology and ecology of the animal, especially the ability of individuals to move considerable distances and their ability to spend the dry months of the year in habitats with suitable environmental conditions; (3) the action area contains numerous creeks, streams, constructed drainage features, perennial and seasonal ponds, including stock ponds, and marshes that provide breeding and non-breeding aquatic habitat for the California red-legged frog. Riparian vegetation along creeks and drainages and landscape vegetation in the action area provide valuable refuge, forage, and dispersal habitat for red-legged frogs; (4) the action area contains upland habitat with rodent burrows and other cover sites; (5) the action area contains upland habitat that provides refuge, forage, and dispersal habitat for the species; and (6) the numerous locations and movement corridors where the species can move within the action area and vicinity.

Status and Environmental Baseline of California Red-Legged Frog Critical Habitat

The Service designated critical habitat for the California red-legged frog on April 13, 2006 (71 FR 19244) (Service 2006) and a revised designation to the critical habitat was published on March 17, 2010 (75 FR 12816) (Service 2010). At this time, the Service recognized the taxonomic change from Rana aurora draytonii to Rana draytonii (Shaffer et al. 2010). Critical habitat is defined in Section 3 of the Act as: (1) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (a) essential to the conservation of the species and (b) that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. In determining which areas to designate as critical habitat, the Service considers those physical and biological features that are essential to a species' conservation and that may require special management considerations or protection (50 CFR 424.12(b)). The Service is required to list the known Primary Constituent Elements (PCE's) together with the critical habitat description. Such physical and biological features include, but are not limited to, the following:

1. Space for individual and population growth, and for normal behavior;
2. Food, water, air, light, minerals, or other nutritional or physiological requirements;
3. Cover or shelter;
4. Sites for breeding, reproduction, rearing of offspring, or dispersal; and
5. Generally, habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

The PCE's defined for the California red-legged frog was derived from its biological needs. The area designated as revised critical habitat provides aquatic habitat for breeding and non-breeding activities and upland habitat for shelter, foraging, predator avoidance, and dispersal across its range. The PCE's and, therefore, the resulting physical and biological features essential for the conservation of the species were determined from studies of California red-legged frog ecology. Based on the above needs and our current knowledge of the life history, biology, and ecology of the species, and the habitat requirements for sustaining the essential life-history functions of the species, the Service determined that the PCE's essential to the conservation of the California red-legged frog are:

1. Aquatic Breeding Habitat. Standing bodies of fresh water (with salinities less than 7.0 parts per thousand), including: natural and manmade (e.g., stock) ponds, slow-moving streams or pools within streams, and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks in all but the driest of years.

2. Non-Breeding Aquatic Habitat. Freshwater and wetted riparian habitats, as described above, that may not hold water long enough for the subspecies to hatch and complete its aquatic life cycle but that do provide for shelter, foraging, predator avoidance, and aquatic dispersal for juvenile and adult California red-legged frogs. Other wetland habitats that would be considered to meet these elements include, but are not limited to: plunge pools within intermittent creeks; seeps; quiet water refugia during high water flows; and springs of sufficient flow to withstand the summer dry period.

3. Upland Habitat. Upland areas adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat up to a distance of 1 mile in most cases and comprised of various vegetational series such as grasslands, woodlands, wetland, or riparian plant species that provide the frog shelter, forage, and predator avoidance. Upland features are also essential in that they are needed to maintain the hydrologic, geographic, topographic, ecological, and edaphic features that support and surround the wetland or riparian habitat. These upland features contribute to the filling and drying of the wetland or riparian habitat and are responsible for maintaining suitable periods of pool inundation for larval frogs and their food sources, and provide breeding, non-breeding, feeding, and sheltering habitat for juvenile and adult frogs (e.g., shelter, shade, moisture, cooler temperatures, a prey base, foraging opportunities, and areas for predator avoidance). Upland habitat should include structural features such as boulders, rocks and organic debris (e.g., downed trees, logs), as well as small mammal burrows and moist leaf litter.

4. Dispersal Habitat. Accessible upland or riparian dispersal habitat within designated units and between occupied locations within a minimum of 1 mile of each other that allow for movement between such sites. Dispersal habitat includes various natural habitats and altered habitats such as agricultural fields, which do not contain barriers (e.g., heavily traveled road without bridges or culverts) to dispersal. Dispersal habitat does not include moderate- to high-density urban or industrial developments with large expanses of asphalt or concrete, nor does it include large reservoirs over 50 acres in size, or other areas that do not contain those features identified in PCE's 1, 2, or 3 as essential to the conservation of the subspecies.

With the revised designation of critical habitat, the Service intends to conserve the geographic areas containing the physical and biological features that are essential to the conservation of the species, through the identification of the appropriate quantity and spatial arrangement of the PCE's sufficient to support the life-history functions of the species. Because not all life-history functions require all the PCE's, not all areas designated as critical habitat will contain all the PCE's. Please refer to the final designation of critical habitat for California red-legged frog for additional information (75 FR 12816).

There are 20 critical habitat units of the California red-legged frog located within the action area for the 22 Nationwide and other Corps permits in the nine San Francisco Bay Area counties. The critical habitat units range in size from 1,564 acres to 204,718 acres totaling 692,945 acres in eight counties. There is no designated critical habitat for the California red-legged frog in San Francisco County.

Effects of the Proposed Action

<u>California Red-legged Frog</u>

Projects authorized by the Corps under the 22 Nationwide and other permits in the nine San Francisco Bay Area counties covered by this PBO could have adverse effects on the threatened California red-legged frog through mortality, capture, injury, harassment, and harm of individual subadults and adults.

Ground disturbance and construction activities associated with projects authorized under the Nationwide and other Corps permits may remove vegetation and other materials utilized for cover and aestivation, fill or crush burrows or crevices, and reduce the prey base for the California red-

legged frog. Because this listed amphibian uses small mammal burrows and soil crevices for shelter, individuals may be crushed, buried, or otherwise injured during construction activities. Disturbance caused by construction activities may cause individuals to disperse into areas containing unsuitable habitat, increase the risk of predation or other sources of mortality. Direct injury or mortality to the animal may result from poisoning by pesticides, or harassment from night-lighting, noise, and vibration.

The Corps will ensure the permittees compensate for permanent and, in some cases, temporal habitat loss with in-perpetuity preservation and or restoration of appropriate amounts of California red-legged frog habitat. Preservation of high value habitat at a Conservation Bank will allow for the permanent protection, long-term management, and enhancement of the habitat for the California red-legged frog which will contribute to the recovery of this species. In some cases, the permittee may choose to use a site they acquire which would need to be protected in perpetuity and be managed for the benefit of the frog. In addition, for small in-stream impacts revegetation/restoration of the site may be appropriate and this may benefit the species by improving the functions. This compensation, combined with the implementation of the other conservation measures described above, is anticipated to offset the adverse effects of harm resulting from project-related habitat modification or loss.

Preconstruction surveys and the relocation of the California red-legged frog may reduce injury or mortality. However, death and injury of individual red-legged frogs could occur at the time of relocation or later in time subsequent to their release. Although survivorship for translocated members of this species has not been determined, survivorship of translocated wildlife, in general, is lower because of intraspecific competition, lack of familiarity with the location of potential breeding, feeding, and sheltering habitats, increased risk of contracting disease in a foreign environment, and the risk of predation. Improper handling, containment, or transport of individuals will be reduced or prevented by use of a Service-approved biologist, limiting the duration of handling, limiting the distance of translocation, and requiring the proper transport and release of the animals.

Unless rescued by the Service-approved biologist, individual California red-legged frogs could be harassed, injured, or and killed by ground disturbing and construction-related activities. Even with a Service-approved biologist present at the project site, worker awareness, and escape ramps, animals may fall into the trenches, pits, or other excavations, and then risk being directly injured, killed, or be unable to escape and die as a result of desiccation, entombment, or starvation.

Plastic netting and similar materials that are used for erosion control and other reasons could result in the entanglement and death of California red-legged frogs, as well as birds and wildlife, due to exposure, starvation, strangulation, or predation (Stuart *et al.* 2001). However, the Corps has committed, through implementation of the Conservation Measures, to ensuring the permittees do not utilize these materials which reduces these adverse effects.

Habitat Loss and Fragmentation

The primary factor leading to the listing of this animal is the result of habitat loss and fragmentation in the form of roadway construction, and urban encroachment. Activities associated with urban development, including roadway projects, removal of vegetation and other materials utilized as cover and aestivation, damage or destruction of water bodies utilised by all life history stages, reduction or elimination of movement corridors and upland habitat, filling or collapsing rodent burrows or crevices, and potentially reduce the prey base for the California red-legged frog. Construction activities are likely to result in the direct disturbance, displacement, injury, and/or morality of

California red-legged frogs. Individuals likely are to be killed or injured by construction equipment or other vehicles accessing the construction site. Disturbance from human activities, including roadway activities may also cause individuals to move into or across areas of unsuitable habitat where they may be prone to higher rates of mortality from vehicles and predation.

Summer cover and foraging habitat within the action area may be temporarily and permanently eliminated by the proposed projects. Individual red-legged frogs occupying the affected habitat run the risk of being crushed or buried by earth moving activities. Those that do survive will suffer permanent and temporary loss of habitat and harassment from increased human activity. Loss or reduction of dispersal habitat increases intra-and inter-specific competition for food and living space for the red-legged frog in the action area. Removal of native vegetation, such as willow and coyote brush, may increase exposure of the California red-legged frog to predators due to the permanent loss of cover. Measures to minimize habitat destruction and alteration such as reducing the project footprint, restoration and re-vegetation of disturbed sites with locally collected native plant species can potentially provide refuge, food and shelter for the listed amphibian, while also limiting the establishment of invasive and non-local native plants.

Fragmentation of habitat isolates populations of the California red-legged frog such that breeding between populations becomes impossible or extremely limited. Fragmentation also limits dispersal resulting in a reduced chance of repopulation to locations where it has been extirpated. Isolation due to fragmentation can result in the ultimate decline of populations because of the lack of genetic variability. Van Gelder (1973) and Cooke (1995) have examined the effect of roads on amphibians, such as the California red-legged frog, and found that because of their activity patterns, population structure, and preferred habitats, aquatic breeding amphibians are especially vulnerable to traffic induced mortality.

Road Kills

Roadways, bridges, and other associated structures or facilities may result in adverse effects to the California red-legged frog. Aside from direct construction related-effects, the threats are the result of the slow movements of this animal, inability to notice the approach of cars in time to avoid them, their tendency to become immobilized when in danger which leaves them on roads for longer periods of time, their life cycles that involve periodic long distance dispersal. Traffic volume influences the permeability (e.g., the likelihood of crossings) of roads and the probability for mortality due to vehicle strikes. Factors such as the width of the road, the presence of a median with or without Jersey or "K" rail concrete barriers, the velocity of the traffic, the physical nature of the approach and shoulder of the road, and the behavior of the animals attempting to cross determine probabilities for mortality. Clevenger *et al.* (2003) found that studying roads in Canada found that a low volume road (1,068 to 3,231 vehicles per day) in Canada resulted in higher mortalities of small vertebrate fauna than high volume roads (14,000 to 35,000 vehicles per day).

Contaminants

The presence of roads, ground disturbance and construction or repair of roadways can result in the introduction of chemical contaminants to the site. Contaminants can be introduced in several ways. Substances used in road building materials or to recondition roads can leach out or wash off roads adjacent to habitat. Vehicle exhaust emissions can include hazardous substances which may concentrate in soils along roads. Heavy metals such as lead, aluminum, iron, cadmium, copper, manganese, titanium, nickel, zinc, and boron are all emitted in vehicle exhaust (Trombulak and Frissell 2000). Concentrations of organic pollutants (i.e. dioxins, polychlorinated biphenyls) are higher in soils along roads (Benfenati *et al.* 1992). Ozone levels are higher in the air near roads

(Trombulak and Frissell 2000). Vehicles may leak hazardous substances such as motor oil and antifreeze. A variety of substances could be introduced during accidental spills of materials. Spills can result from leaks in vehicles, small containers falling off vehicles, or from accidents resulting in whole loads being spilled. Large spills may be partially or completely mitigated by clean-up efforts, depending on the substance. Although the quantity leaked by a single vehicle may be small, the substances can accumulate on roads and may be washed into the adjacent environment by runoff during rain storms.

The California red-legged frog could be exposed to contaminants if it inhabits or utilizes areas adjacent to the project site. Exposure pathways could include inhalation, dermal contact and absorption, direct ingestion of contaminated soil or plants, or consumption of contaminated prey. Exposure to contaminants may cause short- or long-term morbidity. Carcinogenic substances could cause genetic damage resulting in sterility, reduced productivity, or reduced fitness among progeny. Contaminants may also have a negative effect on the prey of the California red-legged frog. This could result in reduced prey diversity and abundance, and diminished local carrying capacity for the animal.

Disease

Biologists and construction personnel working in different geographic locations inhabited by different amphibian species may transmit diseases to the California red-legged frog though contaminated equipment and other materials. The chance of a disease, such as chytrid fungus, being introduced into a new area is greater today than in the past due to the increasing occurrences of disease throughout amphibian populations, as well as Global Climate Change in California and the United States. Chytrid fungus may exacerbate the effects of other diseases on amphibians or increase the sensitivity of the amphibian to environmental changes that reduce normal immune response capabilities (Bosch *et al.* 2001).

Invasive Species

Construction of roads can facilitate the invasion and establishment by species not native to the area. Disturbance and alteration of habitat adjacent to roads may create favorable conditions for non-native plants and animals. Non-native plants can spread along roadsides and then into adjacent habitat (Gelbard and Harrison 2003). American bullfrogs and other non-native animals may use modified habitats adjacent to road to disperse into California red-legged frog habitat. These exotic animals could compete for resources such as food or refugia, or directly injure or kill them. Non-native plants and animals may reduce habitat quality for the California red-legged frog or its prey, and reduce the local carrying capacity. Introductions of non-native species could cause them to alter behavioral patterns by avoiding or abandoning areas near roads.

Disturbed areas adjacent to roads provide favorable habitat conditions for a number of non-native plant species. Some of these taxa are aggressively invasive and they can alter natural communities and potentially affect habitat quality. A problematic species within the range of the red-legged frog is yellow star thistle. Dense stands of this plant can form along roadsides and then spread into adjacent habitat. This plant displaces native vegetation and competes with native plants for resources.

Road Effect Zone

In addition to the adverse effects occurring during ground disturbance and construction, roadways are a major source of injury and mortality for amphibians. Ehmann and Cogger (1985) estimated that five million reptiles and frogs are killed annually on Australian roads. Vos and Chardon (1998)

found that road density within 750 feet of a pond was negatively associated with the size of moor frog populations. The density of roads within 2250 feet of a pond was negatively associated with the probability that species would occupy the pond at all. Van Gelder (1973) estimated that 30% of the females from a local breeding population of the common toad succumbed to road kill and reported that an equivalent percentage for males was likely. In a study of frogs and toads, Fahrig *et al.* (1995) found the proportion of dead-to-live animals increased and the total density of animals decreased with increasing traffic intensity.

Roads act as barriers to California red-legged frogs attempting to cross fragmented habitats. As barriers, roads restrict gene flow leading to negative, demographic consequences that can cause extinction (Shepard *et al.* 2008). Roads were found to be significant barriers to gene flow among common frogs in Germany resulting in genetic differentiation among populations separated by roads (Reh and Seitz 1990). Failure to cross roads by the California red-legged frog may disconnect fragmented populations from mating resulting in population declines over time. Isolated populations have a greater chance of extinction when new immigrants are not contributing to the gene pool and are less likely to be re-colonized after extinction. The installation of culverts, tunnels, bridges, and overcrossings, to facilitate safe wildlife passage under or across roads can minimize the reduction of population isolation or loss.

Adverse effects to the California red-legged frog from roads may extend some distance from the actual road. The phenomenon can result from any of the effects already described in this programmatic biological opinion (e.g. vehicle-related mortality, habitat degradation, invasive exotic species, etc.). Forman and Deblinger (2000) and Forman (2000) described the effect as the "road effect" zone. Along a 4-lane road in Massachusetts, they determined that this zone extend for an average of approximately 980 feet to either side of the road for an average total zone width of approximately 1970 feet. However, in places they detected an effect > 0.6 mile from the road. Trombulak and Frissell (2000) described how heavy metal concentrations from vehicle exhaust were greatest within 66 feet of roads, but elevated levels of metals in both soil and plants were detected at 660 feet of roads. The road effect zone apparently varies with habitat type and traffic volume. The road effect zone and the California red-legged frog have not been adequately investigated; however, it is possible it exists given the effects of roads on the animal.

Effects to Critical Habitat

The Service anticipates that the activities associated with the Project could negatively affect some of the PCEs of California red-legged frog critical habitat within the action area. However, these activities will only result in minor effects to habitat and these activities (implemented with the conservation measures) will not prevent critical habitat from providing essential conservation values for the California red-legged frog. While disturbance within critical habitat may prevent some California red-legged frogs from using portions of the critical habitat for essential life functions whether temporarily (e.g., disturbance that can be restored to pre-project conditions within one calendar year from the date of initial ground disturbance) or permanently (e.g., disturbance that cannot be restored to pre-project condition within one calendar year), they will still be able to complete their essential ecological and biological functions in the remaining areas of critical habitat. All critical habitat units will retain their PCEs and the PCEs within each critical habitat unit will still remain functional. Therefore, the designated critical habitat for the California red-legged frog will still be able to perform its intended functions and conservation role.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this programmatic biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Numerous non-Federal activities continue to adversely affect, primarily through the damage or destruction of habitat, the California red-legged frog in the action area. In addition, the same activities affect this threatened species also affect its critical habitat. Loss and degradation of habitat affecting this listed species with or without Service authorization continues as a result of urbanization; road construction and maintenance, utility right-of-way management; flood control and water banking projects that may not be funded, permitted, or constructed by a Federal agency; inappropriate levels of grazing by livestock; and continuing agricultural expansion. This threatened amphibian also is adversely affected by ground squirrel reduction, mosquito control, including the planting of exotic mosquito fish, and reduction of food sources. Unauthorized take is occurring, and the Service continues to request re-initiation of projects when project descriptions have changed markedly since our biological opinions were issued.

The Association of Bay Area Governments 2007 Projection forecasts the San Francisco Bay Area nine-county population will increase by 2.2 million residents from 2000-2035 (ABAG 2007). The human population is projected to increase by 18 percent for the San Francisco Bay hydrologic region from 1995 to 2020 with agricultural crop land use in the region projected to remain around 65,000 acres (California Department of Water Resources 1998). Development projects that occur during this timeframe due to increases in human population growth will continue to imperil the California red-legged frog.

Conclusion

After reviewing the current status of the California red-legged frog, the environmental baseline for the action area; the effects of projects potentially authorized under the 22 Nationwide and other Corps permits in the nine San Francisco Bay Area counties, and the cumulative effects; it is the Service's biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of this threatened species. We based this determination on the following conservation measures that will be fully implemented by the Corps: (1) habitat loss will be compensated with in-perpetuity preservation of occupied California red-legged frog habitat in the action area; (2) the Corps will incorporate construction or enhancement of culverts or other structures to ensure safe passage of California red-legged frogs across the roadways where appropriate; (3) pre-construction surveys will be conducted for listed species; (4) a Service-approved biologist will monitor all activities for compliance with this programmatic biological opinion; (5) California red-legged frogs found in the project work area will be relocated to nearby suitable habitat; and (6) other conservation measures, as described in the Conservation Measures of this programmatic biological opinion.

After reviewing the current status of the California red-legged frog, the environmental baseline for the action area, the effects of projects potentially authorized under Nationwide or other Corps permits in the nine San Francisco Bay Area counties, and the cumulative effects, it is the Service's biological opinion that the action, as proposed, is not likely to destroy or adversely modify California red legged frog critical habitat. The proposed action is not likely to result in the destruction or

adverse modification of critical habitat for this threatened species because although the project may adversely affect primary constituent elements within a portion of some of the critical habitat units in the action area, these activities will be limited to a small proportion of the critical habitat and will not affect the ability of the remaining critical habitat to conserve the California red-legged frog.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement. The Incidental Take Statement accompanying this biological opinion does not address the restrictions or requirements of other applicable laws.

The measures described below are non-discretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

The Service anticipates that incidental take of the California red-legged frog will be difficult to detect because when individuals are not in their breeding ponds, they inhabit the burrows of ground squirrels or other rodents, root wads or other objects; they may be difficult to locate due to their cryptic appearance and behavior; subadults and adults may be located a distance from the breeding ponds; their distance movements occur on a limited period during rainy nights in the fall, winter, or spring; and the finding of an injured or dead individual is unlikely because of their relatively small body size. Adverse effects to this animal also may be difficult to quantify due to seasonal fluctuations in their numbers, random environmental events, changes in water regime at their breeding ponds, or additional environmental disturbances. Due to the difficulty in quantifying the number of the California red-legged frog that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the harm and harassment, capture, injury and mortality of all eggs, egg masses, tadpoles, subadults, and/or adults inhabiting or utilizing a total of seventy-five (75) acres for the five (5) year duration of this programmatic biological opinion. Reinitiation will be triggered if the amount of incidental take is exceeded by the Corps.

Effect of the Take

The Service has determined that this level of anticipated take for projects potentially authorized under the 22 Nationwide and other Corps permits in the nine San Francisco Bay Area counties, as appended to this biological opinion, is not likely to result in jeopardy to the California red-legged frog, or adverse modification or destruction of its designated critical habitat.

Reasonable and Prudent Measure

1. The Corps shall minimize adverse effects to the California red-legged frog by fully implementing terms and conditions

Terms and Condition

In order to be exempt from the prohibitions of section 9 of the Act, the Corps shall comply with the following Term and Condition that implements the reasonable and prudent measure described above. This Term and Condition is nondiscretionary.

The following Term and Condition implements the Reasonable and Prudent Measure:

1. The Corps shall implement the conservation measure described within the project description of this programmatic biological opinion.

Reporting Requirements

For each Nationwide or other Corps permit appended to this programmatic biological opinion, the Service-approved biologist will maintain a written record that will include, but is not limited to: (1) beginning and ending time of each day's construction activity and monitoring effort; (2) California red-legged frogs, and wildlife species, that were observed, including the specific time and location; and (3) description of any actions taken to protect the California red-legged frog or its habitat. The biological monitor will submit the original written record to the Service within fourteen (14) calendar days of the completion of their monitoring, or immediately upon verbal, email, or written request from the Service, California Department of Fish and Wildlife, or their authorized agent.

Injured California red-legged frogs must be cared for by a licensed veterinarian or other qualified person such as the Service-approved biologist; dead individuals shall be placed in a zip-lock® plastic bag containing a piece of paper with the date, time, and location where the animal was found, and who found it legibly written in permanent ink, and then placed in a freezer located in a secure location. The Service must be notified within twenty-four (24) hours via telephone and electronic mail of the discovery of death or injury to any listed species that occurs or is suspected to have occurred as a result of project related activities, or is observed in or near the action area. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal clearly indicated on a USGS 7.5 minute quadrangle and other maps at a finer scale, as requested by the Service, and any other pertinent information. The Service contacts are the Coast Bay Foothills Division Chief at telephone (916) 414-6600, and the Resident Agent-in-Charge of the Service's Law Enforcement Division at telephone (916) 569-8444.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service has developed the following conservation recommendations based, in part, on the Recovery Plan for the California Red-legged Frog (Service 2002).

1. Implement actions within the 2002 Recovery Plan for the California Red-legged Frog.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed and/or proposed species or their habitats, the Service requests notification of the implementation of this recommendation.

REINITIATION NOTICE

This concludes formal consultation on the 22 Nationwide and other Corps permits in the nine San Francisco Bay Area counties. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species that was not considered in this opinion; or (4) a new species is listed that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions concerning this biological opinion on projects authorized under the 22 Nationwide and other Corps permits in the nine San Francisco Bay Area counties, please contact Ryan Olah (Ryan_Olah@fws.gov at the Sacramento Fish and Wildlife Office at the letterhead address or at telephone (916)414-6623.

Sincerely,

Jennifer M. Norris
Field Supervisor

cc: Scott Wilson, California Department of Fish and Wildlife, Yountville, California

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Appendix B: USFWS Species List (2017)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: December 14, 2017
Consultation Code: 08ESMF00-2018-SLI-0666
Event Code: 08ESMF00-2018-E-01895
Project Name: Corinda Los Trancos Stabilization

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2018-SLI-0666

Event Code: 08ESMF00-2018-E-01895

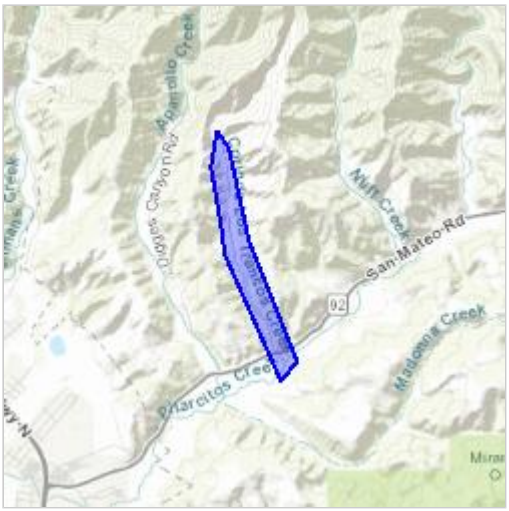
Project Name: Corinda Los Trancos Stabilization

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: bank stabilization

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/37.48907525821863N122.41080813281727W



Counties: San Mateo, CA

Endangered Species Act Species

There is a total of 18 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse *Reithrodontomys raviventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered
Southern Sea Otter *Enhydra lutris nereis* No critical habitat has been designated for this species. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/8560	Threatened

Birds

NAME	STATUS
California Clapper Rail *Rallus longirostris obsoletus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Short-tailed Albatross *Phoebastria (=Diomedea) albatrus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/433	Endangered
Western Snowy Plover *Charadrius alexandrinus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: East Pacific DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
San Francisco Garter Snake *Thamnophis sirtalis tetrataenia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5956	Endangered

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened
Tidewater Goby *Eucyclogobius newberryi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Mission Blue Butterfly *Icaricia icarioides missionensis* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6928	Endangered
Myrtle's Silverspot Butterfly *Speyeria zerene myrtleae* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6929	Endangered
San Bruno Elfin Butterfly *Callophrys mossii bayensis* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3394	Endangered

Flowering Plants

NAME	STATUS
Hickman's Potentilla *Potentilla hickmanii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6343	Endangered
San Mateo Woolly Sunflower *Eriophyllum latilobum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7791	Endangered
White-rayed Pentachaeta *Pentachaeta bellidiflora* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7782	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
California Red-legged Frog *Rana draytonii* https://ecos.fws.gov/ecp/species/2891#crithab	Final

HISTORIC PROPERTY SURVEY REPORT/FINDING OF EFFECT

(No Historic Properties Affected)

MID-SECTION CHANNEL REPAIRS
CORINDA LOS TRANCOS CREEK
VICINITY OF HALF MOON BAY
SAN MATEO COUNTY, CALIFORNIA

FOR

QUESTA ENGINEERING CORPORATION
1120 Brickyard Cove, Suite 206
Point Richmond, CA 94807

ATTN: Sydney Temple P.E., Principal

BY

BASIN RESEARCH ASSOCIATES
1933 Davis Street, Suite 210
San Leandro, CA 94577

MARCH 2018

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CORRESPONDENCE

CHRIS/NWIC SEARCH RESULTS

1.0 INTRODUCTION

This *Historic Property Survey Report/Finding of Effect* report (HPSR/FOE) represents the identification and evaluation effort completed for the Corinda Los Trancos (CLT) Mid-Section Channel Repairs Project. The project plans to stabilize an 800-foot reach of the CLT Creek/channel which has been quickly degrading by regrading the creek bed, reconstructing the vertical eroding banks and install a series of sub-grade controls to stop vertical degradation and provide long term stability. The proposed undertaking may require the analysis of the project in accordance with Section 404(b)(1) of the Clean Water Act (codified at 33 U.S.C. § 1344) and must comply with the regulatory requirements of the U.S. Department of the Army, Corps of Engineers (Corps) with regard to cultural resources (historic properties).

The Corps (San Francisco District) is the National Environmental Policy Act (NEPA) responsible entity and is required to complete the federal regulatory requirements for cultural resources pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) (54 U.S.C. § 306108) and its implementing regulations 36 CFR Part 800. The regulations require a federal agency with jurisdiction over a federal, federally assisted or federally licensed undertaking to take into account the effort of the undertaking on properties listed on or eligible for the National Register of Historic Places (NRHP) and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking should it adversely affect a NRHP eligible or NRHP listed property. The criteria for determining NRHP eligibility are found in 36 CFR Part 60.

The County of San Mateo (Health Services Department) is the lead local agency and the Corps (San Francisco District) is the lead federal agency for the project. The Corps is responsible for consulting with the California State Historic Preservation Office (SHPO) on their identification and evaluation efforts and on the effects, if any, of the undertaking upon Historic Properties in accordance with 54 U.S.C. § 302303(b)(5), (b)(6) and (b)(9).

The Area of Potential Effects (APE) for Archaeology includes the area within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, should any be present within the APE. The horizontal and vertical APE consists of the proposed construction within the project's right of way (ROW) including access roads to the project area and staging areas for material laydown and storage of excavated spoils. The APE is commensurate with the footprint of the proposed undertaking which is focused on improvements within the creek and its banks. The project is almost all fill with only small amounts of cut less five feet at bank tops to make access roads.

The completion of this document allows the project proponent to partially satisfy the regulations of the Corps for implementing Section 106 of the NHPA of 1966 as amended. In addition, the County of San Mateo (Health Services Department), as the lead local agency, is required to determine the potential impacts of the construction on both historical and archaeological cultural resources and mitigate impacts on any significant resources may be affected by the project to a less than significant effect in accordance with the California Environmental Quality Act (CEQA).

This HPSR/FOE provides supporting materials for the Section 106 identification and evaluation including the results of a records search, a review of pertinent literature, consultation with local

Native Americans, and a field review. The research has determined that a finding of *No Historic Properties Affected* pursuant to 36 CFR Part 800.4(d)(1) for historic properties is applicable as the Undertaking will have no effect as defined in 36 CFR Part 800.16(i).

2.0 LOCATION AND DESCRIPTION

2.1 LOCATION

The proposed Mid-Section Channel Repairs Corinda Los Trancos Creek project is located northeast of the City of Half Moon Bay in San Mateo County, California within the mid-section of the unchannelized creek alignment between the Ox Mountain Sanitary Landfill[1] on the north and Highway 92 (San Mateo Road) on the south. The creek is bordered to the west by the Lemos Farm and to the east by the Ox Mountain Landfill Road (formerly Quarry Road; Ox Mountain Dump [road]) (Thomas Bros. Maps 2006; United States Geological Survey (USGS) Half Moon Bay, CA 1997; T 5 South, R 5 West [T 5S, R 5W], unsectioned) [Figs. 1-3].

2.2 DESCRIPTION

The Corinda Los Trancos (CLT) Mid-Section Channel Repairs project seeks to stabilize an 800-foot reach of the CLT Creek/channel which has been quickly degrading by regrading the creek bed, reconstructing the vertical eroding banks and install a series of sub grade controls to stop vertical degradation and provide long term stability.

The creek watershed is a tributary to Pilarcitos creek which flows into the Pacific Ocean in Half Moon Bay California. The degrading reach is located in the mid-section of the natural creek alignment between the Ox Mountain Sanitary Landfill and Highway 92. Sanitary landfill operations began in 1976 followed by expansion of Ox Mountain Landfill in the early 1990's altered the hydrologic and geomorphic drivers of natural channel stability. The lower natural channel has been responding to these changes since. The landfill operation has a structured storm water collection system and a series of sediment retention basins, as per their operating permit requirements. This has increased storm water runoff volumes and altered the timing and duration of flows leaving the upper watershed and the landfill. The sediment control pond at the base of the landfill traps all bedload inputs into the lower channel. The combination of altered flow regime and reduced sediment input has lead to channel degradation and failure of numerous creek banks throughout the project reach. In the project site, channel degradation is causing the loss of useable land on the Lemos Farm, which borders CLT to the west (San Mateo County 1991; Questa 2017).

Previous channel repair efforts have been implemented along the reach of CLT between the landfill and Highway 92 (Figure 4) since the 1990's. Channel work was completed in the early 1990's immediately after the expansion of the landfill. Gabion baskets were installed in a series of grade control structures along the segment of CLT from the landfill scale house to the culvert beneath Highway 92.

1. The Ox Mountain Sanitary Landfill, 12310 San Mateo Road (Highway 92), Half Moon Bay.

In 2002, Questa designed and oversaw channel stabilization work along 1,800 feet of CLT just downstream from the landfill. Work involved a series of willow planted rock drop structures within the creek and slope stabilization using biotechnical methods, including willow mattresses and alder planted coir logs. This work has functioned as designed over the past decade leading to channel stability and riparian re-growth through this reach.

During the early winter of 2012/2013 large magnitude storms caused extensive damage to portions of the Corinda Los Trancos Creek channel and banks immediately upstream of Highway 92 and the Lemos Farm operations. The gabion grade control structures installed in the early 1990s and had provided vertical channel stability for 20 years failed in 2010-2012. The sand based sediment load of the creek slowly eroded the gabion wiring, the baskets broke open and the smaller rock content was lost to sediment transport. These structures have failed over recent years leading to widespread channel degradation in the lower section by 2013. In 2015 repair work was completed in this reach.

2.3 AREA OF POTENTIAL EFFECTS (APE)

The Area of Potential Effects (APE) for Archaeology includes the area within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, should any be present within the APE. The horizontal and vertical APE consists of the proposed construction within the project's right of way (ROW) including access roads to the project area and staging areas for material laydown and storage of excavated spoil. The APE is commensurate with the footprint of the proposed undertaking which is focused on improvements within the creek and its banks. Construction is anticipated within the creek bed, along the banks for reconstruction and during the installation of a proposed series of sub-grade controls to stop vertical degradation and provide long term stability. The project is almost all fill with only small amounts of cut less five feet at bank tops to make access roads.

3.0 REGULATORY CONTEXT

This report has been prepared to meet applicable federal regulatory and State of California requirements for historic properties (cultural resources) which require the identification and evaluation of cultural resources that could be affected by the project. Cultural resources include prehistoric and historic archaeological sites, districts and objects; standing historic structures, buildings, districts and objects; and locations of important historic events or sites of traditional/cultural importance to various groups. The analysis of cultural resources can provide valuable information on the cultural heritage of both local and regional populations.

The proposed undertaking may require the analysis of the project in accordance with Section 404(b)(1) of the Clean Water Act (codified at 33 U.S.C. § 1344) and must comply with the regulatory requirements of the Department of the Army, Corps of Engineers (Corps) with regard to cultural resources (historic properties). The Corps (San Francisco District) is the National Environmental Policy Act (NEPA) responsible entity and is required to complete the federal regulatory requirements for cultural resources pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) (54 U.S.C. § 306108) and its implementing regulations 36 CFR Part 800. The regulations require a federal agency with jurisdiction over a federal, federally assisted or federally licensed undertaking to take into account the effort of the undertaking on properties listed on or eligible for the National Register of Historic Places (NRHP) and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking should it adversely affect a NRHP eligible or NRHP listed property. The criteria for determining NRHP eligibility are found in 36 CFR Part 60.

The County of San Mateo (Health Services Department), as the lead local agency, is required to determine the potential impacts of the construction on both historical and archaeological cultural resources and mitigate impacts on any significant resources located that may be affected by the project to a less than significant effect in accordance with the California Environmental Quality Act (CEQA).

The California State Historic Preservation Office (SHPO) is the final reviewing party.

4.0 BACKGROUND REVIEW

4.1 ENVIRONMENTAL SETTING

Corinda Los Trancos Creek [CLT] (also known as the Arroyo de las Trancas) is a tributary of Pilarcitos Creek. The north-trending CLT canyon is approximately 2.5 miles long and 0.35 mile wide with natural side slopes averaging 20 to 50 percent. Located at an elevation of 138-142 feet (USGS/GNIS 2018), the natural side slopes averaging 20 to 50 percent are densely vegetated with shrubs, grasses, and some trees (Questa 2017).

The surface sediment consists of erodible alluvial soils weathered from granite. The canyon floor consists of alluvial and colluvial deposits derived from granitic bedrock, and are covered with dense grass and shrubs. The gradient of the canyon floor is steep and varies from 4 to 10 percent.

4.2 NATIVE AMERICAN - Prehistoric

Cultural resources are traces of human occupation and activity. The project is located within an environmentally advantageous area for Native Americans and would have provided a favorable environment during the prehistoric period with coastal, riparian and inland resources readily available. Ocean resources and the foothills could have been easily accessed and local creeks and other water sources would have provided a year-round source of water and riparian resources. Travel would have been relatively easy between the shoreline and interior. The eastern hills would have provided access to acorns, seed, game, stone, etc. while the beaches, marshes and creeks would have been sources of shellfish, fish, waterfowl, and plant resources.

Native American occupation and use of the general area appears to extend over 5,000-7,000 years and possibly longer. Habitation sites were undoubtedly selected for relative accessibility, protection from seasonal flooding, and proximity to a diversified resource base. Archaeological information suggests an increase in the prehistoric population over time with an increasing focus on permanent settlements with large populations in later periods. This change from hunter-collectors to an increased sedentary lifestyle is due to more efficient resource procurement but with a focus on staple food exploitation, the increased ability to store food at village locations, and the development of increasing complex social and political systems including long-distance trade networks.

Prehistoric site types recorded in the region consist of shell mounds, lithic scatters, quarries, habitation sites (including burials), bedrock mortars or other milling feature sites, petroglyph sites, and isolated burial sites.

Archaeological research in the San Francisco Bay Region has been interpreted using several chronological schemes based on stratigraphic differences and cultural traits. A three-part sequence of cultural development over time proposed by Lillard et al. (1939) was first used to document local and regional cultural change in prehistoric central California including the study area. This classification scheme, using Early, Middle and Late "horizons" to designate both chronological periods and social change, was based on stratigraphic patterns and an analysis of grave goods to explain local and regional cultural change from about 4,500 years ago to the time of European contact (see Lillard et al. 1939; Beardsley 1948, 1954).

The scheme was modified by Beardsley (1948, 1954) who renamed the sequence the Central California Taxonomic System (CCTS). This sequence proved inadequate and has since been revised and supplemented by new taxonomic systems recognizing cultural distinctions and associations in the Central California archaeological record (see collected essays by Bennyhoff and Fredrickson in Hughes 1994).

Central California Taxonomic System (CCTS)

Moratto (1984) suggests that the Early Horizon dated to ca. 4,500 to 3,500/3,000 years before present with the Middle Horizon dating to ca. 3,500 to 1,500 years before present and the Late Horizon dating to ca. 1,500 to 250 years before present. The Early Horizon is the most poorly known of the period with relatively few sites known or investigated. Early Horizon traits include hunting, fishing, use of milling stones to process plant foods, use of a throwing board and spear

("atlatl"), relative absence of culturally affected soils (midden) at occupation sites, and elaborate burials with numerous grave offerings.

Middle Horizon sites are more common and usually have deep stratified deposits that contain large quantities of ash, charcoal, fire-altered rocks, and fish, bird and mammal bones. Significant numbers of mortars and pestles signal a shift to plant foods from reliance on hunted animal foods. Middle Horizon peoples generally buried their dead in a fetal position and only small numbers of graves contain artifacts (and these are most often utilitarian). Increased violence is suggested by the number of burials with projectile points embedded in the bones or with other marks of violence.

The Late Horizon emerged from the Middle Horizon with continued use of many early traits and the introduction of several new traits. Late Horizon sites are the most common and are noted for their greasy soils (midden) mixed with bone and fire-altered rocks. The use of the bow-and-arrow, fetal-position burials, deliberately damaged ("killed") grave offerings and occasional cremation of the dead are the best-known traits of this horizon.

Local Sequence Characteristics

The complexity of the archaeological record in the central California region has resulted in the development and refinement of local sequences with specific cultural traits and chronologies (see Hughes 1994). Fredrickson (1974, 1994a-b) has proposed a tripartite scheme - Archaic, Emergent and Ethnographic - each with appropriate characteristics. The Lower Archaic (10,000-6,000 B.P.) and the Initial Middle Archaic (6,000-4,500 B.P.) are not well known (see Meyer and Rosenthal 1997). The other divisions are reasonably well represented. Additional details on the chronology and characteristics of these cultural divisions are presented in Fredrickson (1974, 1994a-b). Hylkema (see Allen 1999) has presented a four-period chronological framework for the Northern Santa Clara Valley/Southern San Francisco Bay region using the Bennyhoff and Hughes (1987) taxonomy as revised by Milliken and Bennyhoff (1993) and Fredrickson (1994a-b) [see Table 4.1].

Terminal Middle Archaic (4,500-2,500 B.P.)

The Terminal Middle Archaic is equivalent to the Early Period in Dating Scheme B (Bennyhoff and Hughes 1987). Initial use of the shell mound sites along San Francisco Bay appears to have started during this period (see Banks and Orlins 1985; Broughton 1996; Lightfoot 1997). Sites from the period are noted as having prehistoric burials, side-notched and stemmed projectile points, rectangular abalone ornaments, shaped and unshaped mortars and pestles, and rectangular *Olivella* shell beads (Fredrickson 1966). Obsidian sources include the North Coast Ranges and eastern Sierra (Wiberg 1996) although local cryptocrystalline raw materials are dominant. Subsistence focused on nuts and berries as well as bayshore resources (shellfish, marine fishes and mammals) while interior sites focused on freshwater fish and shellfish and terrestrial mammals (Banks and Orlins 1985; Simons 1992).

Upper Archaic (2,500-1,300 B.P.)

The Upper Archaic is equivalent to the Early/Middle Transition and the Middle Period in Dating Scheme B (Bennyhoff and Hughes 1987). Numerous Upper Archaic sites are known from the

lowland valleys and the San Francisco bayshore as well inland water sources (see Banks and Orlins 1979, 1985; Fredrickson 1968; Holman and Clark 1982; Lightfoot 1997).

Well-developed midden soils typical of long-term residential villages characterize Upper Archaic sites. Archaeological excavations have exposed deposits containing hundreds of flexed human burials and residential features. Early sites have Berkeley Pattern assemblages (ca. 3,000 B.P. to 1,000 B.P.) that are characterized by a bone tool and ornament industry, saucer and saddle-shaped *Olivella* shell beads, abalone ornaments and pendants, and unshaped and well-shaped mortars and pestles. Projectile points are typically shouldered lanceolate forms, although side-notched and stemmed points also occur, along with large lanceolate-shaped bifaces. Locally available chert dominates although obsidian from the North Coast Ranges and a number of eastern Sierran sources was used.

Subsistence appears to have focused on nuts and seeds with the faunal assemblages continuing to reflect either a marine or an interior emphasis depending on site location (Broughton 1996; Fredrickson 1968). However, marine shellfish begin to occur in appreciable amounts in interior valley sites (Fredrickson 1968).

This time period is also linked with the appearance of the Meganos Culture - a cultural group originating in the San Joaquin Delta and identified archaeologically as the Meganos Aspect of the Berkeley Pattern. It is postulated as migrating into various parts of the Bay Area at about 2,500 B.P. (Bennyhoff 1994; Bennyhoff and Hughes 1987) and has been described as a melding of bay and delta populations. The group is recognized archaeologically by a distinctive mortuary complex which featured few to no grave goods and a "non-standardized" mode of burial, including a mix of ventrally and dorsally extended and tightly flexed interments.

Emergent Period (1,300-200 B.P.)

The Emergent Period is equivalent to the Middle/Late Transition and the Late Period in the Dating Scheme B (Bennyhoff and Hughes 1987). The period's distinctive cultural pattern is known at the Augustine Pattern (1,000 B.P. to contact) which is characterized by the appearance of small projectile points. The Meganos culture appears to have retreated to the southern Delta region at the beginning of the period (Bennyhoff 1994).

Emergent Period sites are found in the interior valleys and uplands as well as bayshore locations. The sites generally have a midden deposit with both cremation and inhumation burials and residential features that include house floors. *Olivella* and clamshell disc beads are frequently found as grave goods and non-associated in midden deposits. It is possible that bead manufacture was practiced at some sites based on the presence of manufacturing debris. Napa Valley obsidian dominates the chipped stone tool assemblages.

Bedrock mortar milling stations appear early in the Emergent Period and are used in association with other portable milling equipment. Nuts, berries and seeds, especially small seeds, were collected and processed. Large terrestrial mammals (e.g., deer, elk) appear to have been favored. Marine shellfish and marine fishes appear inland in much larger quantities than in previous periods (Fredrickson 1968).

Patterns within the Emergent Period differ in terms of primary subsistence activities and increasing social stratification. These patterns have been interpreted as linked to the spread of Utian language groups, followed by possibly the Miwok-Costanoan, and later by the Wintuan groups (Moratto 1984:207-211).

General overviews and perspectives on the regional prehistory including chronological sequences can be found in C. King (1978a), Moratto (1984), Elsasser (1978) and Allen (1999), Jones and Klar (2007), and Milliken et al. (2007). See Moratto and Singh (1971) for a general review of San Mateo County and regional prehistory and Hylkema (1991, 2002) for detail regarding environment and chronology for selected archaeological sites from the southern San Francisco Bay and the peninsula coast.

TABLE 4.1
Comparison of California Cultural Period with Temporal Phases of Central California
(Allen et al. 1999)

Cultural Periods (Fredrickson 1994a-b)	Dating Scheme B1 (Bennyhoff and Hughes 1987)	
	Year	Time Period
EMERGENT PERIOD		Historic Period
	AD 1800	
		Late Period Phase 2-B
	AD 1700	
		Late Period Phase 2-A
	AD 1500	
		Late Period Phase 1-C
	AD 1300	
		Late Period Phase 1-B
	AD 1100	
		Late Period Phase 1-A
UPPER ARCHAIC PERIOD	AD 900	
		Middle/Late Period Transition
	AD 700	
		Middle Period Terminal Phase
	AD 500	
		Middle Period Late Phase
	AD 300	
		Middle Period Intermediate Phase
	AD 100	
		Middle Period Early Phase
	200 BC	
		Early/Middle Period Transition
MIDDLE ARCHAIC PERIOD	500 BC	
		Early Period
	3000 BC	
LOWER ARCHAIC PERIOD		
	6000 BC	
PALEOINDIAN PERIOD		
	8000 BC	

4.3 NATIVE AMERICAN - Ethnographic

The aboriginal inhabitants of the region belonged to a group known as the "Costanoan", derived from the Spanish word *Costanos* ("coast people" or "coastal dwellers") who occupied the central California coast as far east as the Diablo Range. An estimated 200+ and possibly more persons of partial Costanoan descent currently reside in the greater San Francisco Bay Area; these individuals now generally prefer the term *Ohlone* to identify their Native American affiliation (Margolin 1978).

In 1770, the Ohlone lived in approximately 50 separate and politically autonomous tribelets with each group having one or more permanent villages surrounded by a number of temporary camps. The tribelet territories, defined by physiographic features, generally supported a population of approximately 200 persons with a range of between 50-500 individuals. They usually had one or more permanent villages surrounded by a number of temporary camps. The camps were used to exploit seasonally available floral and faunal resources (Kroeber 1925; Levy 1978; Hart 1987).

The group known as the *Chiguan (Shiwam)* occupied the approximately 8 miles of the Pacific Ocean coast area from Point Montara south to Pilarcitos Creek/Half Moon Bay area and presumably exploited inland resources including the project site and vicinity. Two *Chiguan* village names appear in the Mission San Francisco baptismal register between 1783 and 1791 – *Ssatumnumo* in the Princeton area and *Chagunte (Sagunte),* about an additional league "from said place" in the vicinity of present-day Half Moon Bay. The *Chiguan* appear to have consisted of approximately 51 individuals and likely spoke the Ramaytush dialect of the San Francisco Bay Coastanoan language. Based on Mission registers, 44 Chiguan were baptized at Mission San Francisco (Mission Dolores) between 1779 and 1791 (Brown 1973-1974:21, footnotes #93-94; Milliken 1983:81-82, 139, Map 4; Milliken 1995:228, Map 4, 239; Milliken 2006:42, Table 9 [1779-1791]/S-32596; Milliken et al. 2009:100, 169, 239, 293 [village locations; between 1783-1791]).

Extensive ethnographic data for the San Francisco Bay Region are lacking, and the aboriginal lifeway apparently disappeared by approximately 1810 due to introduced diseases, a declining birthrate, the cataclysmic impact of the mission system and the later secularization[2] of the missions by the Mexican government and rancho system (Brown 1973-1974; Brown 1975:64; Levy 1978; Milliken 1983:82; Milliken 1995:251). The Ohlone were transformed from hunters and gatherers into generally agricultural laborers who lived at the missions and worked with former neighboring groups such as the Esselen, Yokuts, and Miwok. Later, due to secularization of the missions, the majority of the aboriginal population gradually moved to ranchos to work as manual laborers (Levy 1978:486). Thus, multi-ethnic Indian communities grew up in and around Ohlone territory and it was these people who provided ethnological data in the period from 1878 to 1933.

2. A program which replaced Franciscan clergy with "secular" (parish) clergy, released Native American neophytes from mission jurisdiction, and converted mission property into pueblos (towns). Decrees were issued in Spain in 1813 and 1920 and in California in 1826 and 1834 - ten missions were secularized in 1834, six in 1835, and five in 1836 (Hart 1987:464).

For a more extensive review of the Ohlone see Kroeber (1925:462-473), Harrington (1942), Galvan (1967/1968), Brown (1973-1974); C. King (1974, 1977, 1978b), Levy (1978), Bean (1994), Milliken (1979a-b; 1983, 1995, 2006) and Milliken et al. (2009).

4.4 HISTORIC ERA - Hispanic Period

The history of the San Francisco Bay Region can be divided into the Age of Exploration, the Spanish Period (1769-1821), the Mexican Period (1822-1848), and the American Period (1848-onward). During the Spanish Period government policy in northwestern New Spain was directed at the founding of *presidios* (forts), missions, and *pueblos* (secular towns) with the land held by the Crown. Between 1769-1823, 21 missions were established by the Franciscan priests along the California coast between San Diego and Sonoma. Later Mexican Period policy stressed individual ownership of the land with grants of vast tracts of land to individuals (Beck and Haase 1974; Hart 1987).

The routes of exploration parties likely followed an existing Native American trail, probably along the base of the hills along the coast (Dietz and Jackson 1970:46). The first party to traverse the San Francisco Peninsula, Gaspar de Portolá and Father Juan Crespí traveled up the coast through what is now San Mateo County between October 23 and November 20, 1769. They reached the site of present-day Half Moon Bay on October 28 and reportedly, the *"Chiguan people moved their village down from Pillar Point to the vicinity of the Spanish camp on October 29"* .. and *"fed the Spaniards"*. They were the first EuroAmericans to sight San Francisco Bay from Sweeney Ridge of the Montara Mountains (known at the time as Pedro Mountains). The northernmost camp was located on San Pedro Creek[3] north of the APE on October 31, 1769 through November 3. The extended exploring trip of Sergeant Ortega which "discovered" San Francisco Bay[4] (Hoover et al. 1966:390; CAL/OHP 1973, 1976, 1990:219-221; Chew and Riddle 1971; SMa/DEM 1986; Milliken et al. 2009:90).

Fernando Javier Rivera y Moncada and Father Francisco Palou in 1774 and Bruno de Heceta and Palou in 1775 followed the Portola expedition route and continued through the general study area (Beck and Haase 1974:#17; Jackson 1971:19-20).[5] The Rivera-Palou party "camped near a hamlet of Indian people in Chiguan territory (present Half Moon Bay) on December 6, 1774 (Milliken et al. 2009:92).

Mission San Francisco de Asis (also known as *Mission San Francisco Dolores*), the sixth of 21 missions in California was formally established in October 9, 1776. This mission had the greatest impact on the aboriginal population living in the project vicinity. The closest mission outpost, a rancheria known as *San Pedro y San Pablo*, was located in present-day Pacifica, in the San Pedro Valley near an Indian village. It was established in 1786 to resettle the neophytes and

3. State Landmark #24 (CAL/OHP 1990:219).

4. State Landmark #294, Site of the discovery of San Francisco Bay on Sweeney ridge (CAL/OHP 1990:220).

5. See also Richards (1973:opposite title page) for Portola Expedition route through San Mateo County. The Portola Expedition Historical Marker, State Landmark SRL 394, the "Site of the Discovery of San Francisco Bay" is located at the southeast corner of Highway 1 and Crespi Drive (Hoover et al. 1966:390; CAL/OHP 1990:221, #394).

to raise livestock for the mission and Presidio of San Francisco. Due to disease, this settlement declined and continued as a large mission ranch after 1793 and by 1828 it was occupied by over two dozen Indians (Stanger 1963:20-21, 24, 26; Hoover et al. 1966:393; Brown 1973-1974:Indians on the Coast; Brown 1975; Hart 1987:324; Hynding 1982:21-23).

The APE is within the southeastern part of the former *Rancho Corral de Tierra (Vasquez)*, a rancho that extended from the south face of Pedro Mountains to Pilarcitos Creek and was initially known as El Pilar or Los Pilares (e.g., Pillar Point). As early as the 1790s, Mission San Francisco (Mission Dolores) had horse and ox ranches within this rancho. The rancho was granted in two parts by Governors Manuel Jimeno and Manuel Micheltorena. The project area within the southern portion of the *Rancho Corral de Tierra* was granted by acting Governor Jimeno on October 5, 1839 to Tiburcio Vásquez and patented to him on January 6, 1873 for 4,436.18 acres. Born about 1793, Tiburcio Vásquez was a soldier at the Presidio of San Francisco from 1819 to 1825 and later, a member of the town council and the mayordomo [administrator] of Mission Dolores from 1840 to 1846.

None of the known buildings and features associated with the *rancho* were located in the vicinity of the project **(**Lewis 1859 [plat]; Hendry and Bowman 1940:1020-1021; Hoover et al. 1966:394; Milliken et al 2009:169; USGS 1973 Half Moon Bay, Calif.).

For additional information see Jackson (1971) for summary of Portolá's, Crespí's, and Costansó's[6] observations about the environmental setting and Native Americans as well as cultural site distributions.

4.5 HISTORIC ERA - American Period

California became a United States territory in 1848 through the Treaty of Guadalupe Hidalgo that ended the Mexican War of 1846-1847. California was not formally admitted as a state until 1850. Beginning in the mid-19th century, most of the rancho and pueblo lands were subdivided as a result of population growth, the American takeover, and the confirmation of property titles. The initial population explosion on the Peninsula was associated with the Gold Rush (1848), followed later by the construction of the transcontinental railroad (1869). Still later, European immigration and the development of a prosperous dairy industry had an impact on population growth in the area. Until about World War II, San Mateo County was dominated by an agricultural or rural land-use pattern. The coast side area retains this pattern while the vicinity of the project, in large part due to topography, is characterized by open space (Hart 1987).

"Coastside" San Mateo County

San Mateo County was created in 1856 from the southern part of San Francisco County and enlarged by annexing part of Santa Cruz County in 1868. Belmont was initially the County seat as a result of a fraudulent election; followed thereafter by "Redwood City" in 1857 (Hoover et al. 1966:389).

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6. Miguel Costansó, military engineer and cartographer on the *San Carlos* on the 1769-1770 Portolá Expedition (Hart 1987:113).

The "Coastside" of San Mateo County remained largely inaccessible and thus unpopulated through the 19th century. The coast's early population centers were the small, remote rural towns of Half Moon Bay and Pescadero. Half Moon Bay, a Mexican agricultural settlement originally known as "Spanishtown," had a sheltered landing at Pillar Point. The coast was early recognized as an excellent location for growing artichokes and other cool weather crops. A toll road over the Montara Mountains developed in 1866 connected the coast with the town of San Mateo. Even with a good "toll" road, it reportedly could take up to two days to carry produce with a horse-drawn wagon from the coast to the Peninsula railroad. "Coastside" relied on land and sea transportation until the arrival of the Ocean Shore Railway Company, incorporated May 1905 and reorganized in 1911 as the Ocean Shore Railroad Company (OSRC). This 80.26 mile line extended from San Francisco along the San Mateo coast to Santa Cruz and was responsible for the founding of a number of Coastside villages. The 26-mile gap in the rail alignment between Tunitas and Swanton was never completed and relied on a Stanley Steamer to transfer passengers and freight to the railhead at Swanton. The OSRC went into receivership in 1911 and was finally closed in October 1920. The railroad right-of-way was condemned in the early 1930s and Works Progress Administration (WPA) funds were used to build State Highway 1 (State Route 1, Pacific Coast or Cabrillo Highway) along most of the railroad track alignment. Later, the two-lane highway expanded to a four-lane divided highway which opened August 1990 (Stanger 1963; Dietz and Jackson 1970; Brown 1975; Fickewirth 1992; Hynding 1982; VanderWerf 1992; Walker 1997; Robertson 1998; Hunter et al. 2002; Hill 2009.

Half Moon Bay

The focus of activity in the project area was centered on Half Moon Bay, located approximately 2.25 miles to the southwest of the project site. Half Moon Bay is the only protected bay between San Francisco and Santa Cruz and the area has relied on dairying, fishing and truck farming (Hendry and Bowman 1940; Hart 1987). Pilarcitos Creek, the southern boundary of *Rancho Corral de Tierra (Vasquez),* forms the northern boundary of the historic core of Half Moon Bay. Half Moon Bay was initially settled in 1839 with buildings constructed in the 1840s by the Tiburcio Vasquez and Candelario Miramontes families, grantees of the *Rancho Corral de Tierra* (north of Pilarcitos Creek) and *Rancho Miramontes* (south of Pilarcitos Creek). It was originally known as *San Benito* (St. Benedict), the name Candelario Miramontes selected for his rancho grant.

Reportedly after the Mexican War (May 1846-February 1848), captive Native Americans were transported from the San Joaquin Valley to build seven adobe-brick houses in what became known to EuroAmericans from about 1853 until 1879 as Spanish Town (Spanishtown) – present-day Half Moon Bay. In the early 1850s, South American immigrants arrived and settled in San Benito while would-be American (non-Hispanics) squatters were expelled and settled further south at Purissima.[7] The "HalfMoon Bay" [*sic]* post office was established in June 1861 and discontinued in September 1862, and reestablished in November 1862 and modified in 1905 to "Half Moon Bay." The town, as platted in 1863 by Estanislao Zaballa and as legally recorded in 1884, was bounded on the north by the *Arroyo de los Pilarcitos* (Pilarcitos Creek), Correas Street

7. Brown (1975:73) as ". . . disappeared in the early 1940's," but the 1973 USGS shows a cluster at the terminus of the old railroad grade and cemetery east of the Cabrillo Highway.

on the south, the *Arroyo Leon* (Leon Creek) on the east, and Ocean Street (present-day Church) on the west.

Spanish Town rivaled Redwood City on the Bayside as San Mateo County's largest town providing local agricultural products (grain and cattle) as well as serving the lumber industry. It included stores, a flour mill, wagon and plow manufacturing shops, a brewery, saloons, churches, etc.. Half Moon Bay, the oldest town in the county, finally became a city in 1959 (Easton 1863 [map]; Hendry and Bowman 1940; Stanger 1963; Hoover et al. 1966; Dietz and Jackson 1970; Brown 1975; Spanishtown Historical Society 1982; Gualtieri 1988; Patera 1991; USGS 1973).

Corinda Los Trancos Creek

Brown (1975:95) notes that the place name "Trancas Creek … was originally the *Arroyo de las Trancas*. The "*Cañada de las Trancas*" in many records of the 1850s referred to a *cañada* or creek, a familiar term used in South America. A surveyor ca. 1890 is credited with the erroneous "Corinda Los Trancos Creek" that still prevails. "*Corinda*" is not a Spanish word, while *"trancos"* refers to a long stride or threshold (e.g., Cuyás 1972).

Historic Map Review

The historic map review shows no known features or potentially significant historic properties in the project APE or vicinity.

> The 1859 Lewis survey plat of *Corral de Tierra (Vasquez)* finally confirmed to Tiburcio Vasquez no features including creeks or roads in the APE or vicinity. Features shown include the "Arroyo de los Pilacitos" and "Road to Crystal Springs" (present-day State Highway 92/San Mateo Road). The summary text of Hoover et al. (1966) about the rancho as well as Hendry and Bowman's (1940) map of the known locations of dwellings in the County of San Mateo is also negative for the project site and vicinity.
>
> Easton's 1868 *Official Map of the County of San Mateo* shows the boundaries of various ranchos including the *Corral de Tierra finally confirmed to Tiburcio Vasquez* as well as the alignment of State Highway 92/San Mateo Road with *"Pilarcitos Creek"* just to its south. Two unnamed creeks are also shown, one likely the Corinda Los Trancos Creek flanked by 200 acres owned by C. Marvan on the east and Josefa Rodriquez on the west.
>
> Whitney's 1873 *Map of the Region Adjacent to the Bay of San Francisco* shows rancho boundaries and Pilarcitos Creek, but no other creeks, roads, etc. in the vicinity of the project site. "Spanish Town" – Half Moon Bay – is the most prominent feature in the general study area.
>
> Cloud's 1877 *Official Map of the County of San Mateo California* and Moore and DePue's 1878 *Official Map of the County of San Mateo, California* show rancho boundaries and Pilarcitos Creek At the time, the project site and vicinity appear to have been owned by a "R. Campbell" labeled on the east side of the unlabeled Corinda Los Trancos Creek. The 1877 map also includes the acreage – 160 acres. None of the

notable places of interest mapped in the 1974 edition of Moore and DePue published by Gilbert Richards (1973) are located within the general study area.

Neuman's 1909 *Official Map of San Mateo Co*[unty] shows the vicinity of the project site as owned by "M. N. Campbell" with 226 acres on the west side of the unlabeled Corinda Los Trancos Creek and 149 acres on the east side. At the time, State Highway 92/San Mateo Road is shown as the "San Mateo and Spanish Town Road."

By the early 1940s as shown on a US War Department topographic quadrangle based on 1937 and 1940 photography and 1942 road data, a road proceeded north from State Highway 92/San Mateo Road within the Corinda Los Trancos canyon on the east side of the creek. Between 1968 and 1973 this road was extended from just north of the project site further northward crossing another segment of road through the canyon just north of a cluster of buildings about 0.5 miles north of the project site. Other than a road, no cultural features are shown on the 1997 USGS topographic quadrangle. This contemporary road is known as the "BFI Ox Mt Dump Road" [formerly Quarry Road, present-day Ox Mountain Landfill [road]) (US War 1943 [photography 1937 and 1940; road data 1942]; USGS 1973, 1997; Thomas Bros. Maps 2006).

5.0 PRE-FIELD IDENTIFICATION EFFORT

A prehistoric and historic site record and literature search was completed by the California Historical Resources Information System, Northwest Information Center, Sonoma State University, Rohnert Park (CHRIS/NWIC File No. 17-1836 dated February 9, 2018 by Hagel). Specialized listings for cultural resources consulted include:

- *National Historic Landmarks* (NHL) and *National Register of Historic Places* (NRHP) listings in San Mateo County, California (USNPS 2015/2017).
- *Historic Properties Directory* for Half Moon Bay**,** San Mateo County (CAL/OHP 2012a) with the most recent updates of the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), California Historical Landmarks, and California Points of Historical Interest as well as other evaluations of properties reviewed by the State of California Office of Historic Preservation.
- *Archeological Determinations of Eligibility for San Mateo County* (CAL/OHP 2012b).
- *California History Plan* (CAL/OHP 1973).
- *California Inventory of Historic Resources* (CAL/OHP 1976).
- *Five Views: An Ethnic Sites Survey for California* (CAL/OHP 1988).
- *Listed California Historical Resources –San Mateo County* [including National Register, State Landmark, California Register, and Point of Interest] **(**CAL/OHP 2018).
- Local lists, inventories and plans (SMa/DEM/PD 1980; Brabb et al. 1982; SMa/DEM 1986; Dietz n.d./SMACo/ESA/PBD 1999).
- Lewis (1859 [plat]; Easton 1868; Whitney 1873; Cloud 1877; Moore and DePue 1878a-b; Neuman 1909; Nelson ca. 1912; Hendry and Bowman 1940; Brown (n.d. in Stanger

1963);USGS 1973 [1961 photorevised 1968 and 1973]; USGS 1997, US War 1943 [photography 1937 and 1940; road data 1942]).

The Native American Heritage Commission (NAHC) was contacted in regard to resources listed on the Sacred Lands Inventory **(**Busby 2018a). Letters were sent to five knowledgeable Native American individuals/organizations identified by the NAHC (Busby 2018b-f) (see Attachments) followed by telephone and/or email contact.

No other agencies, departments or local historical societies were contacted regarding landmarks, potential historic sites or structures.

5.1 RECORDS SEARCH RESULTS (CHRIS/NWIC File No. 17-1836)

- One cultural resources compliance study includes the project.
- No prehistoric or combined prehistoric or historic era sites have been recorded or reported in, adjacent, or within 0.25 miles of the project site.

5.1A Compliance Reports

One cultural resource compliance report on file with the CHRIS/NWIC includes the project.

An Archaeological and Historical Reconnaissance of a Portion of the San Mateo County Coastside (Dietz and Jackson 1970) appears to include the APE. None of the extensive listing of archaeological and/or historical resources reviewed in the document are located within or adjacent to the to the proposed project.

A cultural resource compliance report not on file with the CHRIS/NWIC completed by Archaeological Resource Service (ARS 1987) includes a portion of Apanolio Canyon west of the proposed project as well as an area that extends within approximately 950 feet north of the Mid-Section Channel Repairs Corinda Los Trancos Creek project. The ARS results were negative. The report notes, "A slight possibility does exist that the quaternary alluvium and colluvium of the valley floor had buried early to mid-Holocene archaeological deposits. This possibility is considered to be highly unlikely, but is mentioned only because a few such deposits have been encountered under these conditions."

5.1B Recorded and/or Reported Sites

- No prehistoric or combined prehistoric or historic era sites have been recorded or reported in, adjacent, or within 0.25 mile of the project site.

5.1C Listed Historic Properties

- No local, state or federal historically or architecturally significant structures, landmarks, or points of interest have been identified within or adjacent to the project.

5.1D Archaeological Sensitivity

The proposed project appears to have a low sensitivity for buried archaeological resources. This estimate of sensitivity is based its location within/adjacent to the steep slopes associated with Corinda Los Trancos creek; an absence of recorded and/or reported archaeological sites within the APE or immediately adjacent areas; the lack of reported Native American cultural resources (Lienert 2018); and, the absence of any reported cultural resources found during a previous archaeological inventory conducted by ARS in 1992.

6.0 INDIVIDUALS, GROUP AND AGENCY PARTICIPATION

The Native American Heritage Commission (NAHC) was contacted in regard to resources listed on the Sacred Lands Inventory (Busby 2018a). The NAHC responded that their record search of the sacred lands file were negative for the presence of Native American cultural resources in the immediate project area (Lienert 2018). Letters were sent to five locally knowledgeable Native American individuals/organizations identified by the NAHC (Busby 2018b-f) followed by telephone and/or email contact see Attachments).

Three Native Americans responded while detailed messages were left for two with no responses as of the time of report submission. Three Native Americans recommended cultural resources sensitivity training for the construction crews and the retention of both qualified Archaeologists and Native American monitors in the event of an unexpected discovery (Zwierlein, Sayers). Mr. Andrew Galvan, The Ohlone Tribe, recommend that proper protocols be followed in the event of a discovery and that only a Native American monitor with a genealogical relationship to the Greater San Francisco Bay area be used for monitoring (see Attachments).

No other local historical societies, planning departments, etc. were contacted regarding landmarks, potential historic sites or structures in or adjacent to the project.

7.0 ARCHAEOLOGICAL FIELD INVENTORY

Mr. Christopher Canzonieri (M.A.), an archaeologist meeting the Standards of the Secretary of the Interior, conducted a systematic field inventory of the proposed project on February 14, 2018 to check for indicators of potential surface and/or subsurface archaeological material. The field inventory included both banks of a segment of Corinda Los Trancos Creek as well as the creek bed that were accessible - the creek is narrow flanked by steep, densely vegetated banks with areas of severe erosion [see Figs. 4 to 12]

No evidence of prehistoric or historically significant archaeological resources or ecofactual materials was observed during the survey conducted for the proposed project.

Lemos Christmas Tree Farm[8]

The west side of the project APE includes a Christmas tree farm, a dirt road through the middle of the tree farm and a paved/gravel road along the west side of the tree farm. Field transects

8. The Lomas Farm is located at 12320 San Mateo Road (Highway 92).

were spaced five meters apart and oriented north to south. Surface visibility within the tree farm was poor with less than five (5%) percent of the surface observable. The observed sediment consisted of a brown loam [Fig. 5].

BFI Ox Mt Landfill Road

The east side of the APE along the BFI Ox Mt Landfill Road (alternatively BFI Ox Mt Dump Road) is densely vegetated. Field transects along the east bank and BFI Ox Mt Landfill Road consisted of two passes spaced approximately 1-3 meters apart. Vegetation was extremely dense resulting in extreme difficulty accessing the edge of the top of bank safely. Surface visibility was close to zero due to the presence of dense ivy, Eucalyptus tree duff and blackberry brambles.

Corinda Los Trancos Creek

The field inventory within the Corinda Los Trancos Creek bed consisted of pedestrian transects south to north (STA 0+00 north to 8+00) along the center of the creek. The creek water level was extremely low during the field inventory. In that the creek banks are densely vegetated, surface visibility was limited to areas of extreme erosion and within the creek channel itself. Numerous water worn sandstone cobbles and shale along with modern trash (plastic and metal) were observed within the channel. Observed sediments varied from loams to clays within the creek banks to sand within the creek channel. Several areas had concrete placed as rip-rap.

8.0 FINDINGS

This document was prepared to identify historic properties which may be listed, determined or potentially eligible for inclusion on the NRHP within or immediately adjacent to the APE.

- No historic properties (including archaeological sites, built environment or other resources) have been recorded within or immediately adjacent to the project APE.
- One cultural resource compliance report on file with the CHRIS/NWIC include the project area (Dietz and Jackson 1970/S-3082). This report is negative for historic properties including potential resources within or adjacent to the APE.
- A cultural resource compliance report not on file with the CHRIS/NWIC completed by ARS (1987) includes a portion of Apanolio Canyon west of the proposed project as well as an area that extends within approximately 950 feet north of the Mid-Section Channel Repairs Corinda Los Trancos Creek project. The ARS results were negative for cultural resources.
- No known Native American villages, trails, traditional use areas or contemporary use areas and/or other features of cultural significance have been identified in or adjacent to the APE.
- No known potential Hispanic Period archaeological resources (e.g., adobe dwellings or other structures, features, wharves, etc.) have been reported in or adjacent to the APE.
- No American Period archaeological sites have been recorded or reported in or adjacent to the APE.

- No evidence of prehistoric or historically significant archaeological resources was observed during the field inventory conducted for the proposed project.
- No local, state or federal historically or architecturally significant structures, landmarks, or points of interest have been identified within or adjacent to the project APE.
- A low potential for buried prehistoric archaeological resources is suggested by the archival data, field inventory, local geology and topography.

9.0 FINDING OF EFFECT

A reasonable and good faith effort has been made to identify historic properties listed, determined, or potentially eligible for inclusion on the NRHP (36 CFR Part 800.4) within or immediately adjacent to the project APE pursuant to the NHPA of 1966 (as amended) (54 U.S.C. § 306108) and its implementing regulations 36 CFR Part 800. The identification effort included a records search, literature review, consultation with local Native Americans and a surface field inventory of the APE.

The regulations implementing Section 106 define an effect as any action that would alter the characteristics of the property that may qualify the property for inclusion in the NRHP and, diminish the integrity of a property's location, setting, design, materials, workmanship, feeling or association (36 CFR Part 800.5(a)(1-2). A determination of *No Historic Properties Affected* (36 CFR Par 800.4(d)(1) is applicable since no properties are within or adjacent to the APE have been listed, eligible or appear to be eligible for inclusion on the NRHP. Consequently, the undertaking will have no effect as defined in 36 CFR Part 800.16(i).

10.0 RECOMMENDED PROJECT PERMIT CONDITIONS

The following conditions are recommended to enhance the finding of *No Historic Properties Affected* and the results of Native American review.

- Cultural resources sensitivity training should be provided to the construction crews in accordance with the recommendations of the locally knowledgeable Native Americans.
- The development of a formal *Post-Review Discovery Plan* is not recommended as ground disturbing excavation is not anticipated to affect any surface or subsurface archaeological deposits.
- In the event of post-review discoveries of cultural resources, [9] the U.S. Army Corps of Engineers, San Francisco District, shall be notified so that any discoveries may be treated in accordance with 36 CFR Part 800.13(b).

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9. Significant prehistoric cultural materials may include:
   a. Human bone - either isolated or intact burials.
   b. Habitation (occupation or ceremonial structures as interpreted from rock rings/features, distinct ground depressions, differences in compaction (e.g., house floors).
   c. Artifacts including chipped stone objects such as projectile points and bifaces; groundstone artifacts such as manos, metates, mortars, pestles, grinding stones, pitted hammerstones; and, shell and bone artifacts including ornaments and beads.
   d. Various features and samples including hearths (fire-cracked rock; baked and

- The exposure of any Native American burials shall be handled in accordance with state law.

11.0 REFERENCES CITED AND CONSULTED

Allen, Rebecca (editor)

1999 Upgrade of the Guadalupe Parkway, San Jose. Historic Properties Treatment Plan. MS on file, S-22066, CHRIS/NWIC, Sonoma State University, Rohnert Park.

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vitrified clay), artifact caches, faunal and shellfish remains (which permit dietary reconstruction), distinctive changes in soil stratigraphy indicative of prehistoric activities.

e. Isolated artifacts

Significant historic cultural materials may include finds from the late 19th through early 20th centuries. Objects and features associated with the Historic Period can include:

a. Structural remains or portions of foundations (bricks, cobbles/boulders, stacked field stone, postholes, etc.).
b. Trash pits, privies, wells and associated artifacts.
c. Isolated artifacts or isolated clusters of manufactured artifacts (e.g., glass bottles, metal cans, manufactured wood items, etc.).
d. Human remains.

In addition, cultural materials including both artifacts and structures that can be attributed to Hispanic, Asian and other ethnic or racial groups are potentially significant. Such features or clusters of artifacts and samples include remains of structures, trash pits, and privies.

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Abbreviations

n.d. no date v.d. various dates N.P. no publisher noted
n.p. no place of publisher noted

CHRIS/NWIC, Sonoma State University, Rohnert Park is used for archival material on file at the California Historical Resources Information System, Northwest Information Center, Sonoma State University, Rohnert Park.

ATTACHMENTS

FIGURES

CORRESPONDENCE

CHRIS/NWIC SEARCH RESULTS

Figure 1: General Project Location

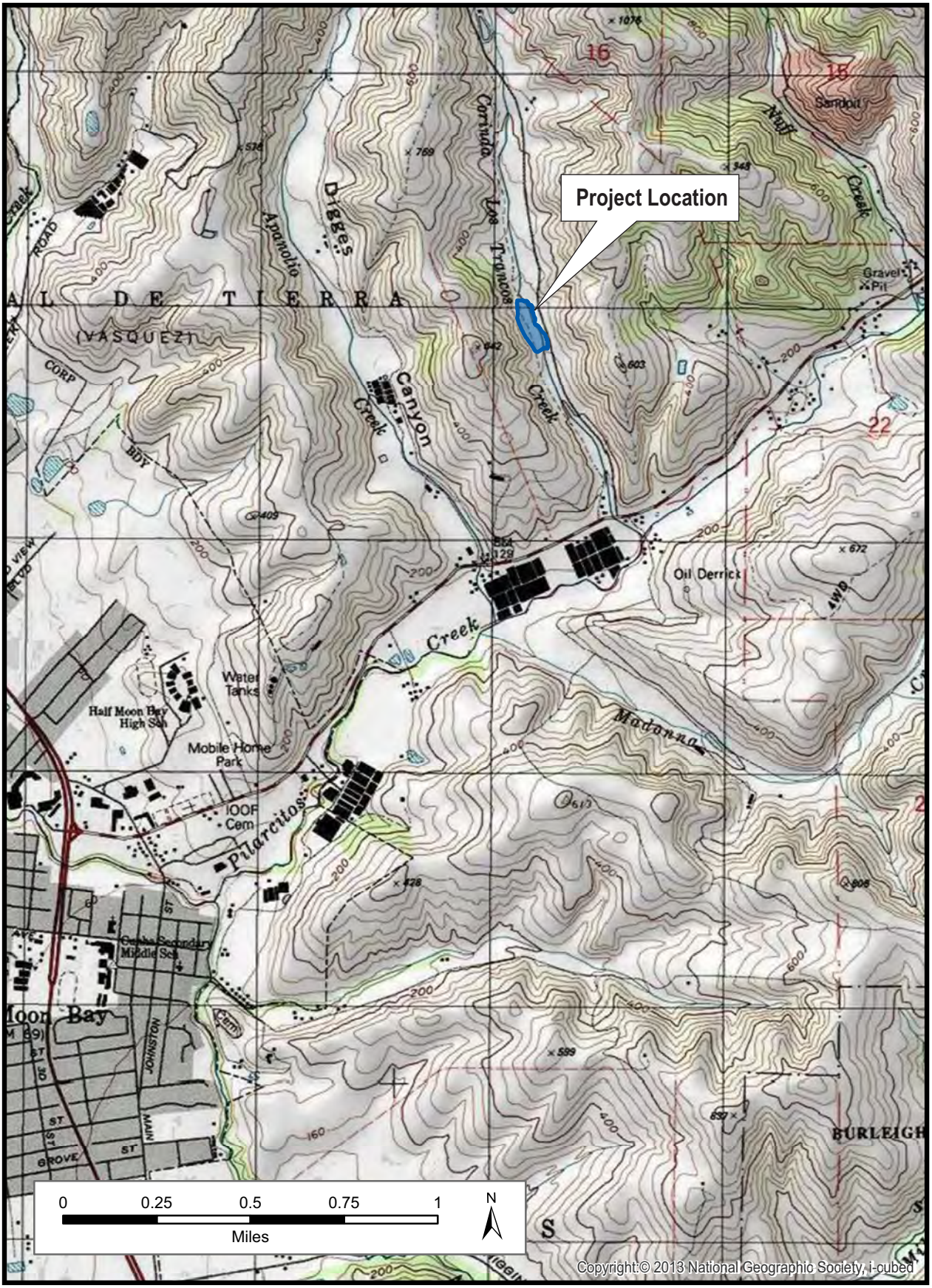


Figure 2: Project Location T5S R5W (USGS Half Moon Bay, CA 1997)

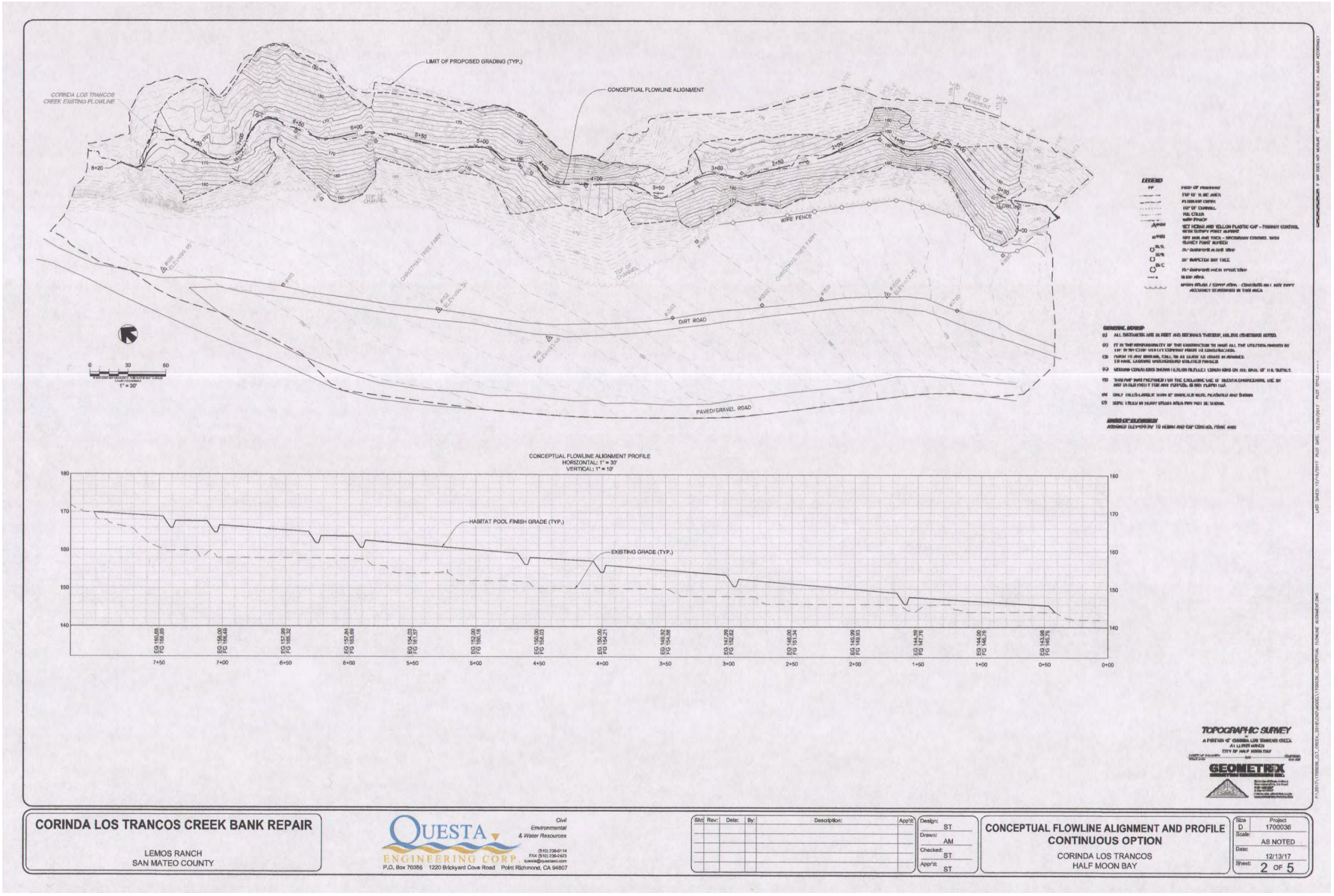


Figure 3: Proposed Corinda Los Trancos Creek Bank Repair

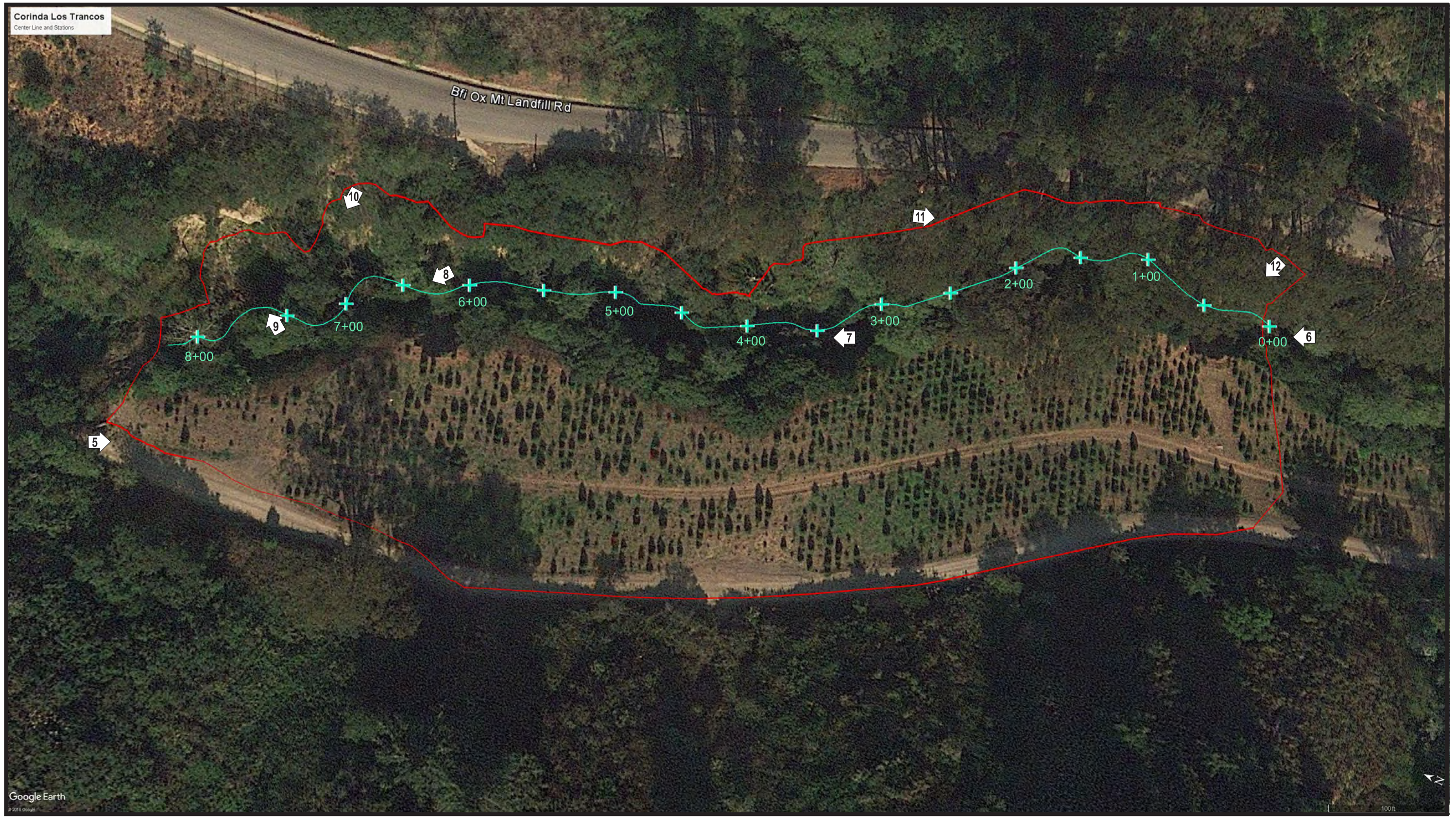


Figure 4: Project Area of Potential Effects with Photo View Locations

Figure 5: View south at Lemos Christmas Tree Farm

Figure 6: View north along Corinda Los Trancos Creek, near STA 0+00

Figure 7: View north near STA 3+50

Figure 8: View of west bank, between STA 6+00 and 7+00

Figure 9: View of east bank near STA 7+50

Figure 10: View west from east bank near STA 7+50

Figure 11: View south along west bank near STA 2+50

Figure 12: View of west bank near STA 0+50

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION

1556 Harbor Boulevard, STE 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: *Mid-Section Channel Repairs Corinda Los Trancos Creek,*
County: San Mateo

USGS Quadrangle Name: USGS Half Moon Bay, CA 1997

Address: Ox Mountain Landfill, Half Moon Bay, San Mateo County at Highway 92.

Township: 5 South, **Range**: 5 West, unsectioned

Company/Firm/Agency: Basin Research Associates

Contact Person: Colin I. Busby, PhD, RPA

Street Address: 1933 Davis Street, STE 210

City/Zip: San Leandro, CA 94577

Phone: (510) 430-8441 x202

Fax: Please send response to basinresfax@gmail.com

Email: colinbusby@basinresearch.com

Project Description:

The Corinda Los Trancos (CLT) Mid-Section Channel Repair project will stabilize an 800-foot reach of CLT Creek which has been quickly degrading. The creek watershed is a tributary to Pilarcitos creek which flows into the Pacific Ocean in Half Moon Bay California. The degrading reach is located in the mid-section of the natural creek alignment between the Ox Mountain Sanitary Landfill and Highway 92. Expansion of Ox Mountain Landfill in the early 1990's altered the hydrologic and geomorphic drivers of natural channel stability. The lower natural channel has been responding to these changes since. The landfill operation has a structured storm water collection system and a series of sediment retention basins, as per their operating permit requirements. This has increased storm water runoff volumes and altered the timing and duration of flows leaving the upper watershed and the landfill. The sediment control pond at the base of the landfill traps all bedload inputs into the lower channel. The combination of altered flow regime and reduced sediment input has lead to channel degradation and failure of numerous creek banks throughout the project reach. In the project site, channel degradation is causing the loss of useable land on the Lemos Farm, which borders CLT to the west. This project seeks to stabilize the channel by regrading the creek bed, reconstructing the vertical eroding banks and install a series of sub grade controls to stop vertical degradation and provide long term stability.

The U.S. Army Corps of Engineers (San Francisco District) will review the project and issue a 404 Permit.

Date: 1/18/2018

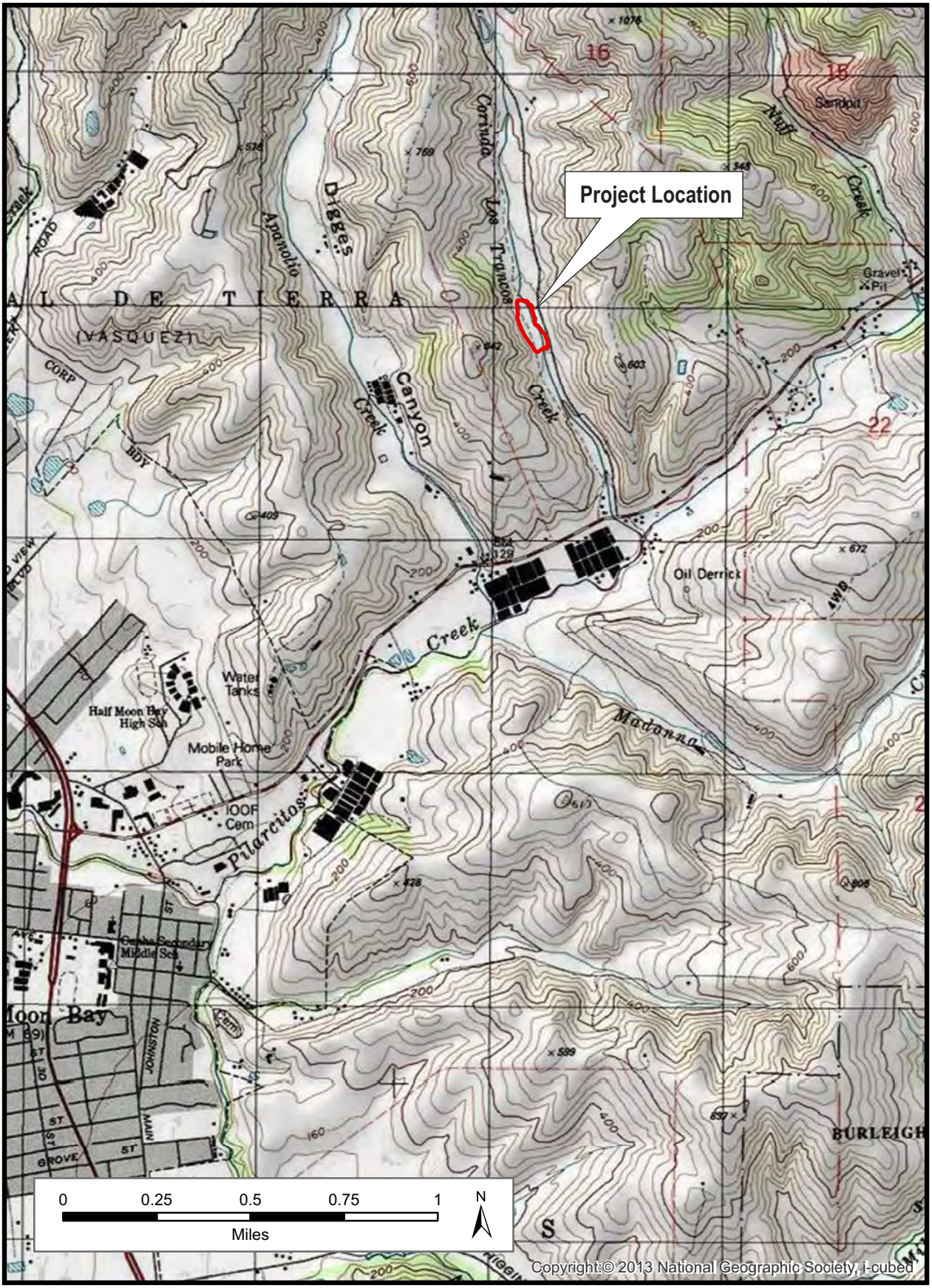


Figure 1: Project Location T5S R5W (USGS Half Moon Bay, CA 1997)

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

January 26, 2018

Colin Busby, PhD
Basin Research

Email to: basinresfax@gmail.com

RE: Mid Section Channel Repairs Corinda Los Trancos Creek, San Mateo County

Dear Mr. Busby,

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not preclude the presence of cultural resources in any project area. Other sources for cultural resources should also be contacted for information regarding known and/or recorded sites.

Enclosed is a list of Native Americans tribes who may have knowledge of cultural resources in the project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at 916-573-1033 or frank.lienert@nahc.ca.gov.

Sincerely,

Frank Lienert
Associate Governmental Program Analyst

Native American Heritage Commission
Native American Contacts
1/26/2018

Coastanoan Rumsen Carmel Tribe
Tonv Cerda. Chairperson
244 E. 1st Street
Pomona , CA 91766
rumsen@aol.com
(909) 524-8041 Cell
(909) 629-6081
Ohlone/Costanoan

Amah MutsunTribal Band of Mission San Juan Bautista
Irenne Zwierlein. Chairperson
789 Canada Road
Woodside , CA 94062
amahmutsuntribal@gmail.com
(650) 851-7489 Cell
(650) 851-7747 Office
(650) 332-1526 Fax
Ohlone/Costanoan

Muwekma Ohlone Indian Tribe of the SF Bav Area
Rosemarv Cambra. Chairperson
P.O. Box 360791
Milpitas , CA 95036
muwekma@muwekma.org
(408) 314-1898
(510) 581-5194
Ohlone / Costanoan

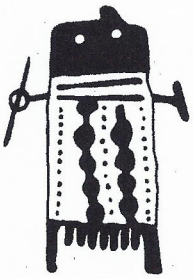
The Ohlone Indian Tribe
Andrew Galvan
P.O. Box 3152
Fremont , CA 94539
chochenyo@AOL.com
(510) 882-0527 Cell
(510) 687-9393 Fax
Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

Indian Canvon Mutsun Band of Costanoan
Ann Marie Savers. Chairperson
P.O. Box 28
Hollister , CA 95024
ams@indiancanyon.org
(831) 637-4238
Ohlone/Costanoan

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was pr oduced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American Tribes with regard to cultural resources assessments for the proposed
Mid Section Channel Repairs Corinda Los Trancos Creek, San Mateo County



January 31, 2018

BASIN
RESEARCH
ASSOCIATES

1933 DAVIS STREET
SUITE 210
SAN LEANDRO, CA 94577
VOICE (510) 430-8441
FAX (510) 430-8443

Mr. Tony Cerda
Coastanoan Rumsen Carmel Tribe
240 E. 1st Street
Pomona, CA 91766

RE: Request for Information
Mid-Section Channel Repairs Corinda Los Trancos Creek, San Mateo County

Dear Tony,

The Native American Heritage Commission has provided your name as an individual who may have information regarding Native American sites within or adjacent to the above proposed project (see enclosed USGS map).

The Corinda Los Trancos (CLT) Mid-Section Channel Repair project will stabilize an 800-foot reach of CLT Creek which has been quickly degrading. The creek watershed is a tributary to Pilarcitos creek which flows into the Pacific Ocean in Half Moon Bay. The degrading reach is located in the mid-section of the natural creek alignment between the Ox Mountain Sanitary Landfill and Highway 92. Expansion of Ox Mountain Landfill in the early 1990's altered the hydrologic and geomorphic drivers of natural channel stability. The lower natural channel has been responding to these changes since. This project seeks to stabilize the channel by regrading the creek bed, reconstructing the vertical eroding banks and install a series of sub grade controls to stop vertical degradation and provide long term stability.

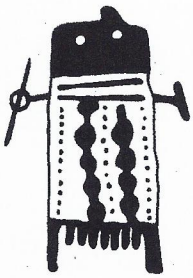
Information provided will be used to determine if significant archaeological resources may be affected by the proposed project. The U.S. Army Corps of Engineers (San Francisco District) will review the project and issue a 404 Permit.

If I can provide any further information, please don't hesitate to contact me (510 430-8441 or Basinres1@gmail.com). Thank you for your timely review of our request.

BASIN RESEARCH ASSOCIATES, INC.

Colin I. Busby, Ph.D., RPA
Principal

CIB/dg



January 31, 2018

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1933 DAVIS STREET
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SAN LEANDRO, CA 94577
VOICE (510) 430-8441
FAX (510) 430-8443

Ms. Irenne Zwierlein, Chairperson
Amah/Mutsun Tribal Band of Mission San Juan Bautista
789 Canada Road
Woodside, CA 94062

RE: Request for Information
Mid-Section Channel Repairs Corinda Los Trancos Creek, San Mateo County

Dear Irenne,

The Native American Heritage Commission has provided your name as an individual who may have information regarding Native American sites within or adjacent to the above proposed project (see enclosed USGS map).

The Corinda Los Trancos (CLT) Mid-Section Channel Repair project will stabilize an 800-foot reach of CLT Creek which has been quickly degrading. The creek watershed is a tributary to Pilarcitos creek which flows into the Pacific Ocean in Half Moon Bay. The degrading reach is located in the mid-section of the natural creek alignment between the Ox Mountain Sanitary Landfill and Highway 92. Expansion of Ox Mountain Landfill in the early 1990's altered the hydrologic and geomorphic drivers of natural channel stability. The lower natural channel has been responding to these changes since. This project seeks to stabilize the channel by regrading the creek bed, reconstructing the vertical eroding banks and install a series of sub grade controls to stop vertical degradation and provide long term stability.

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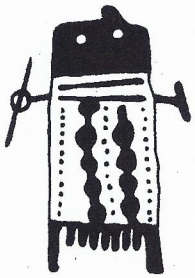
Colin I. Busby, Ph.D., RPA
Principal

CIB/dg



January 31, 2018

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1933 DAVIS STREET
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VOICE (510) 430-8441
FAX (510) 430-8443

Ms. Rosemary Cambra, Chairperson
Muwekma Ohlone Tribe of the SF Bay Area
P.O. Box 360791
Milpitas, CA 95036

RE: Request for Information
Mid-Section Channel Repairs Corinda Los Trancos Creek, San Mateo County

Dear Rosemary,

The Native American Heritage Commission has provided your name as an individual who may have information regarding Native American sites within or adjacent to the above proposed project (see enclosed USGS map).

The Corinda Los Trancos (CLT) Mid-Section Channel Repair project will stabilize an 800-foot reach of CLT Creek which has been quickly degrading. The creek watershed is a tributary to Pilarcitos creek which flows into the Pacific Ocean in Half Moon Bay. The degrading reach is located in the mid-section of the natural creek alignment between the Ox Mountain Sanitary Landfill and Highway 92. Expansion of Ox Mountain Landfill in the early 1990's altered the hydrologic and geomorphic drivers of natural channel stability. The lower natural channel has been responding to these changes since. This project seeks to stabilize the channel by regrading the creek bed, reconstructing the vertical eroding banks and install a series of sub grade controls to stop vertical degradation and provide long term stability.

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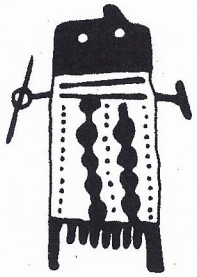
BASIN RESEARCH ASSOCIATES, INC.

Colin I. Busby, Ph.D., RPA
Principal

CIB/dg



January 31, 2018

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1933 DAVIS STREET
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VOICE (510) 430-8441
FAX (510) 430-8443

Mr. Andrew Galvan
The Ohlone Indian Tribe
P.O. Box 3152
Fremont, CA 94539

RE: Request for Information
Mid-Section Channel Repairs Corinda Los Trancos Creek, San Mateo County

Dear Andrew,

The Native American Heritage Commission has provided your name as an individual who may have information regarding Native American sites within or adjacent to the above proposed project (see enclosed USGS map).

The Corinda Los Trancos (CLT) Mid-Section Channel Repair project will stabilize an 800-foot reach of CLT Creek which has been quickly degrading. The creek watershed is a tributary to Pilarcitos creek which flows into the Pacific Ocean in Half Moon Bay. The degrading reach is located in the mid-section of the natural creek alignment between the Ox Mountain Sanitary Landfill and Highway 92. Expansion of Ox Mountain Landfill in the early 1990's altered the hydrologic and geomorphic drivers of natural channel stability. The lower natural channel has been responding to these changes since. This project seeks to stabilize the channel by regrading the creek bed, reconstructing the vertical eroding banks and install a series of sub grade controls to stop vertical degradation and provide long term stability.

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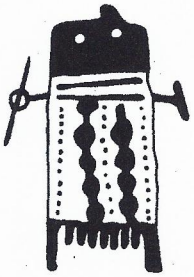
Colin I. Busby, Ph.D., RPA
Principal

CIB/dg



January 31, 2018

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1933 DAVIS STREET
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SAN LEANDRO, CA 94577
VOICE (510) 430-8441
FAX (510) 430-8443

Ms. Ann Marie Sayers, Chairperson
Indian Canyon Mutsun Band of Costanoan
P.O. Box 28
Hollister, CA 95024

RE: Request for Information
Mid-Section Channel Repairs Corinda Los Trancos Creek, San Mateo County

Dear Ann Marie,

The Native American Heritage Commission has provided your name as an individual who may have information regarding Native American sites within or adjacent to the above proposed project (see enclosed USGS map).

The Corinda Los Trancos (CLT) Mid-Section Channel Repair project will stabilize an 800-foot reach of CLT Creek which has been quickly degrading. The creek watershed is a tributary to Pilarcitos creek which flows into the Pacific Ocean in Half Moon Bay. The degrading reach is located in the mid-section of the natural creek alignment between the Ox Mountain Sanitary Landfill and Highway 92. Expansion of Ox Mountain Landfill in the early 1990's altered the hydrologic and geomorphic drivers of natural channel stability. The lower natural channel has been responding to these changes since. This project seeks to stabilize the channel by regrading the creek bed, reconstructing the vertical eroding banks and install a series of sub grade controls to stop vertical degradation and provide long term stability.

Information provided will be used to determine if significant archaeological resources may be affected by the proposed project. The U.S. Army Corps of Engineers (San Francisco District) will review the project and issue a 404 Permit.

If I can provide any further information, please don't hesitate to contact me (510 430-8441 or Basinres1@gmail.com). Thank you for your timely review of our request.

BASIN RESEARCH ASSOCIATES, INC.

Colin I. Busby, Ph.D., RPA
Principal

CIB/dg

Record of Native American Contacts
Mid Section Channel Repairs
Corinda Los Trancos Creek, San Mateo County

1/18/18 Letter to Native American Heritage Commission (NAHC), Sacramento. Regarding: Request for Review of Sacred Lands Inventory for project.

1/26/18 Letter response by Frank Lienert, NAHC

1/31/18 Letters sent to all parties recommended by NAHC

Letters to Tony Cerda, Chairperson, Coastanoan Rumsen Carmel Tribe, Pomona; Irenne Zwierlein, Amah Mutsun Tribal Band of Mission San Juan Bautista, Woodside; Rosemary Cambra, Chairperson, Muwekma Ohlone Indian Tribe of the SF Bay Area, Milpitas; Andrew Galvan, The Ohlone Indian Tribe, Mission San Jose; and Ann Marie Sayers, Chairperson, Indian Canyon Mutsun Band of Costanoan, Hollister.

3/14/18 Telephone calls and/or emails made by Basin Research Associates (Christopher Canzonieri) in the afternoon to non-responding parties.

Tony Cerda – called at 11:20 AM; unable to leave a message.

Irenne Zwierlein – called at 11:22 AM; Ms. Zwierlein recommends that all construction crew receive cultural sensitivity training in areas with the potential of prehistoric cultural materials and any archaeologists on the project have experience with northern and central California archaeology. The retention of a qualified and trained Native American Monitor is recommended in the event of a discovery of Native American cultural materials.

Rosemary Cambra – called on 11:25 AM; unable to leave message.

Andrew Galvan – called at 11:27 AM. Mr. Galvan, The Ohlone Tribe, recommended that proper protocols be followed in the event of a discovery. He also recommended cultural sensitivity training, in areas with the potential of prehistoric cultural materials, for the construction crew. Additionally Mr. Galvan recommends that the archaeologists have experience with northern and central California archaeology and that only a Native American monitor who can prove genealogical relationship to the Greater San Francisco Bay Area be used for monitoring.

Ann Marie Sayers – called at 11:28 AM; spoke with her daughter Kenyon who indicated that we should follow Ms. Sayers previous recommendations regarding that all construction crew receive cultural sensitivity training and any archaeologists on the project have experience with northern and central California archaeology. The retention of a qualified and trained Native American Monitor is recommended in the event of a discovery of Native American cultural materials.

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

ALAMEDA
COLUSA
CONTRA COSTA
DEL NORTE
HUMBOLDT
LAKE
MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO
SAN MATEO
SANTA CLATA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Sonoma State University
150 Professional Center Drive, Suite E
Rohnert Park, California 94928-3609
Tel: 707.588.8455
nwic@sonoma.edu
http://www.sonoma.edu/nwic

2/9/2018 NWIC File No.: 17-1836

Donna Garaventa
Basin Research Associates
1933 Davis Street, Suite 210
San Leandro, CA 94577

re: Corinda Los Trancos Creek

The Northwest Information Center received your record search request for the project area referenced above, located on the Half Moon Bay USGS 7.5' quad. The following reflects the results of the records search for the project area and a 0.25 mile radius:

Resources within project area:	None
Resources within 0.25 mile radius:	None
Reports within project area:	S-3082 (approximate location).
Reports within 0.25 mile radius:	None
Other Reports within records search radius:	S-848, 9462, 9580, 9583, 13597, 15529, 17773, 18217, 30204, 32596, & 33600. These reports are classified as Other Reports; reports with little or no field work or missing maps. The electronic maps do not depict study areas for these reports, however a list of these reports has been provided. In addition, you have not been charged any fees associated with these studies.

Resource Database Printout (list):	☐ enclosed	☐ not requested	☒ nothing listed
Resource Database Printout (details):	☐ enclosed	☐ not requested	☒ nothing listed
Resource Digital Database Records:	☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):	☒ enclosed	☐ not requested	☐ nothing listed
Report Digital Database Records:	☐ enclosed	☒ not requested	☐ nothing listed
Resource Record Copies:	☐ enclosed	☐ not requested	☒ nothing listed
Report Copies:	☐ enclosed	☐ not requested	☐ nothing listed
OHP Historic Properties Directory:	☒ enclosed	☐ not requested	☐ nothing listed

Archaeological Determinations of Eligibility:	☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):	☐ enclosed	☒ not requested	☐ nothing listed
Caltrans Bridge Survey:	☐ enclosed	☒ not requested	☐ nothing listed
Ethnographic Information:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Literature:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Maps:	☐ enclosed	☒ not requested	☐ nothing listed
Local Inventories:	☐ enclosed	☒ not requested	☐ nothing listed
GLO and/or Rancho Plat Maps:	☐ enclosed	☒ not requested	☐ nothing listed
Shipwreck Inventory:	☐ enclosed	☒ not requested	☐ nothing listed

*Notes:

** Current versions of these resources are available on-line:

Caltrans Bridge Survey: http://www.dot.ca.gov/hq/structur/strmaint/historic.htm

Soil Survey: http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=CA

Let us know if you need copies of reports. The invoice will be kept open until 2/16/18.

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,
Lisa C. Hagel
Researcher

County of San Mateo - Planning and Building Department

ATTACHMENT E

Project Background and Description
Mid-Section Channel Repairs
Corinda Los Trancos Creek,
San Mateo County, California

March 18, 2018

Prepared by:
Questa Engineering Corporation
1220 Brickyard Cove Road
Suite 206
Pt. Richmond, California 94807
(510) 236-6114

Table of Contents

Table of Figures

Project Description

The Corinda Los Trancos (CLT) Mid-Section Channel Repair project will stabilize an 800-foot reach of CLT Creek which has been quickly degrading. The creek watershed is a tributary to Pilarcitos creek which flows into the Pacific Ocean in Half Moon Bay California (Figure 1). The degrading reach is located in the mid-section of the natural creek alignment between the Ox Mountain Sanitary Landfill and Highway 92. Expansion of Ox Mountain Landfill in the early 1990's altered the hydrologic and geomorphic drivers of natural channel stability. The lower natural channel has been responding to these changes since. The landfill operation has a structured storm water collection system and a series of sediment retention basins, as per their operating permit requirements. This has increased storm water runoff volumes and altered the timing and duration of flows leaving the upper watershed and the landfill. The sediment control pond at the base of the landfill traps all bedload inputs into the lower channel. The combination of altered flow regime and reduce sediment input has lead to channel degradation and failure of numerous creek banks throughout the project reach (Figure 2**,** Figure 3, and 4). In the project site, channel degradation is causing the loss of useable land on the Lemos Farm, which borders CLT to the west. This project seeks to stabilize the channel by regrading the creek bed, reconstructing the vertical eroding banks and install a series of sub grade controls to stop vertical degradation and provide long-term stability.

Figure 1: Project Site

Figure 2 Undercutting near station 1+00

Figure 3 Collapsed Channel near station 0+50, 2+50, 3+50, and 5+00

Figure 4. Aerial Views of Project Reach

Project Location and Description of the Surrounding Area

The CLT watershed is approximately 541 acres. The watershed consists of CLT Canyon, a north-trending canyon, approximately 2.5-miles-long and 0.35-mile-wide, with natural side slopes averaging 20 to 50 percent. Clearing and borrow operations along some portions of the canyon walls have resulted in steeper slopes, approaching 100 percent. The natural side slopes are densely vegetated with shrubs, grasses, and some trees, but the surface soil consists of erodible alluvial soils weathered from granite. Runoff potential is high because of the nominal depression storage and short travel time to catchment points. The canyon floor consists of alluvial and colluvial deposits derived from granitic bedrock, and are covered with dense grass and shrubs. The gradient of the canyon floor is steep and varies from 4 to 10 percent

CLT creek runs south from Ox Mountain Landfill before flowing under Highway 92 -1.8 miles east of the intersection between Highway 92 and Highway 1. The creek is bordered to the west by the Lemos Farm and to the east by the Ox Mountain Landfill road. The proposed repair will occur on a reach that lies approximately half a mile upstream (north) of Highway 92. This section of the creek is bordered to the west by Christmas trees grown on the Lemos Farm.

Brief History of the Site

Previous channel repair efforts have been implemented along the reach of CLT between the landfill and Highway 92 (Figure 4) since the 1990's. Channel work was completed in the early 1990's immediately after the expansion of the landfill. Gabion baskets were installed in a series of grade control structures along the segment of CLT from the landfill scale house to the culvert beneath Highway 92.

In 2002, Questa designed and oversaw channel stabilization work along 1,800 feet of CLT just downstream from the landfill (Figure 4). Work involved a series of willow planted rock drop structures within the creek and slope stabilization using biotechnical methods, including willow mattresses and alder planted coir logs. This work has functioned as designed over the past decade leading to channel stability and riparian re-growth through this reach.

During the early winter of 2012/2013 large magnitude storms caused extensive damage to portions of the Corinda Los Trancos Creek channel and banks immediately upstream of Highway 92 and the Lemos Farm operations. The gabion grade control structures installed in the early 1990's and had provided vertical channel stability for twenty years failed in 2010-2012. The sand based sediment load of the creek slowly eroded the gabion wiring, the baskets broke open and the smaller rock content was lost to sediment transport. These structures have failed over recent years leading to widespread channel degradation in the lower section by 2013. In 2015 repair work was completed in this reach.

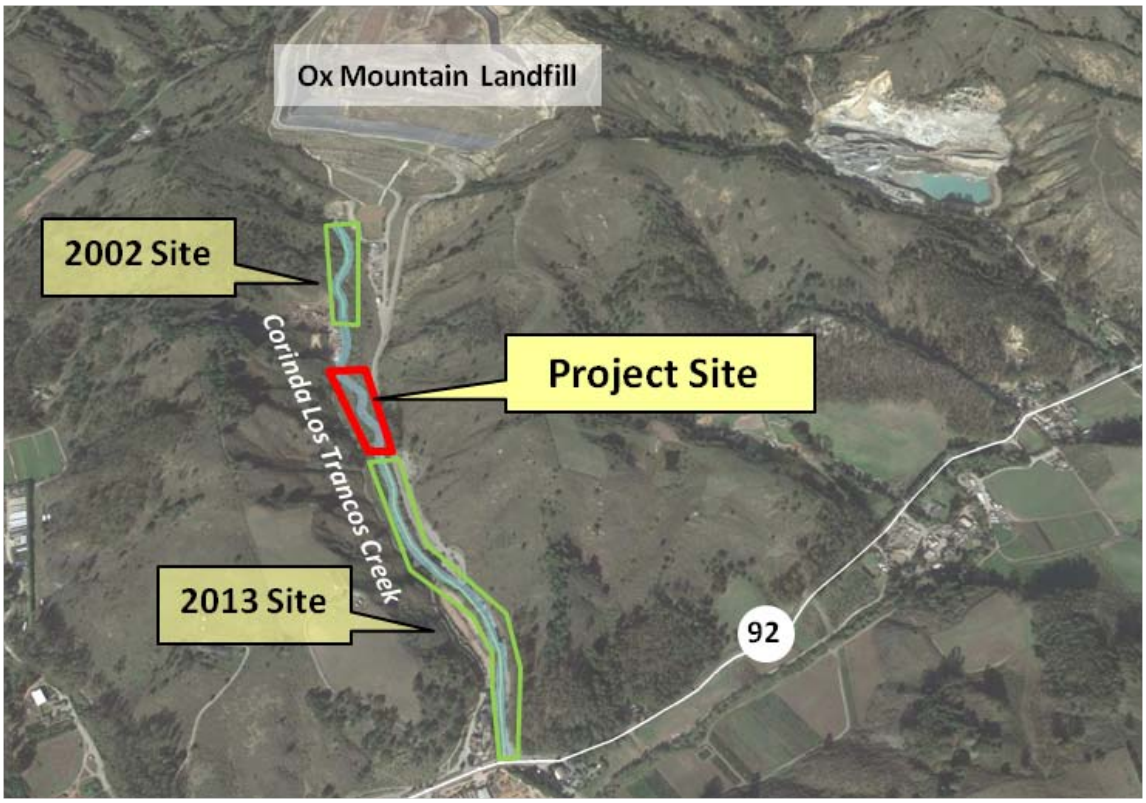

Figure 4 Current and Past Project Locations on Corinda Los Trancos Creek

Figure 6. Pictures of Past Repair Projects

The 2002 project

The 2013 Project

Reason for the Project

CLT creek, under current conditions, will continue to degrade and the channel will widen until the creek has stabilized itself. If the channel bank collapse is allowed to continue more property will be lost on the Lemos Farm and the threat to landfill access road will increase. Fine sediment as result of the erosion will be released into the creek. Stabilizing the creek through one acute disturbance of the ecosystem will save the creek from long term sediment loading and forestall a future stabilization project to ensure landfill access. Additionally, stabilizing the creek through remediation will allow for the creek health to be restored more quickly.

As state above the project site is located within endangered species habitat and we expect the presence of California Red Legged frog on the site. We expect the project to be self mitigating and that there would be no net permanent loss of riparian habitat. To compensate for the temporary loss of habitat the project proposes to create several pool and/or cascade riffle habitats as well as extensively revegetating

the reconstructed bank slopes. Tree planting would be extensive and would exceed the tree loss by a minimum of 3:1. The planting palette would stress California natives found in coastal San Mateo creeks.

We have good reason to expect that the planting and revegetation effort will be successful. There have been two previous projects on the creek and there have no problems with attaining revegetation cover goals and channel stability. The cool, moisture coastal zone is ideal for fast growing riparian vegetation.

The objective of this project is to stabilize the channel in the project reach. Mature riparian vegetation is toppling and sliding into the creek, causing debris dams and further exacerbating the channel bank erosion. Due to the positioning of the creek, current bank failures threaten both the Ox Mountain Landfill access road to the east and the Lemos Farm to the west. In order to improve water quality, prevent erosion, and reduce potential for loss of property, this project will stabilize the channel profile by regrading the creek bed and installing drop and constriction pools to stabilize the grade.

Proposed Project Description and Objectives

The objective of this project is arrest ongoing channel erosion and bank top land loss by providing a stable new channel bed and bank that are extensively revegetated with native riparian species. This project will affect an 800-foot reach of CLT Creek and disturb 40,300 ft^2 (0.93 acres) of riparian area. The project reach is undergoing rapid and constant erosion pressure and channel bed degradation leading to bank erosion and tree loss. The proposed design plans are shown **Sheets 1-13** and attached as **Appendix A**. Generally the existing vegetation will be cleared within the project area which extends approximately 60 to 80 feet bank to bank for grading and channel reconstruction. A permanent access road will be installed on the northern bank (landfill side) and a temporary staging area and construction access will be established on the Lemos side of the creek channel. All of the grading and disturbance will be confined to the existing site plan and will be within the exclusion fencing for the project. The design plan is to place fill within the channel bed raising it between 0 and 8 feet. The adjacent vertical or near vertical eroding channel banks will be reconstructed into stable bank slopes. The slopes will be seeded and covered with erosion control fabric and in the late fall will undergo extensive replanting of both canopy trees and a native understory. The channel will be reconstructed into a new complex channel that include rock steps, pools, riffles and runs, woody debris, and boulder cascades.

The channel reconstruction will result in the loss of 35 trees of diameters greater than 12-inches. **Table 1** one shows the tree by species and size that will be removed. The creek will be accessed during construction through three points; one at the lower and two at the upper end of the project reach (**Sheet 3**). These access points will allow for efficient, maneuvering of large equipment as equipment can enter and exit the site. Fill and rock materials will be transported from the upper landfill to the creek channel shown on **Figure 3**. Approximately 6,000 yd^3 of fill will be imported to elevate the bottom of the creek and restore a natural 2-3% gradient. The proposed grading and new channel profile are shown on **Sheet 5**. Eight drop and constriction pools will be created along the reach increasing pool habitat from existing conditions. Along with pools additional woody debris structures will be placed at strategic locations within the new channel

and floodplain. The structures will utilize material collected during the clearing phase of the project. The channel will be reconstructed with a rocky subbase that will resist transport. A sand top layer will be placed so it will bury most of this rock substrate and reestablish the natural sand bed creek but in much more stable configuration. This channel bed configuration is shown on **Sheets 9 and 10.** The project utilizes these primary repair components:

- Gradient Control
- Installation of Large Woody Debris (LWD) Structures
- Bank Reconstruction
- Channel Bed Reconstruction
- Extensive Revegetation Plan
- Erosion Control

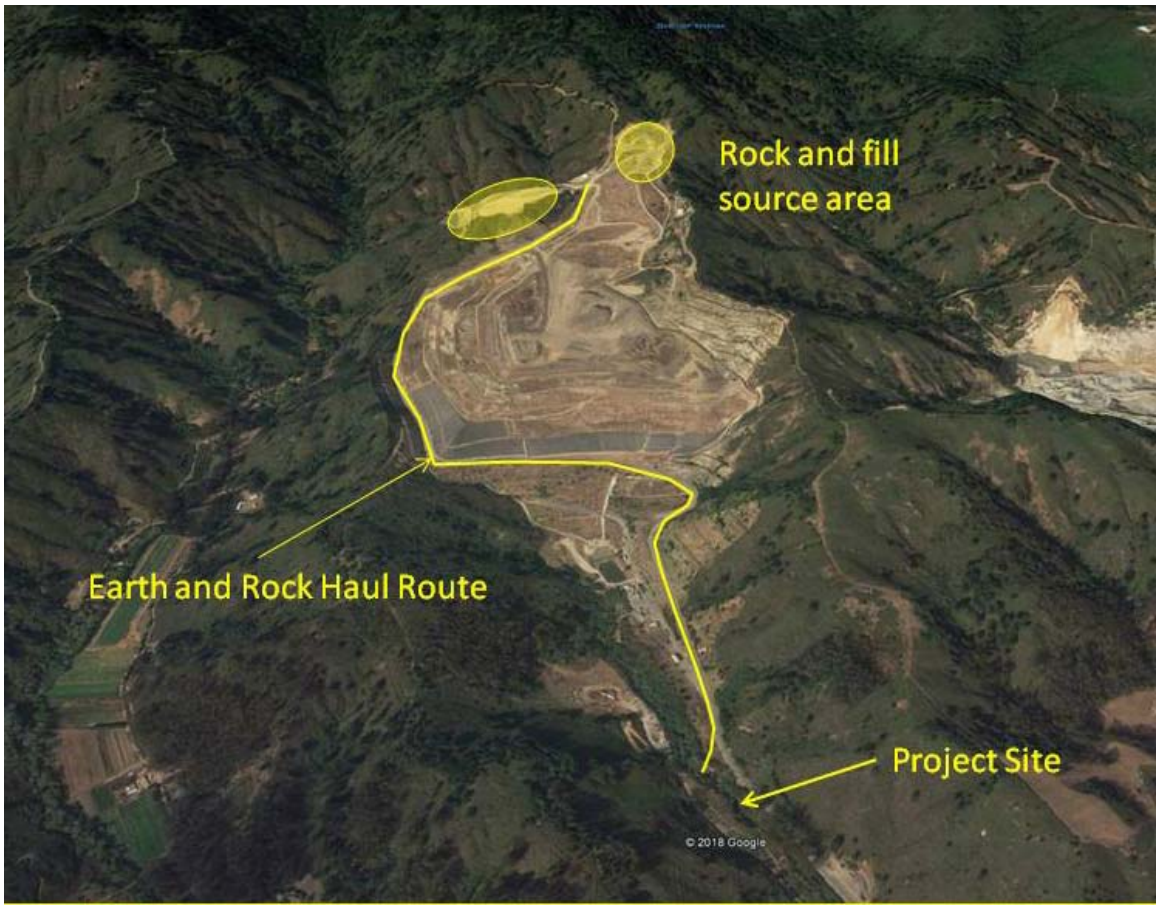

Figure 3 – Fill Material Haul Route

Table 1. Project Summary

	Impacted Area	**Reach Length**	**Trees Removed**			
	(ft^2) (ac)	(ft^2)	Alder	Eucalyptus	Bay	Total
Stabilization Project	40,300: 0.93	800	19	10	6	35

Gradient Control

The channel elevations through the project drop approximately 32 feet in 800 feet with an average slope of 3.5%. Under natural conditions, channels in this type of high gradient stream would be composed of bedrock, course cobble, or a series of vertical drops created with boulders

and/or large wood. No bedrock or boulders are evident within the channel reach and existing cobble and woody debris provide only occasional grade control. Therefore, installation of rock weirs are proposed to create individual channel segments with lower slopes in the context of the overall project reach. Fish do not inhabit the project reach so there is no limit on vertical drop heights.

The proposed grade control configuration is detailed on **Sheets 7** & **8** in the plan set**.** It is essential that these structures be keyed deeply into the banks and channel so that flow does not "flank" or go under the structures. Engineered Stream Material (ESM) and COIR material will also be placed behind the grade control structures to fill voids and prevent piping. Eighteen grade control/ rock steps are proposed. Some of these structures are boulder cascades others are weirs with accompanying pools and riffles. All of the structures were designed to provide vertical bed control, stabilize the channel, provide various types of aquatic habitat and mimic bed forms that could be found in high gradient coastal streams.

Large Woody Debris (LWD)

Large woody debris structures will be constructed and placed along and within the new reconstructed stream channel. These structures will mimic natural woody debris accumulation as well provide localized scour which leads to increased channel bed heterogeneity. This benefits foraging amphibians and a swell providing diverse micro-habitats for riparian and aquatic organisms.

Bank Reconstruction

There are numerous occurrences of ongoing bank erosion creating vertical, unstable creek banks throughout the project reach. These are often associated with areas of incision. The design strategy is to raise the channel bed reducing bank heights. With bank heights reduced, new fill slopes will be shorter allowing more channel bottom area for enhancement. Approximately 800 linear feet of bed and banks is proposed to be reconstructed as described in the project design plans. Rock grade controls and biotechnical bank toe protection with planted willow will be utilized throughout the project site.

Channel Bed Reconstruction

The key to overall channel bed stability is rebuilding the channel bed sediments. The natural bed of CLT is sand based and easily mobilized, rendering it an inadequate armoring. In order to provide a long term stable bed, the project will reconstruct the base of the channel bed with an Engineered Streambed Mix

(ESM). This mix is designed to be relatively immobile in events less than the 25-year flow. The details of this bed mix are shown on **Sheet 10.**

Re-vegetation Plan

The project incorporates an extensive re-vegetation and irrigation plan. The immediate channel bank and bank toes will be extensively staked with locally collected willow poles. Alder trees will also be planted in this zone. Three other planting zones; lower riparian, mid-slope, and upper slope, and their planting list on shown on **Sheet 11**. The goal is develop a solid canopy which shades the channel and provides cover quickly for aquatic and amphibian species. The re-vegetation effort will be judged against the Habitat Mitigation and Monitoring Plan (HMMP). This describes the mitigation of wetland impacts associated with the project. HMMP instructs mitigating temporary loss of riparian habitat by enhancing the existing habitat during restoration. Habitat for sensitive species will be enhanced as the restoration creek features and vegetation are designed to optimize habitat. The project will remove invasives, improve water quality, create deep pools and areas with slow moving water. The HMMP ensures that there will be follow up monitoring and clear re-vegetation and stability goals for the project met after initial construction.

Erosion and Water Control

Temporary Creek Flow Diversion. Flow in Corinda Los Trancos Creek will be diverted around the project site during construction through one to two, six-inch plastic drain pipes. The diversion will begin upstream of the impacted portion of the channel and will re-enter the creek approximately 50 feet downstream of the lowest channel structure. The pump and electrical generator are shown on **Sheet 2**. The diversion pipe will be routed around the construction zone discharging into a temporary energy dissipater in creek

Silt and Exclusion Fencing. A combination silt fence and biologic exclusionary fencing will surround the entire project site, **Sheet 3**. The fencing will provide a barrier for frogs or other species from accessing the site during construction. Silt fences will be used to confine soil loss and will be repositioned at the completion of the project construction and used in the winterization of the site.

Dust Control Measures. During clearing, grading, grubbing, and filling activities associated with project construction dust may be generated, particularly under dry conditions. Dust control measures such as water trucks will be used several times a day on the projects dirt haul and access roads to stabilize soil from wind erosion, and reduce dust generated by the construction traffic.

Required Discretionary Project Approvals

Prior to initiating work at the project site, the project applicant will need to obtain a grading permit and any additional permits which may be required by the County of San Mateo as a condition of project approval. Project compliance with the Local Coastal Plan for San Mateo County will also have to be verified and a Coastal Development permit obtained

In addition, permits will have to be obtained from the U.S. Army Corps of Engineers (USACOE), (Section 404 Wetlands fill permit) the California Department of Fish and Game (CDFG) for streambed alteration agreement and Regional Water Quality Control Board (RWQCB) for water quality certification.