Rancho Cañada del Oro Stock Pond Restoration Project
Supplemental Conditions Package

February 14, 2025

Table of Contents:

D.3 SUPPLEMENTAL CONDITIONS
of the Agreement

Rancho Cañada del Oro Stock Pond Restoration Project

Rancho Cañada del Oro Open Space Preserve
Casa Loma Road at Twin Creeks Road
Santa Clara County, CA

RFB-2025-04
Date: February 14, 2025

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SUPPLEMENTAL CONDITIONS
Of the Agreement

Rancho Cañada del Oro Stock Pond Restoration Project

ARTICLE ONE

GENERAL PROJECT INFORMATION

A. General

These Supplemental Conditions provide project-specific supplementary information and Supplemental Conditions to the General Conditions of the Agreement. These Supplemental Conditions are Contract Documents and address site-specific factors relevant to execution of the Work for the Rancho Cañada del Oro Stock Pond Restoration Project. These Supplemental Conditions shall supersede any conflicting General Conditions. Where a portion of the General Conditions is altered by these Supplemental Conditions, the unaltered portions of the General Conditions shall remain in effect. Under no circumstances does the information herein override any of the Terms and Conditions set forth in the Agreement, nor alleviate the Contractor from executing the work in strict conformance with the Contract Documents.

B. Project Description

The Project's overall objective is to enhance habitat for California red-legged frog and western pond turtle by restoring and extending the life and utility of three manmade stock ponds. Pond RC-01 is perennial and will need to be drained before its berm can be lined with a bentonite clay liner to prevent future seepage. Draining the pond will have the added benefit of reducing non-native fish and bullfrog populations, which need perennial waters to survive. Both RC-07 and RC-10 are seasonal ponds and are expected to be dry on the surface during construction. RC-07 and RC-10 will be excavated and regraded to increase ponding depth and duration and will have new outflow drainpipes installed. The degraded earthen embankment at RC-07 will be repaired. All ponds will have some level of exclusion fencing installed (Additive Alternate) to protect them from cattle impacts. All ponds will be revegetated with native plants after construction (seed broadcasting done by Contractor; container plants subsequently installed by the Authority).

The project will also include avoidance and minimization measures to reduce impacts to protected species. Refer to the General Conditions, Supplemental Conditions, and Project Scope Documents for a full description of scope and contractor requirements.

C. Site Information

Access: Access to the construction site is via Casa Loma Road, approximately one mile past the Preserve's public parking lot. Refer to Exhibit 1. Project Maps. The Authority can provide a gate key to contractor for access to Twin Creeks Road. Casa Loma Road (past the public parking lot) and Twin

Creeks Road are unpaved dirt roads, and vehicles must cross a seasonal stream with a rock ford before arriving at Twin Creeks Road.

Environmental Compliance: As a small habitat restoration project, the project is categorically exempt from evaluation under the California Environmental Quality Act (CEQA). A notice of exemption was filed with the County of Santa Clara. The project was additionally permitted through the Santa Clara Valley Habitat Plan, the Regional Water Quality Control Board, and the Army Corps of Engineers, and is subject to compliance with conditions of project approval. Refer to Exhibit 2. Permit Requirements for Resource Avoidance and Minimization for environmental compliance requirements. The Contractor will be required to complete all work in strict compliance with the Habitat Mitigation and Monitoring Plan (HMMP) and other permits.

Regional Water Board Permit: Regional water Board permit requires construction to occur between June 1 and September 30.

Site Utilities: There are no utilities (electric, water, telephone, waste) available at the project site. Contractor shall be responsible for providing temporary electrical service and water supply. The Contractor shall provide temporary bathroom facilities throughout the project duration. Cellular service may be limited, dependent upon location at the site and cellular service provider. The Contractor is responsible for providing all other necessary temporary services as needed to complete construction activities; see General Conditions section 4.2.

ARTICLE TWO

CONTRACT DOCUMENTS

A. Supplemental Conditions. All conditions set forth herein are part of the Contract Documents.

ARTICLE THREE

AUTHORITY GENERAL REQUIREMENTS

A. Authority Representative: The Authority Representative designated for all correspondence and coordination regarding this Contract is the Authority Project Manager, Rachel Clemons, 33 Las Colinas Lane, San Jose CA. 669-210-9161.

B. Public Involvement. The portion of the preserve in which construction activities will take place is not currently open to the public. The public will not be allowed within the project site during construction activities. Contractor is not required to communicate with the public and the Contractor shall not discuss the work with the public except when coordinated and approved by the Authority Representative. Should the public enter the site

or attempt to access the site, Contractor shall immediately notify Authority Representative.

C. **Communications.** The Authority, not the Contractor, is responsible for all communications with, and provision of information to, the public. The Contractor shall not make available, or publicly disclose, any data or reports unless provided herein or specifically authorized by the Authority Representative. If any person or entity requests information from the Contractor about the subject of this scope of work or work being conducted hereunder, the Contractor shall refer them to the Authority Representative.

D. **Authority Inspections and Monitoring.** The Authority will be providing environmental monitoring on site as further described in Article Four, paragraph I. Contractor shall provide access to, coordinate with, and follow all direction provided by all Authority consultants, monitors, and inspectors.

ARTICLE FOUR

CONTRACTOR'S PERFORMANCE OF THE WORK

A. **Emergency Contact Information.** In the event of an emergency, Contractor shall dial 911 or the 24-hour field dispatch number at (408) 299-2311.

B. **Herbicides & Pesticides**. Herbicides and/or pesticides are not permitted for this project; except under the direct written consent of the Authority's Project Manager with approval from the Authority's Natural Resources Manager.

C. **Access.** Access to the construction site is described in Article One, paragraph C. Contractor shall ensure that all materials & equipment planned for use on the project can be transported safely to the site, and that all permits, safety procedures, and regulatory compliance has been met for transport of material and equipment to the site.

D. **Site Access– Emergency response.** Contractor shall ensure their site logistics plans, project execution plans, and all operations on site consider the need for emergency response access to the site.

E. **Site Security - Trespassing & Vandalism.** Contractor shall be solely responsible for adequately securing all their materials and equipment on site. The Authority assumes no responsibility for any loss or damage to Contractor property.

F. **Fire Prevention.** The site is surrounded by open space lands that have the potential to be a wildfire hazard. Contractor shall not engage in any activities that pose a fire threat. In addition, if requested, Contractor shall agree to meet with responding fire agencies to ensure they have incorporated all appropriate fire prevention measures (locations of fire extinguishers; activities requiring fire watch, etc.). ***No smoking is allowed*** on site, nor on any of the Authority preserve lands surrounding the site. Contractor vehicles shall be

equipped with spark arrestors. Contractor shall keep on-site or in an on-site vehicle at least one working fire extinguisher at all times during project construction.

G. Working Hours.

Onsite Work: regular working hours are from 7:00 a.m. to 5:00 p.m., Monday through Friday, excluding Government holidays. Contractor may arrive, set up, and prepare for work, but the actual start of work at the site cannot commence until 07:00 a.m. No construction shall be permitted on Saturdays, Sundays, or Holidays unless pre-approved in writing by the Authority's Representative.

H. Contractor Personnel, Subcontractors, Vendors, Deliveries (personnel). All personnel entering or leaving the site shall adhere to the following:

i. All personnel shall be made aware of site access conditions, access routes, and abide with all applicable vehicle operation and safety requirements.

ii. Parking is in designated areas only.

iii. All personnel who will be working at or accessing the site must attend a Worker Education Seminar which will include biological and cultural sensitivity training. The Authority will coordinate with contractor to schedule the worker education seminar. Any personnel who have not attended a worker training seminar cannot access the site unless they are escorted by someone who has attended the worker training seminar. No one can do any work on site without receiving the Worker Training Seminar.

I. Environmental Documents.

i. Contractor is responsible for conducting all work in compliance with the Exhibit 2. Permit Requirements for Resource Avoidance and Minimization. See Table 1 for a summary of all permit requirements.

ii. Contractors' schedule shall incorporate all regulatory coordination and permitting, Authority inspections, site assessments, and preconstruction surveys as described in Exhibit 2. Contractor should be aware that some work may be restricted at certain times of year, and the construction schedule shall incorporate these constraints. Authority will not entertain claims for time or cost associated with Contractor's failure to address environmental constraints in the development of the Project Schedule.

iii. Any changes to the Project Schedule must be provided to the Authority as soon as possible and no more than four (4) hours after conditions require a change to ensure the Authority is able to reschedule any additional monitoring, surveys, and/or inspection.

iv. The Authority Representative will coordinate closely with Contractor to provide required surveys and pre-work assessments and clearances.

v. The Authority is the "lead" agency for monitoring and compliance.

J. Stand-Down Time. In order to facilitate construction in a sensitive environment, the

Contractor may be eligible for additional compensation for Stand-Down time if work is stopped due to identification of species of interest as described in Table 1(a) of Exhibit 2, or due to identification of cultural resources as described in Table 1(c) of Exhibit 2. Additional compensation will be considered only under the following circumstances:

i. Work stoppage occurs with less than 24 hours notice.

ii. Work stoppage is due to the presence of special species or site conditions outside the control of the Contractor. Work stoppage due to the Contractor's negligence, disregard for the permit requirements or regulatory documents, or insufficient planning are not eligible for additional compensation under this provision.

iii. Work stoppage is directed by Authority Representative.

iv. Stand-Down time will be monitored by Authority staff or monitoring biologist(s). Daily tracking sheets will be prepared by the Contractor and submitted to the Authority; approved tracking sheets will be compiled at the end of each week into a change order. Authority will review actual Stand-Down time and hourly rates against Contractor's certified payroll.

K. Permitting Requirements. Nothing within these Supplemental Conditions shall relieve the Contractor of the responsibility to comply with applicable laws and regulations. The Authority will obtain applicable building permits.

L. Stormwater Compliance. The Contractor is responsible for implementing, maintaining, and adjusting the Erosion Control Measures, site BMPs, and good housekeeping practices in conformance with construction drawings, contract documents, and regulatory governances. A summary of water quality-related requirements is available in Table 1(b) of Exhibit 2.

M. Wildlife. Construction personnel shall be instructed not to disturb or feed wildlife.

N. Schedule. Contractor shall include Permitting, Submittals, and all Mitigation Monitoring and Reporting Program requirements.

O. Meetings. The Contractor's Superintendent and/or Project Manager shall facilitate weekly Progress Update Meetings with the Authority Representative and Authority's consultants either on-site or via teleconference. Meetings shall address the following:

i. **Safety**: Contractor shall document any and all safety incidents or "near misses." Contractor shall review work that is planned to occur over the next three weeks and prepare and discuss the proposed safety measures.

ii. **Schedule**: Contractor shall provide an updated construction schedule that includes:

   a. Overall project schedule
   b. Current week
   c. Three following weeks
   d. Earthmoving

e. Major deliveries or significant trucking days
f. Long-lead time items
g. Current and potential delays
h. Inspections by Authority or others
i. Additional items as requested by Authority Staff

iii. **Work Progress**: Updates on work progress, upcoming monitoring requirements, significant events, and project milestones.

iv. **HMMP**: Updates regarding the mitigation and monitoring requirements.

v. **RFIs and Submittals**: Meeting attendees shall review status of any pending RFIs and submittals.

P. Soil Pathogen Control Measures. This project is subject to the Authority's standards on phyto-sanitation, as outlined in the contract documents. Refer to Exhibit 3. Pathogen Control Measures. It is the Contractor's sole responsibility to implement, monitor, and demonstrate compliance with all requirements.

Q. Basis of Design. The Geotechnical Investigation (Exhibit 5) was completed to evaluate existing conditions of ponds RC-01 and RC-10, and to provide preliminary geotechnical design parameters and recommendations for project design. The Basis of Design Letter (Exhibit 6) was completed to accompany the construction drawings, and it contains a Water Balance Analysis Technical Memorandum that informed design decisions for all three ponds.

R. Work Plans. Work Plans are descriptive submittals for complex or interdependent work activities. They provide detail on equipment and labor involved, access and staging routes, duration, inspections required, and apparent risks. The Contractor shall be responsible for preparing Work Plans as requested by the Authority.

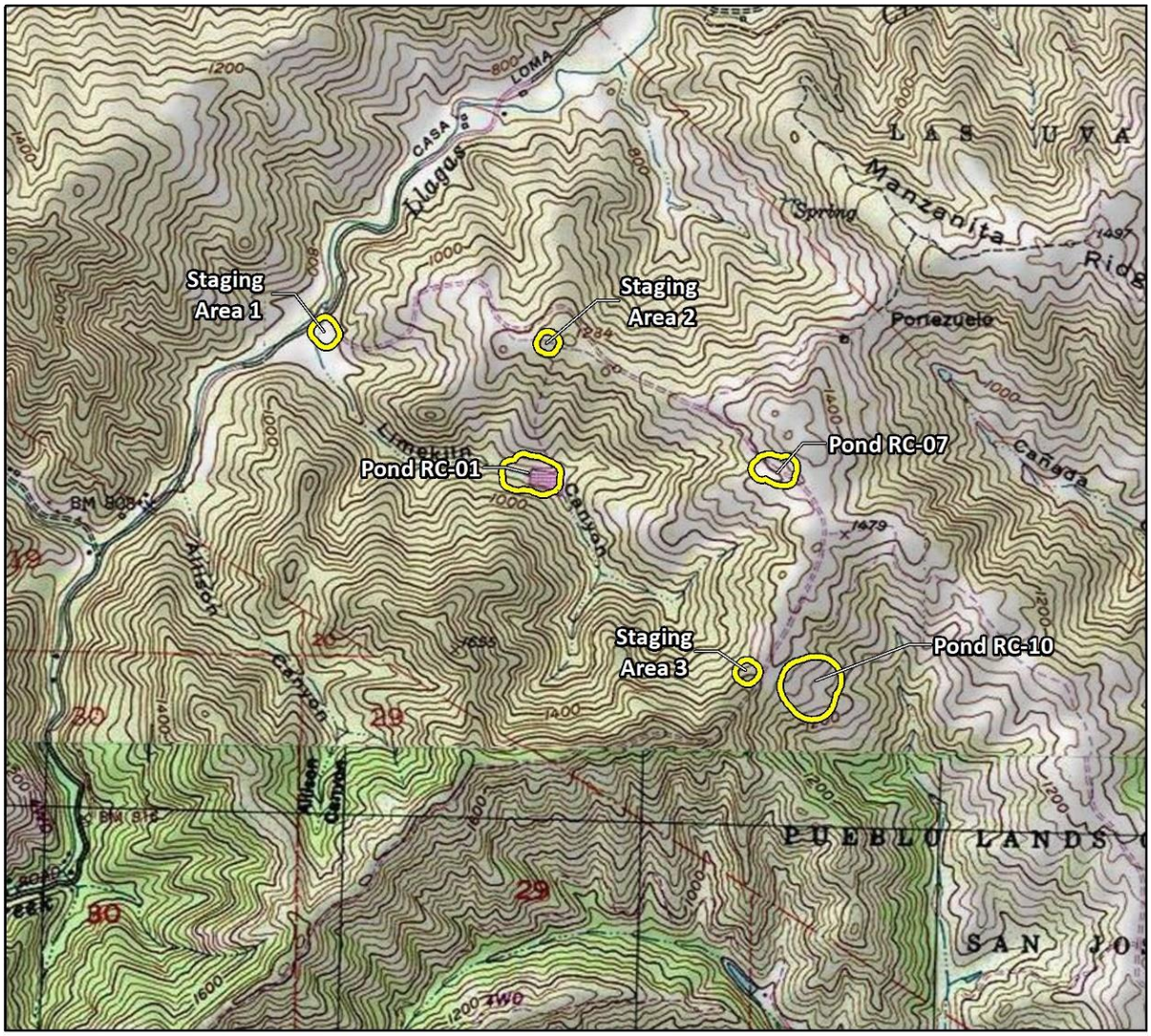
S. Surveys. The Contractor is responsible for staking all work sites in the work area. The staking shall be reviewed and approved by the Authority Representative prior to groundbreaking.

T. Daily Personnel Parking and Site Access. All transportation vehicles shall park at parking areas, as directed by Authority Representative.

U. Nuisances. Keep dust, noise and other objectionable nuisances to a minimum, consistent with the HMMP and permit requirements.

V. Clean-Up and Disposal. Store trash and rubbish in animal-proof containers and transport daily from site and legally dispose of. Remove and promptly dispose of contaminated or dangerous materials encountered. Do not burn or bury materials on site. Remove tools, equipment, and protections when work is complete and when authorized to do so by the Authority Representative.

Figure 1 Regional Location



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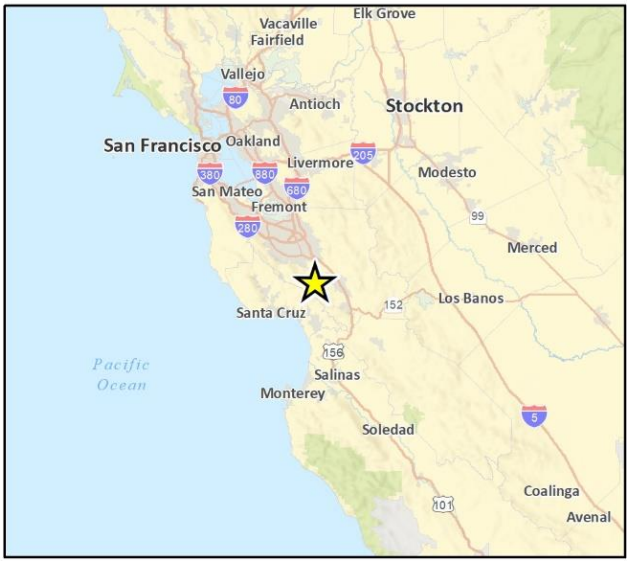

Fig 1 Regional Location

Figure 2: Site Overview
Access Roads, Ponds, and Staging Areas

Figure 3: General Staging Area (Staging Area 1)

Figure 4: Pond RC-01

Figure 5: RC-01 Staging Area (Staging Area 2)

Figure 6: Pond RC-07 and Staging Area

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Figure 7: Pond RC-10 and Staging Area (Staging Area 3)

Rancho Cañada del Oro Stock Pond Restoration Project

Table 1: Summary of Project Permit Requirements for Construction

These tables are a convenient summary of the conditions, avoidance, and impact minimization requirements relevant to Project construction. The requirements are related to wildlife, water quality, and cultural resource protection, and are set forth in the following documents:

- Project Habitat Mitigation and Monitoring Plan (HMMP) – Attachment 1
- Regional Water Board Water Quality Certification (401 Certification) – Attachment 2
- Santa Clara Valley Habitat Agency Participating Special Entities (PSE) Permit, via the Santa Clara County Habitat Plan – Attachment 3
- U.S. Army Corps of Engineers Regional General Permit (RGP) Authorization – Attachment 4

Wildlife	Water quality	Cultural resources

Table 1(a): Permit Requirements from the HMMP and PSE (Santa Clara Valley Habitat Plan)

Condition Number	Title/summary	Description
1	Avoid direct impacts on legally protected plant and wildlife species.	• Comply with the Migratory Bird Treaty Act (MBTA) and Golden Eagle Protection Act. Implement pre-construction surveys for nesting birds, buffers around active nests to avoid take of active nests of white-tailed kite and other birds protected under MBTA. • No take of fully protected plant and wildlife species.
14	Valley oak and blue oak avoidance and minimization	• Buffer zones will be established between preserved valley oak or blue oak trees at a distance equal to or greater than the root protection zone, which is defined as a buffer zone determined by calculating one foot for each inch of trunk diameter measured at 4.5 feet above ground surface. • Roads and pathways will be aligned outside of the tree's root protection zone (as defined above) whenever possible. • Alteration of natural grade through fill or other means within the root protection zone of oak trees will be minimized.
17	Tricolored blackbird	• Conduct pre-construction surveys for tricolored blackbird habitat within 250-feet of the project area. If suitable habitat is found, additional surveys conducted within 250-foot buffer area around areas of disturbance, no more than 2 days prior to construction.
21	Northwestern pond turtle	• If work is to be done on pond bottom when air temperature is above 90 degrees Fahrenheit, OSA shall check for buried NWPT and relocate them to suitable aestivation habitat. • OSA shall search for NWPT nests within suitable grassland habitat within the staging areas prior to construction and maintain a 25-foot buffer around any nests.

Rancho Cañada del Oro Stock Pond Restoration Project

Table 1: Summary of Project Permit Requirements for Construction

Table 1(a): Permit Requirements from the HMMP and PSE (Santa Clara Valley Habitat Plan)		
Condition Number	Title/summary	Description
3-5	Maintain hydrologic conditions and protect water quality; Avoidance and minimization measures for in-stream projects Implement aquatic avoidance/minimization measures in VHP Table 6-2 to protect water quality and reduce impacts on covered species. Listed here are the applicable measures from Table 6-2 not already covered in this document through PSE Condition 12 (below) or the 401 Certification (Table 1(b)).	• Preserve existing vegetation to the extent possible. • Temporary disturbance or removal of aquatic and riparian vegetation will not exceed the minimum necessary to complete the work. • Invasive plant species removed during maintenance will be handled and disposed of in such a manner as to prevent further spread of the invasive species. • Topsoil removed during soil excavation will be preserved and used as topsoil during revegetation when it is necessary to conserve the natural seed bank and aid in revegetation of the site. • Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites. • Personnel shall use the appropriate equipment for the job that minimizes disturbance to the stream bottom. Appropriately tired vehicles, either tracked or wheeled, shall be used depending on the situation. • Pumps and generators shall be maintained and operated in a manner that minimizes impacts to water quality and aquatic species. • No stockpiling or placement of erodible materials in waterways or along areas of natural stormwater flow where materials could be washed into waterways. • Minimize ground disturbance to the smallest area feasible. • Use existing roads for access and disturbed area for staging as site constraints allow. Off-road travel will avoid sensitive communities such as wetlands and known occurrences of covered plants. • To prevent inadvertent entrapment of animals during excavation, all excavated, steep-walled holes or trenches more than 2-feet deep will be covered at the end of each day by plywood or similar materials or provided with one or more escape ramps constructed of earth fill or wooden planks. • If native fish or non-covered, native aquatic vertebrates are present when cofferdams, water bypass structures, and silt barriers are to be installed, a native fish and aquatic vertebrate relocation plan shall be implemented when ecologically appropriate as determined by a qualified biologist to ensure that significant numbers of native fish and aquatic vertebrates are not stranded (See Exhibit 4).

Rancho Cañada del Oro Stock Pond Restoration Project

Table 1: Summary of Project Permit Requirements for Construction

Table 1(a): Permit Requirements from the HMMP and PSE (Santa Clara Valley Habitat Plan)		
Condition Number	Title/summary	Description
12	Wetland and pond avoidance and minimization	• The limits of work should be clearly defined in the field with high visibility fencing where practical to avoid encroachment and unnecessary impacts. • Silt fencing will be erected around the project site to reduce erosion where necessary. • Erosion-control measures will be placed at the outer edge of the project site. • Fiber rolls used for erosion control will be certified as free of noxious weed seed. • No construction or maintenance vehicles will be refueled within 200 feet of avoided wetlands and ponds unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill. • All equipment brought into the site should be clean and free of contaminated sediments and weeds. All organic matter should be removed from boots, vehicle tires, construction equipment, and all other surfaces that have come into contact with ponds, wetlands, or potentially contaminated sediments. Equipment should be rinsed with clean water before leaving the project site. • Measures will be implemented to minimize the spread of disease (such as Phytophthora and chytrid fungus) and nonnative species based on current wildlife agency protocols and other best available science (See Exhibit 3: Pathogen Control Requirements).

Rancho Cañada del Oro Stock Pond Restoration Project

Table 1: Summary of Project Permit Requirements for Construction

Table 1(b): Permit Requirements from the Project's Water Quality 401 Certification (Central Coast Water Board)		
Condition Number	Title/summary	Description
1	Water quality protection training	• All personnel who engage in construction activities or their oversight at the Project site (superintendent, construction manager, foreman, crew, contractor, biological monitor, etc.) must attend trainings on the conditions of this Certification and how to perform their duties in compliance with those conditions. Every person shall attend an initial training within five working days of their start date at the Project site. • Trainings shall be conducted by a qualified individual with expertise in 401 Water Quality Certification conditions and compliance.
2	Minimize impact to beneficial uses and habitat	• All work performed within waters of the State shall be completed in a manner that minimizes impacts to beneficial uses and habitat. Measures shall be employed to minimize land disturbances that will adversely impact the water quality of waters of the State. • Disturbance or removal of vegetation shall not exceed the minimum necessary to complete Project implementation.
3	No work done on or after October 1	• Portions of the Project that occur below top of creek banks or in other waters of the State shall be stabilized for winter prior to October 1, either by completing construction of those portions of the Project (including installation of permanent erosion control measures) or by implementing winterization stabilization measures capable of effectively stabilizing the area and preventing erosion under winter rain and flow conditions generated by the 10-year 24-hour storm event. • No construction activities shall be conducted below top of creek banks or in other waters of the State during the winter period (October 1 – May 31), unless prior written approval has been obtained from Central Coast Water Board staff. • Requests to conduct construction activities below top of creek banks or in other waters of the State during the winter period shall be submitted to Central Coast Water Board staff at least 21 days prior to the planned winter period work date. If approval is obtained, the Permittee shall implement the approved winter work as specified in the Central Coast Water Board staff approval and as described in any documentation submitted by the Permittee while seeking the approval.

Rancho Cañada del Oro Stock Pond Restoration Project

Table 1: Summary of Project Permit Requirements for Construction

Table 1(b): Permit Requirements from the Project's Water Quality 401 Certification (Central Coast Water Board)		
Condition Number	Title/summary	Description
4-6	Control erosion/sediment	• Erosion and sediment control measures shall be on site prior to the start of construction and kept on site at all times so they are immediately available for installation in anticipation of rain events. • Contractor shall implement and maintain an effective combination of erosion and sediment control measures (e.g., revegetation, fiber rolls, erosion control blankets, hydromulching, compost, straw with tackifiers, temporary basins) to prevent erosion and capture sediment. • Contractor shall implement and maintain washout, trackout, dust control, and any other applicable source control BMPs. Erosion and sediment control measures and other construction BMPs shall be implemented and maintained in accordance with all specifications governing their proper design, installation, operation, and maintenance.
7	No work during rain	• At any time of year, the Contractor shall not conduct construction activities below top of creek banks or in other waters of the State during rain events or on any day for which the National Weather Service has predicted a 25% or more chance of at least 0.1-inch rain in 24 hours (Predicted Rain Event). • Contractor shall install effective erosion control, sediment control, and other protective measures no later than the day prior to the Predicted Rain Event, and prior to the start of any rainfall. • Construction activities below top of creek banks or in other waters of the State may resume after the rain has ceased, the National Weather Service predicts clear weather for at least 24 hours, and site conditions are dry enough to continue work without discharge of sediment or other pollutants from the Project site.
8	Cover stockpiled materials	Any material stockpiled that is not actively being used during construction shall be covered and surrounded with a linear sediment barrier.
9	Spill plan and control	The Permittee shall retain a spill plan and appropriate spill control and clean up materials (e.g., oil absorbent pads) onsite in case spills occur.
10	Trash and debris	The Permittee shall confine all trash and debris in appropriate enclosed bins and dispose of the trash and debris at an approved site at least weekly.

Rancho Cañada del Oro Stock Pond Restoration Project

Table 1: Summary of Project Permit Requirements for Construction

Table 1(b): Permit Requirements from the Project's Water Quality 401 Certification (Central Coast Water Board)		
Condition Number	Title/summary	Description
11-12	Vehicle inspection and maintenance	• All construction vehicles and equipment used on site shall be well maintained and checked daily for fuel, oil, and hydraulic fluid leaks or other problems that could result in spills of toxic materials. • All vehicle fueling and maintenance activity shall occur at least 100 feet away from waterways and in designated staging areas, unless a requested exception on a case-by case basis granted by prior written approval has been obtained from Central Coast Water Board staff.
13	Dewatering	• All temporary dewatering/diversion methods shall be designed to have the minimum necessary impacts to waters of the State to isolate the immediate work area. • All dewatering/diversion methods shall be installed such that natural flow is maintained upstream and downstream of the Project area. • Any temporary dams or diversions shall be installed such that the diversion does not cause sedimentation, siltation, or erosion upstream or downstream of the Project area. • All dewatering/diversion methods shall be removed immediately upon completion of dewatering/diversion activities.
14	Remove equipment and materials from site as soon as possible	All construction-related equipment, materials, and any temporary BMPs no longer needed shall be removed and cleared from the site upon completion of the Project.

Rancho Cañada del Oro Stock Pond Restoration Project

Table 1: Summary of Project Permit Requirements for Construction

Table 1(c): Permit Requirements from the Project's RGP Authorization (U.S. Army Corps of Engineers)		
Condition Number	Title/summary	Description
2	Cultural sensitivity training	• OSA shall arrange for a tribal representative or qualified archaeologist to conduct a cultural sensitivity training for all employees who will be working at the site. If additional employees are hired for the project, the permittee shall contact the archaeologist or tribal representative one week prior to these employees' first day on the project site to arrange additional cultural sensitivity training for the new employees. • Cultural sensitivity training shall include information on how to identify cultural resources and high-sensitivity soils and the appropriate protocol for stopping work within 100 feet of the find and notifying the Corps, a qualified archaeologist, and the appropriate tribal representative.
3	Cultural monitor present during ground disturbance	• To minimize potential impacts to cultural resources, OSA shall retain a qualified cultural tribal monitor for the project's ground disturbing activities into native soil. OSA shall provide this monitor with the construction schedule at least two weeks prior to the start of ground disturbance and give the monitor access to the construction site.

4	Incidental uncovering of archaeological materials	• Should any buried archaeological materials be uncovered during project activities, such activities shall cease within 100 feet of the find.
		  ○ Prehistoric archaeological indicators include: obsidian and chert flakes, and chipped stone tools; bedrock outcrops and boulders with mortar cups; ground stone implements (grinding slabs, mortars, and pestles) and locally darkened midden soils containing some of the previously listed items plus fragments of bone and fire affected stones.
		  ○ Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations, privy pits, wells and dumps, and old trails.
		• The Corps and Chairwoman Quirina Geary of the Tamien Nation shall be notified of the discovery and a professional archaeologist shall be retained by the permittee to evaluate the find and recommend appropriate mitigation measures.
		• Proposed mitigation measures shall be submitted to the Corps for approval, and project-related activities shall not resume within 100 feet of the find until all approved mitigation measures have been completed to the satisfaction of the Corps.

Rancho Cañada del Oro Stock Pond Restoration Project

Table 1: Summary of Project Permit Requirements for Construction

Pond Management and Enhancement Project

Habitat Mitigation and Monitoring Plan

prepared for

Santa Clara Valley Open Space Authority
33 Las Colinas Lane
San Jose, California 95119
Contact: Galli Basson

prepared by

Rincon Consultants, Inc.
2511 Garden Road, Suite C-250
Monterey, California 93940

Revised September 2022

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Environmental Scientists | Planners | Engineers
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Table of Contents

Tables

Figures

1 Introduction

Rincon Consultants, Inc. (Rincon) has prepared the following Habitat Mitigation and Monitoring Plan (HMMP) for the Santa Clara Valley Open Space Authority (SCVOSA) Pond Management and Enhancement Project (project) at Rancho Canada Del Oro Open Space Preserve located in Santa Clara County, California. The SCVOSA aims to preserve and enhance habitat for native and special status species within its open spaces as well as provide recreational use and connect people with the outdoors. This HMMP was prepared to support the permitting process for impacts to resources subject to the Santa Clara Valley Habitat Agency (SCVHA) authority. The project has the potential to impact special status species and jurisdictional waters and wetlands of the United States during pond restoration activities. The Biological Resources Assessment (BRA) (Rincon 2021) completed for the project includes a description of resources that may be impacted by project activities and summary of potential impacts to those resources. This HMMP describes activities to be undertaken to mitigate the impacts of project activities, including on-site restoration and habitat enhancement for special status animal species, monitoring, reporting, and adaptive management.

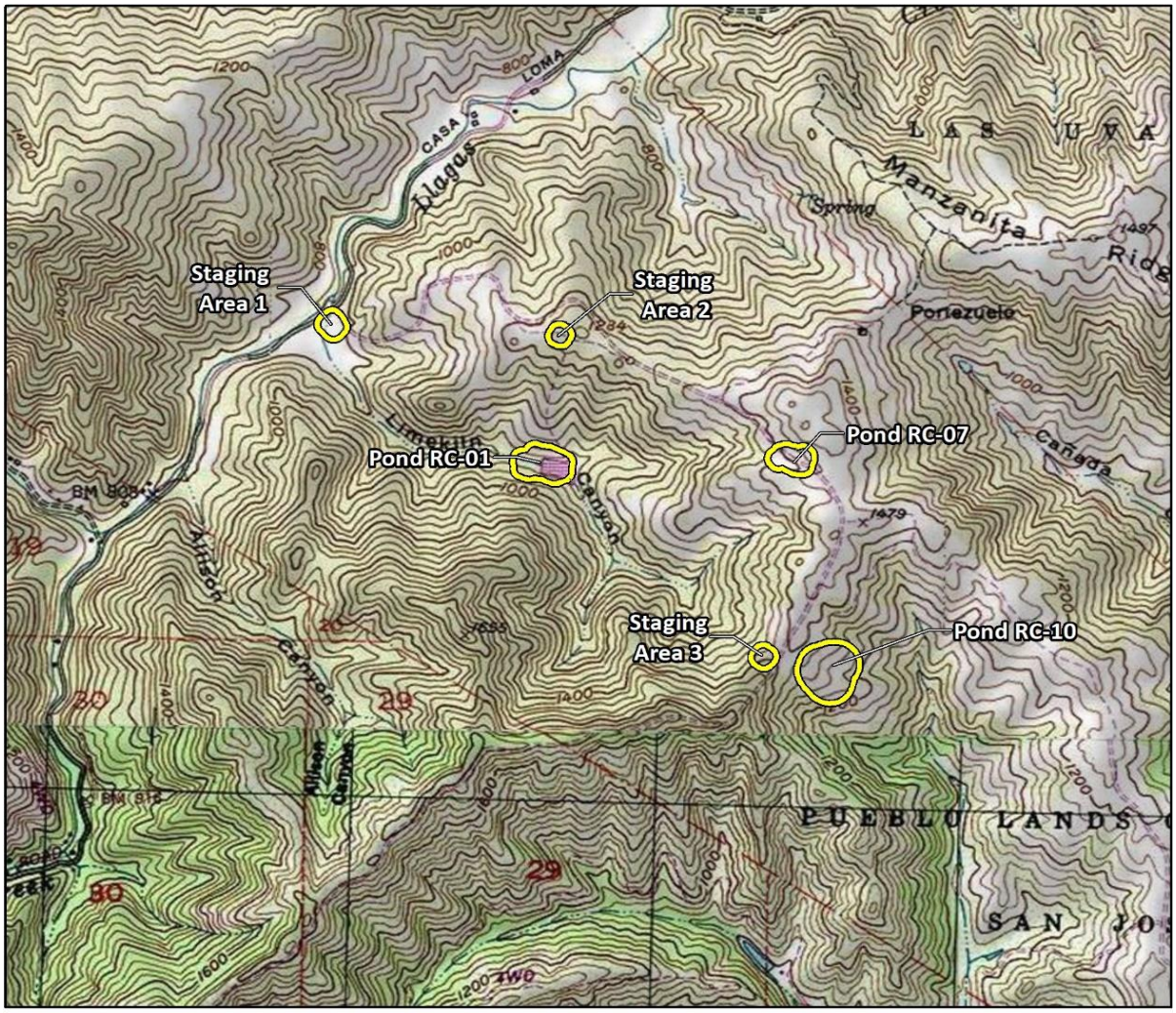
1.1 Project Overview

The project is in unincorporated Santa Clara County along the eastern foothills of the Santa Cruz Mountains. The project is within protected open space that was historically used as ranch lands and is not yet open to the public. The property is situated west of the southern end of the Santa Clara Valley and the City of Morgan Hill (Figure 1). The project includes three ponds created in part as habitat for California red-legged frog (CRLF; *Rana draytonii*), western pond turtle (WPT; *Actinemys marmorata*), and California tiger salamander (*Ambystoma californiense*) as well as three staging areas; collectively referred to as the "Study Area." Analysis indicates the ponds may be failing to provide adequate habitat and the SCVOSA Pond Management and Enhancement Project was proposed.

The Study Area is comprised of eight terrestrial vegetation communities and other land cover types (Rincon 2021). The mapping is presented in a map atlas (Figure 2a through 2f) and approximates the types and acreages of the vegetation communities and land cover types that occur within the Study Area (Rincon 2021). The vegetation community classification followed those in A Manual of California Vegetation, Second Edition (MCV2; Sawyer et al. 2009) but have been modified to accurately reflect the existing site conditions. More information on the vegetation communities and land cover types can be found in the BRA (Rincon 2021).

During field surveys conducted by SCVOSA, California red-legged frogs were observed at two ponds (RC-01 and RC-07), and a third pond was identified as a potential breeding site (RC-10). However, each of these ponds would require some enhancements to provide continued habitat for California red-legged frog, western pond turtle (present at RC-01), and eventually California tiger salamander (potential range expansion). A detailed project description is provided in Section 2.

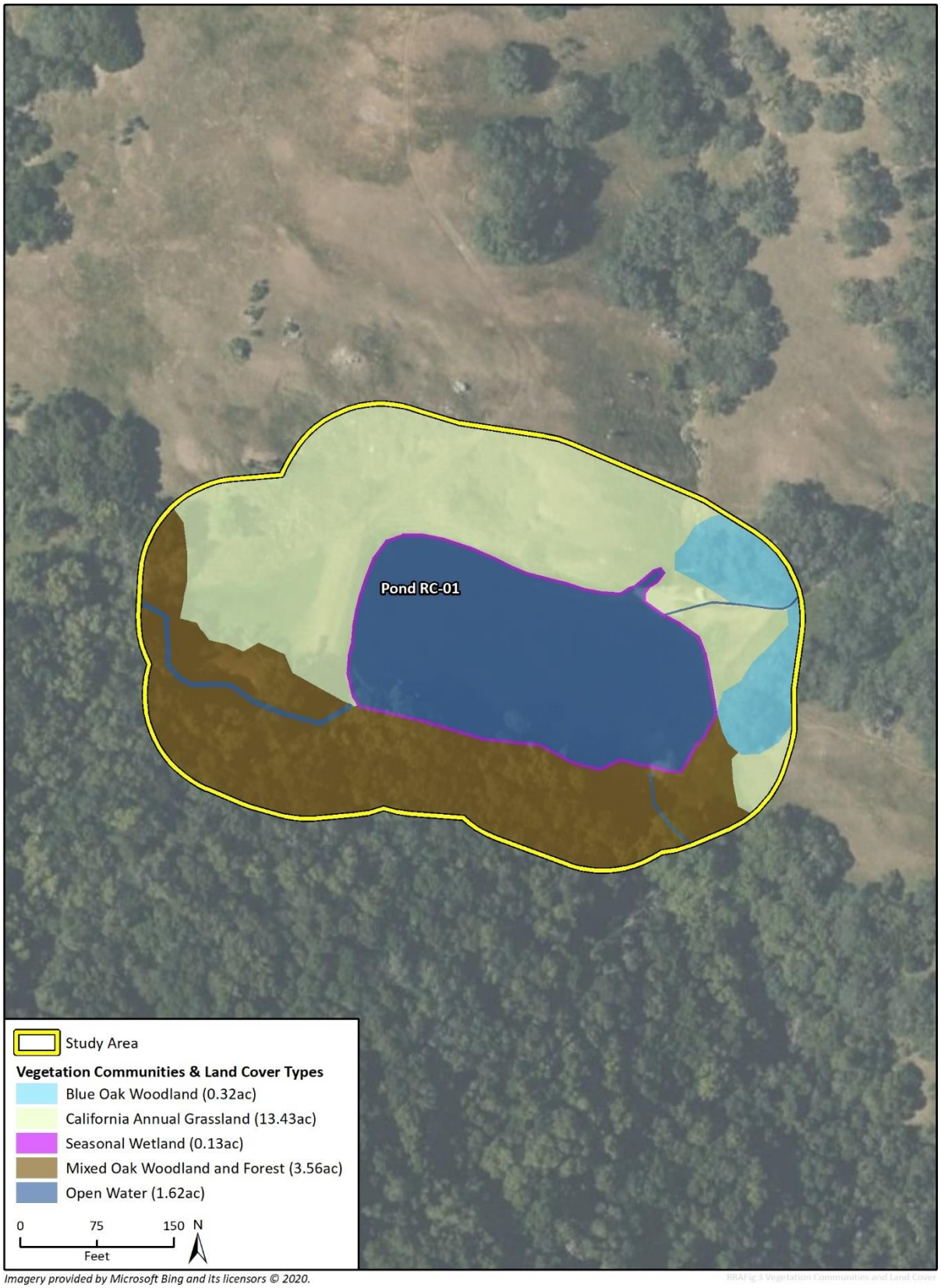
Figure 1 Regional Location



Imagery provided by National Geographic Society, Esri and its licensors © 2020. Santa Teresa Hills Quadrangle. T09S R02E S20,2128,29. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may havechanged since the original topographic map was assembled.

Fig 1 Regional Location

Figure 2a Vegetation Communities and Land Cover Types



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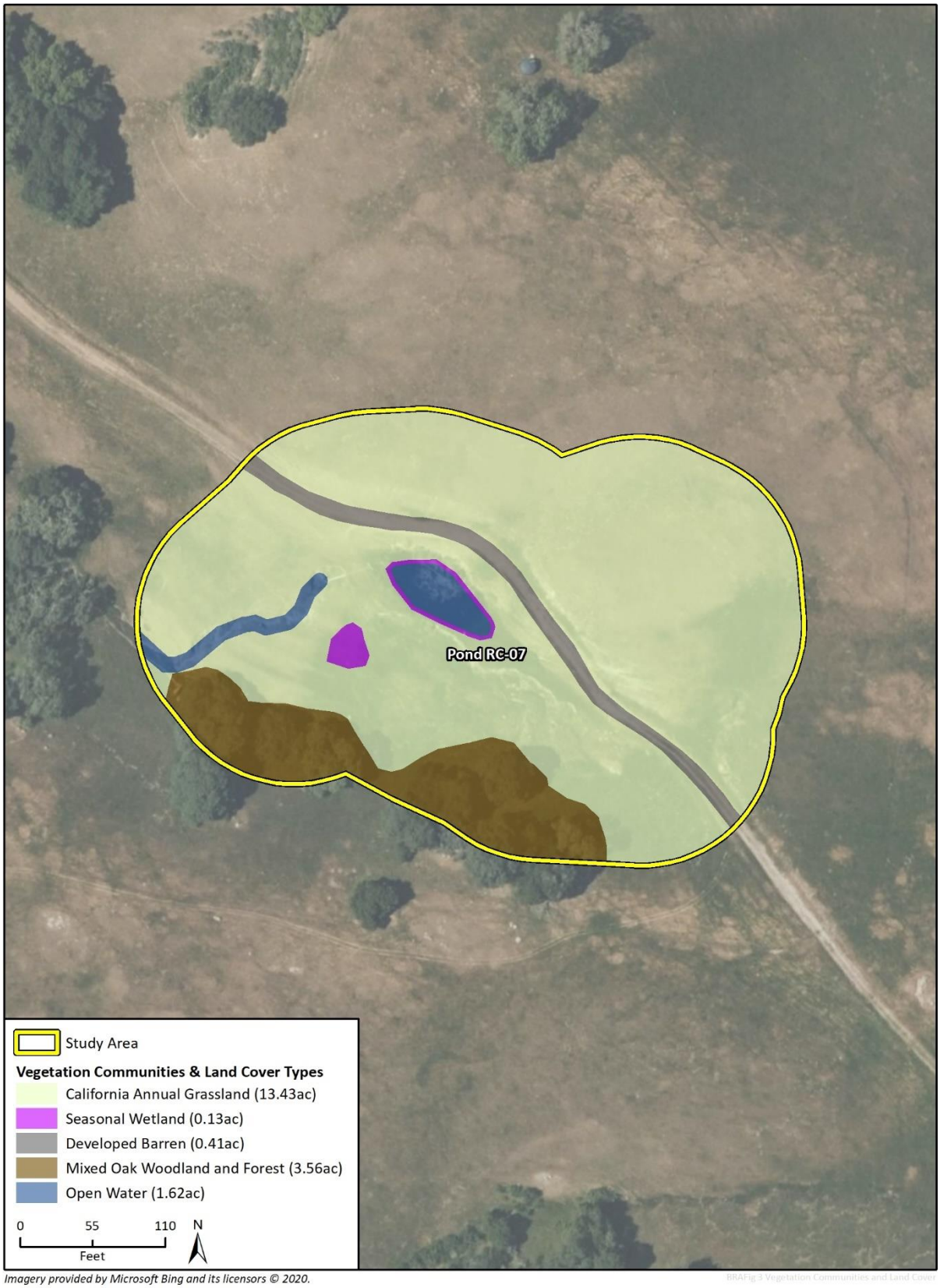
BRAFig 3 Vegetation Communities and Land Cover

Figure 2b Biological Resources



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BRAFig 3 Vegetation Communities and Land Cover

Figure 2c Biological Resources

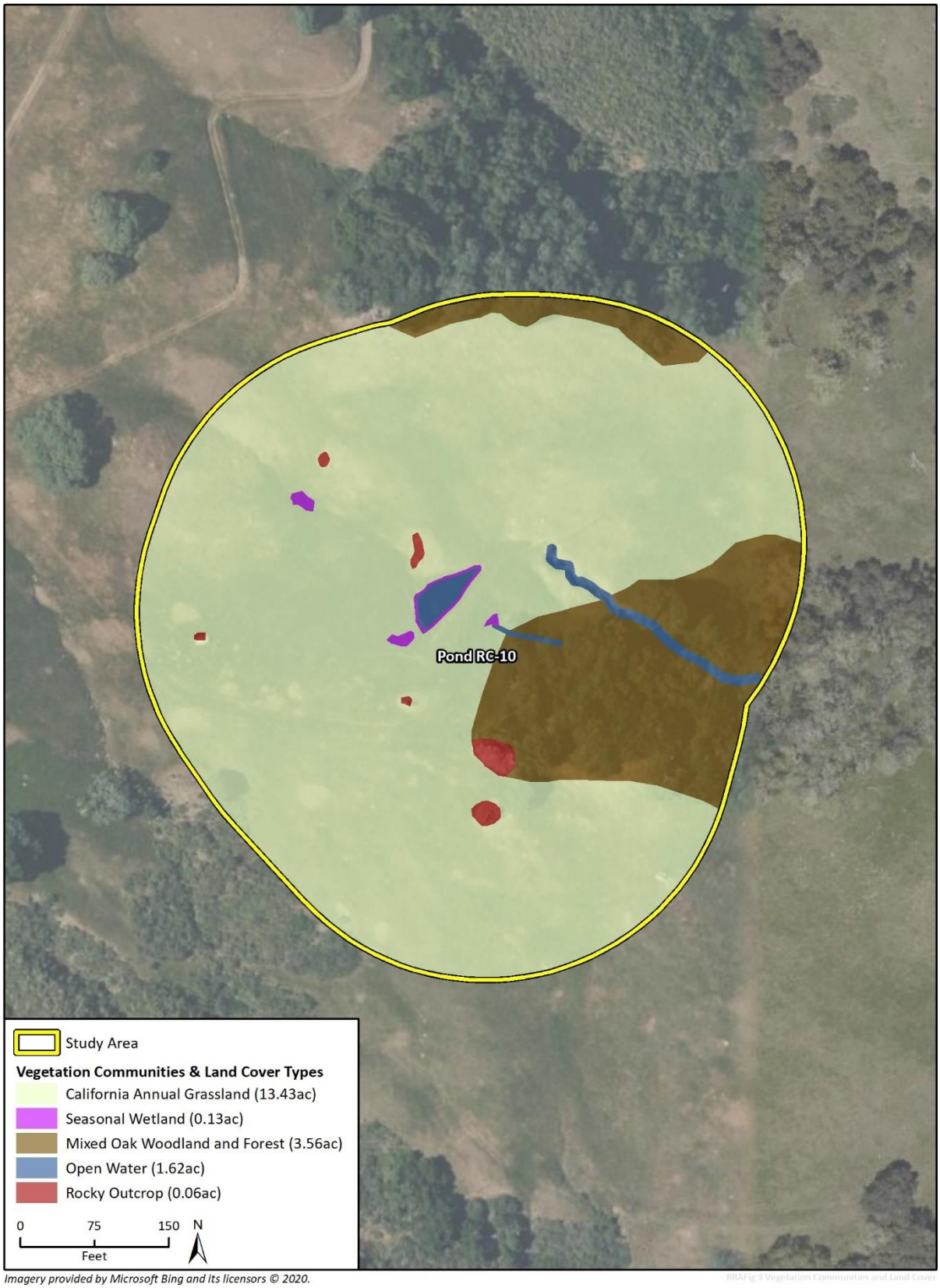

Figure 2d Biological Resources

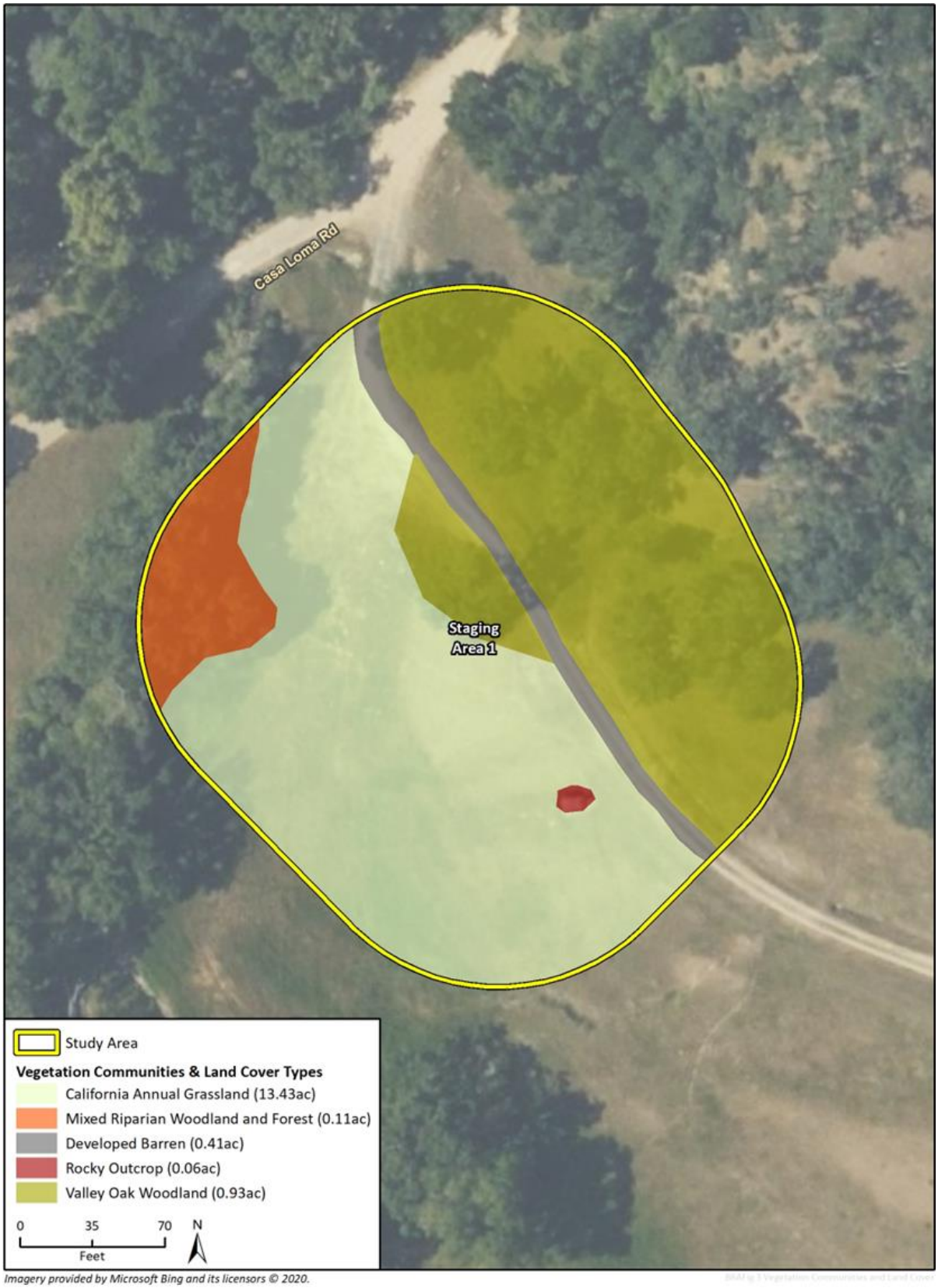

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Figure 2e Biological Resources

Figure 2f Biological Resources

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BRAFig 3 Vegetation Communities and Land Cover

1.2 Responsible Party

All funding for planning, implementation, maintenance, and monitoring of this mitigation and monitoring program required to compensate for impacts associated with the project shall be the responsibility of SCVOSA. The Responsible Party also retains the legal responsibility for implementing, maintaining, and monitoring the mitigation onsite as described in this plan, and shall be responsible for meeting the conditions of the agency permits to obtain final approval of the mitigation by the SCVHA.

The contact information for the Responsible Party is as follows:

Galli Basson,
Resource Management Program Manager
Santa Clara Valley Open Space Authority
33 Las Colinas Ln.
San Jose, California 95119
gbasson@openspaceauthority.org
Phone : 408.224.7476

2 Project Background and Description

The project is intended to enhance habitat for California red-legged frog, western pond turtle, and California tiger salamander by restoring the three ponds, including repairing the earthen embankment at Pond RC-07, lining the berm at Pond RC-01, adding or improving overflow spillways in RC-01and RC-10, and deepening RC-10 to increase ponding duration. The ponds are located with the Upper Llagas Creek watershed (Hydrologic Unit Code #180600020302). All ponds are located in the upper portion of the aforementioned watershed and were cut into natural drainages to create cattle ponds. Pond RC-01 has become habitat for American bullfrogs and fish. Pond RC-07 has significant downslope stability concerns potentially resulting from seepage through the earthen embankment. Pond RC-10 has limited vegetation and needs enhancement to create better habitat for target species. The poor conditions of the berms of ponds RC-07 and RC-10 are contributing excess sediment to the downstream receiving waters. The specific goals of the project include the following:

- Enhance habitat for California red-legged frog, California tiger salamander and western pond turtle and other species in ponds RC-01, RC-07 and RC-10
- Enlarge and deepen Pond RC-10 to increase ponding duration
- Re-enforce the berm of Pond RC-07 to maintain California red-legged frog breeding habitat
- Work done on Pond RC-07 is a short-term measure for the purpose of extending the life of pond until California red-legged frog can establish breeding habitat in surrounding ponds
- Increase wetland vegetation to enhance California red-legged frog habitat and protect with partial cattle exclusion fencing
- Reduce non-native fish and bullfrog populations at pond RC-01
- Reduce berm seepage in RC-01

Herpetofauna surveys were conducted by Vollmar Natural Lands Consulting (Vollmar) in 2016 over six properties owned by the SCVOSA, totaling 4,400-acres. At Rancho Canada Del Oro Open Space Preserve, the study evaluated 10 ponds and one failed pond for their ability to support special status species, including California red-legged frog, California tiger salamander, and western pond turtle. This evaluation included a combination of habitat assessments, daytime surveys, nighttime surveys, and aquatic sampling. During these surveys, California red-legged frog were only observed at three ponds, including RC-01 and RC-07, which were the only ponds where breeding was confirmed (egg masses or larvae) (Vollmar 2016). Western pond turtle was observed during surveys at several ponds, including RC-01, but no California tiger salamanders were observed at any of the ponds on the Preserve (Vollmar 2016).

Although California red-legged frog breeding was confirmed at RC-01 (egg mass) and RC-07 (larvae), Pond RC-01 was identified as a population sink due to the presence of non-native predatory fish and American bullfrog. Additionally, the berm at RC-07 is likely to fail, and will fail soon without reinforcement, which will drain the pond and eliminate breeding habitat. The distance between these ponds and known observations of California red-legged frog are over 1.2 miles away, farther than this species is known to travel (approximately 0.3 miles). Therefore, restoration of RC-01 and RC-07 is vital to the continued existence of California red-legged frog on the Rancho Canada Del Oro Open Space Preserve. Given the inevitable failure of Pond RC-07, restoration at Pond RC-10 is also

critical to the continued existence of this population. RC-01, RC-07, and RC-10 are within 0.45 miles of each other which is within dispersal range.

The study evaluated habitat suitability for California tiger salamander and identified potential habitat at several, including RC-07 and RC-10. However, all known occurrences are over 1.2 miles away, farther than this species is known to travel from breeding ponds (approximately 800 m). Therefore, restoration of potentially suitable habitat for California tiger salamander is a long-term goal to allow for range expansion onto the Rancho Canada Del Oro Open Space Preserve.

The overall impact of this project is to increase habitat and climate resiliency for California red-legged frogs and for western pond turtles. Project activities proposed to achieve the project goals include the following:

Pond RC-01

To improve habitat at Pond RC-01, the SCVOSA proposes to reinforce the berm and periodically drain the pond. To install a berm liner, the pond will be drained with a portable pump, positioned on the berm on the north side of the overflow channel, and an intake hose with a floating strainer will be placed into the pond. The discharge hose will extend down the existing overflow channel (intermittent stream) and discharge where the channel bed is exposed bedrock, eliminating the need for a dissipater. Once the pond is drained, a bentonite clay liner will be installed to reduce/limit seepage and increase the lifespan of the berm. Additionally, basking ramps will be installed for western pond turtle, in coordination with the SCVOSA in the field. The pond will be periodically drained with the portable pump to control bullfrog populations. Partial fencing will be installed to protect part of the pond from cattle impacts.

Pond RC-07

With significant downslope stability concerns potentially resulting from seepage through the existing earthen embankment, approximately 24 cubic yards of compacted soil fill will be placed along the western side of the berm, widening it to a minimum of 6 feet. Prior to improving the berm, Pond RC-07 will be temporarily dewatered to allow for excavation to increase the depth of the pond. Additional improvements to the outfall spillway of Pond RC-07 will also occur. The existing outlet pipe will be plugged, and a vertical 18-inch standpipe outfall will be placed 2 feet below the existing overflow pipe. A new rock energy dissipater will be installed at the pond inlet to limit further erosion.

Pond RC-10

To increase the ponds inundation duration, Pond RC-10 will be enlarged, deepened, and enhanced. The pond will be enhanced with the conversion of an upland area to a wetland. The adjacent 0.013 acres of upland habitat to the pond will be graded to accommodate the new wetland enhancement area. An exclusion fence will be installed to protect the wetland from grazing cattle. An 18-inch overflow pipe will be installed that will direct flow to a rock energy dissipator southeast of the pond. Additionally, basking ramps will be installed for western pond turtle, in coordination with the SCVOSA in the field. No temporary dewatering is anticipated as the pond naturally dries out by summer. Partial fencing will be installed to protect part of the pond from cattle impacts.

3 Impact Analysis

A resource impact analysis was conducted as part of the BRA for this project (Rincon 2021).

A resource was considered significantly impacted if he proposed project would:

> *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*

The impact analysis indicated that some special status wildlife and jurisdictional water and wetlands would potentially be impacted by project activities, such as installation of a berm liner RC-01, and grading (further described in Section 2). Impacts to other resources (e.g., plants, wildlife movement, local policies and ordinance, habitat conservation plans) would be reduced to less than significant without mitigation by design features incorporated into the project.

3.1 Special Status Species

Special status species potentially impacted by the project include Bay checkerspot butterfly (*Euphydryas editha bayensis*), foothill yellow-legged frog (FYLF; *Rana boylii*), California red-legged frog, California tiger salamander, coast range newt (*Taricha torosa torosa*), western pond turtle, tricolored blackbird (*Agelaius tricolor*), burrowing owl (*Athene cunicularia*), American badger (*Taxidea taxus*), and nesting birds. Potential impacts for each species with potential to occur on-site are discussed in the BRA (Rincon 2021). Mitigation efforts to offset the project impacts to special status species are discussed in Section 4. No special status plant species were detected within the Study Area and therefore, impacts to such resources are not expected to occur from project activities.

3.2 Jurisdictional Waters and Wetlands

The purpose of the proposed project is to enhance habitat functions and values of the ponds and increase the function of wetlands; therefore, positive impacts to these features would occur as a result of the project. However, the project will result in temporary adverse impacts from pond restoration. Restoration of these ponds includes repairing the earthen embankments, adding or improving overflow spillways to ponds RC-01 (Figure 3a), RC-07 (Figure 3b), and RC-10 (Figure 3c), and deepening Pond RC-10 (Figure 3c) to increase ponding duration. The proposed project would result in approximately 0.08 acre of permanent impacts to non-wetland waters of the State and approximately <0.001 acre of permanent impacts to wetland waters of the State (**Error! Reference s ource not found.**, Table 2, and Table 3; Figure 3a through Figure 3c). Additional impacts from the project may occur if construction equipment, workers, debris, or spills inadvertently enter the ponds or riparian areas. Mitigation to offset the impacts to jurisdictional waters and wetlands through project design features is discussed in Section 4. Design features (described in Section 4) are intended to avoid and minimize project impacts to special status species and improve habitat restoration success.

Table 1 Permanent and Temporary Impacts RC-01

Aquatic Resource Type	Temporary Impact			Permanent Impact Physical Loss of Area			Degradation of Ecological Condition		
	Acres	Cubic Yards	Liner Feet	Acres	Cubic Yards	Liner Feet	Acres	Cubic Yards	Liner Feet
CDFW Lakebed	0.35	0	85	0	0	0	0	0	0
Wetland Waters of the U.S./State	0.02	**0**	**5**	0	0	0	0	0	0
Non-Wetland Waters of the U.S./State	0.32	**0**	**95**	0	0	0	0	0	0

Table 2 Permanent and Temporary Impacts RC-07

Aquatic Resource Type	Temporary Impact			Permanent Impact Physical Loss of Area			Degradation of Ecological Condition		
	Acres	Cubic Yards	Liner Feet	Acres	Cubic Yards	Liner Feet	Acres	Cubic Yards	Liner Feet
CDFW Lakebed/ Non-Wetland Waters of the State	0.63	0	96	0.001	217	14	0	0	0
Wetland Waters of the State	0.014	0	96	0	0	0	<0.001	1	7
Non-Wetland Waters of the U.S.	0	0	0	0	0	0	0	0	0

Table 3 Permanent and Temporary Impact RC-10

Aquatic Resource Type	Temporary Impact			Permanent Impact Physical Loss of Area			Degradation of Ecological Condition		
	Acres	Cubic Yards	Liner Feet	Acres	Cubic Yards	Liner Feet	Acres	Cubic Yards	Liner Feet
CDFW Lakebed/ Non-Wetland Waters of the State	0.049	0	93	<0.001	23	20	0	0	0
Wetland Waters of the State	0.014	0	89	<0.001	2	5	0	0	0
Non-Wetland Waters of the U.S.	0	0	0	0	0	0	0	0	0

Pond RC-01

The temporary impacts to Pond RC-01 (0.32 acres/85 liner feet) and associated perimeter wetland of the U.S./State (0.02 acres/ 5 linear feet) will occur from grading prior to the placement of the clay-based pond liner adjacent to the existing earthen berm. Approximately 270 cubic yards to native soils will be cut from the bottom of the pond and mixed with 4 pounds of clay per cubic foot of native soil. The native soil/clay mixture will be added to line the berm of the pond at a minimum of 12 inches thick. No impacts to CDFW jurisdictional riparian habitat will occur.

Pond RC-07

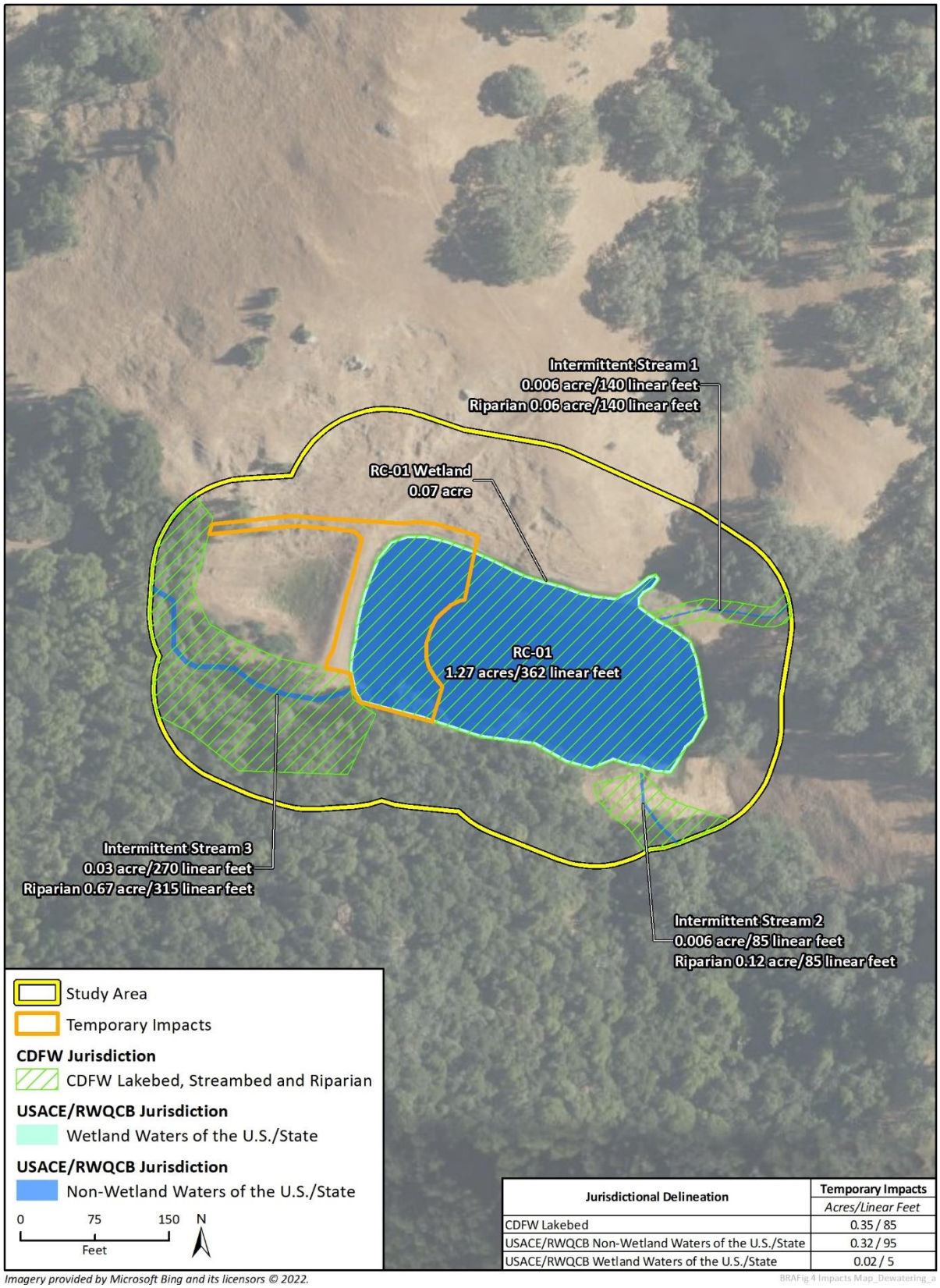
The permanent impacts to Pond RC-07 will occur from the installation of rock slope protection system surrounding the extension of 18-inch corrugated metal pipe inlet. Approximately 24 cubic yards of rock slope protection will be placed within the pond and along its banks, impacting 0.001 acres (43 square feet)/14 linear feet of RC-07 and less than 0.001 acres (43 square feet)/7 linear feet associated perimeter wetland The temporary impacts to Pond RC-07 will occur from the excavating and regrading of the pond. The pond's depth will be increased by approximately 5 feet from excavation. Approximately 218 cubic yards of native soil will be excavated from the bottom of the pond. The 12 cubic yards of excavated native soils will be mixed with six inches of topsoil and used to repair the berm after grading. No impacts to the Ephemeral Drainage 1 or Isolated Wetland 1 will occur.

Pond RC-10

The permanent impacts to Pond RC-10 will occur from the placement of the pipe inlet in the pond. Approximately two feet of the new 18-inch corrugated metal pipe will be placed in the bank of the

pond impacting <0.001 acre (43 square feet)/20 linear feet of RC-10 and <0.001 acres/5 linear feet of associated perimeter wetland. The entire pond, including 0.049 acres/93 liner feet of RC-10 and 0.014 acres/89 linear feet of associated perimeter wetland, will be temporarily impacted by the grading of the pond to accommodate for the establishment of 0.013 acres of wetland habitat. Of the 30 cubic yards of native soils excavated in the pond and in adjacent uplands, approximately 5 cubic yards of excavated native soil will be used in the regrading of the pond. No impacts to Ephemeral Drainages 1 and 2 or Isolated Wetlands 2, 3, and 4 will occur.

Figure 3a Project Impacts



Jurisdictional Delineation	Temporary Impacts *Acres/Linear Feet*
CDFW Lakebed	0.35 / 85
USACE/RWQCB Non-Wetland Waters of the U.S./State	0.32 / 95
USACE/RWQCB Wetland Waters of the U.S./State	0.02 / 5

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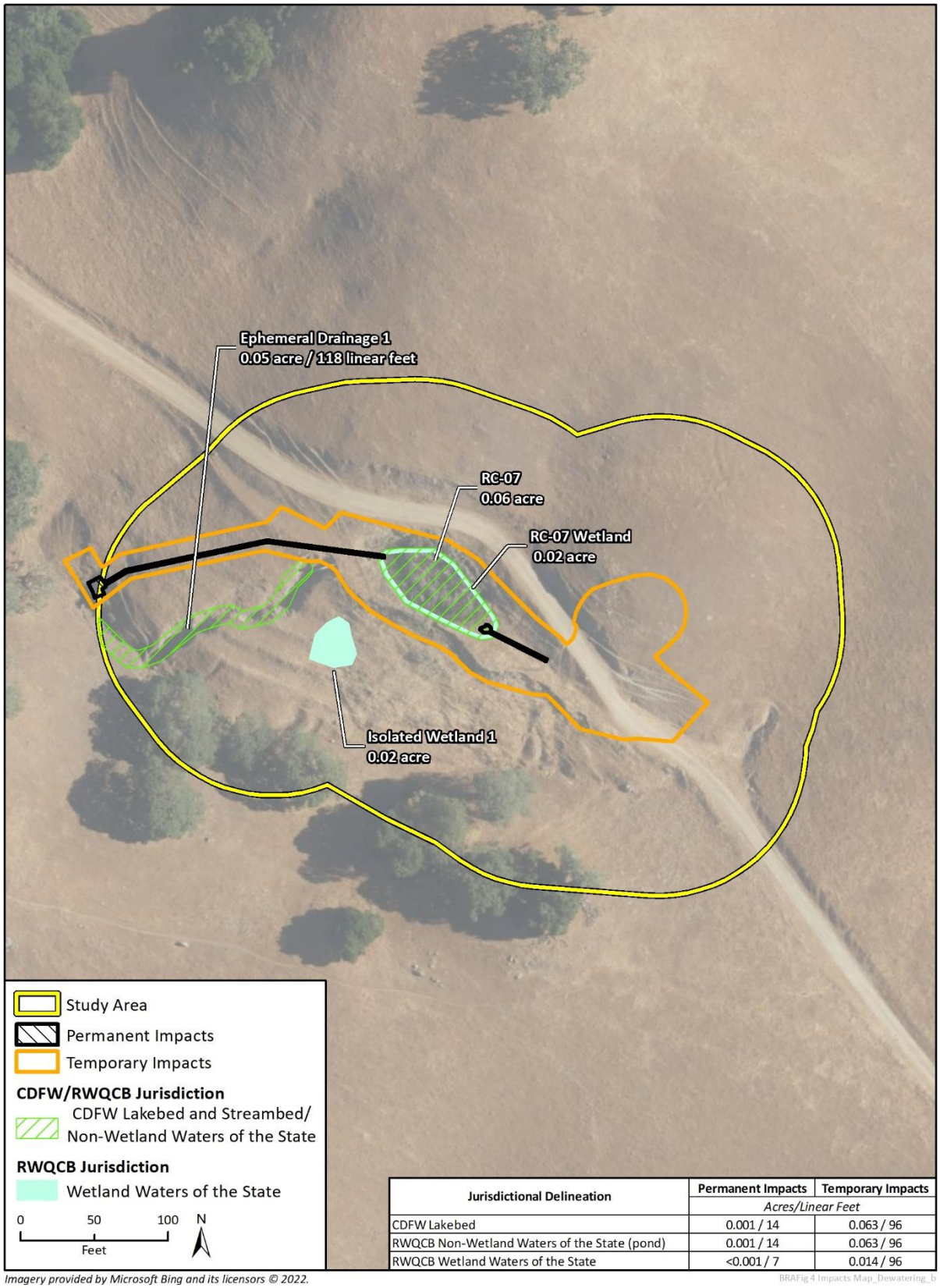
BRAFig 4 Impacts Map_Dewatering_a

Figure 3b Project Impacts



Jurisdictional Delineation	Permanent Impacts	Temporary Impacts
	Acres/Linear Feet	
CDFW Lakebed	0.001 / 14	0.063 / 96
RWQCB Non-Wetland Waters of the State (pond)	0.001 / 14	0.063 / 96
RWQCB Wetland Waters of the State	<0.001 / 7	0.014 / 96

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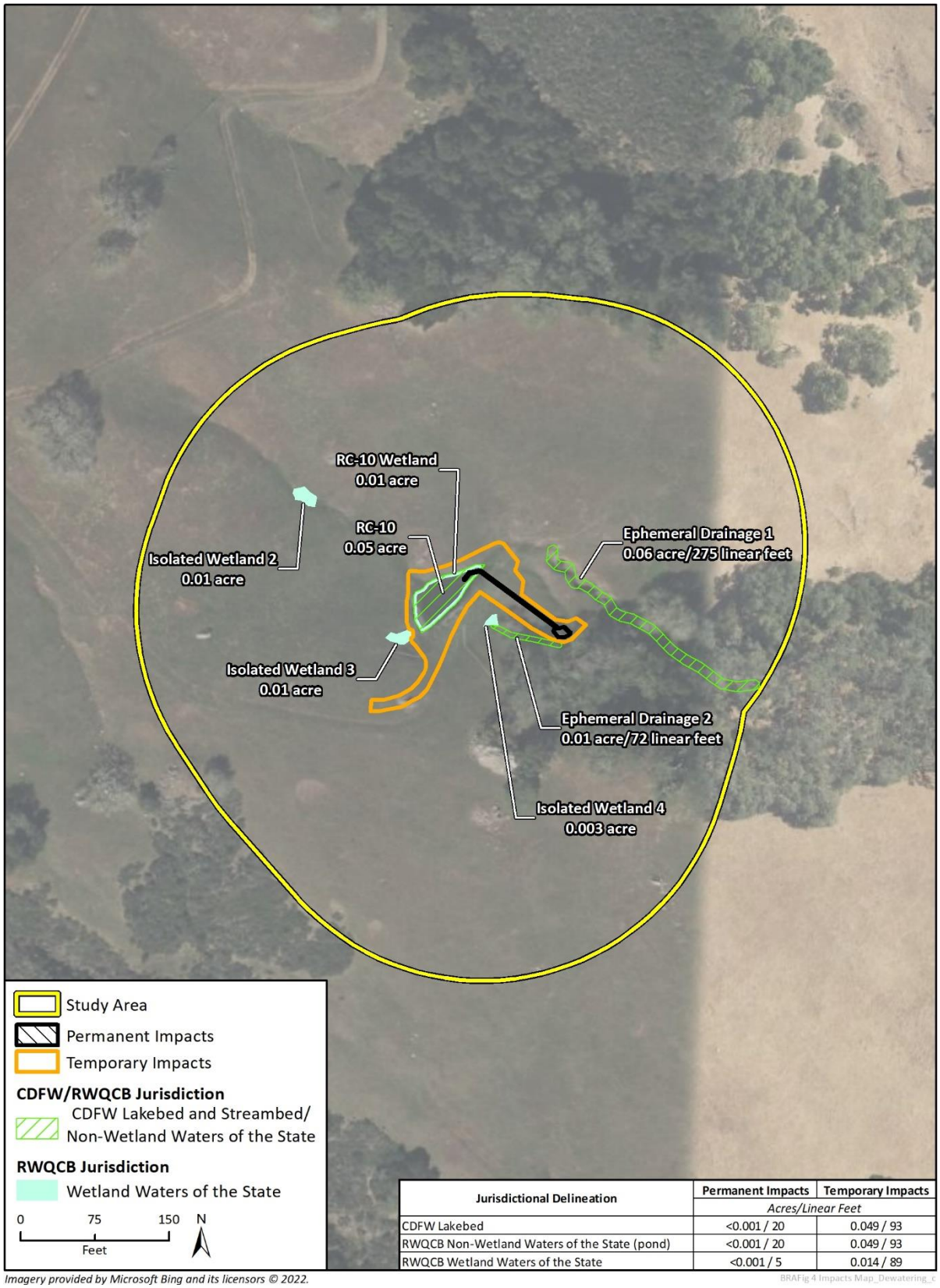
BRAFig 4 Impacts Map_Dewatering_b

Figure 3c Project Impacts



Jurisdictional Delineation	Permanent Impacts	Temporary Impacts
	Acres/Linear Feet	
CDFW Lakebed	<0.001 / 20	0.049 / 93
RWQCB Non-Wetland Waters of the State (pond)	<0.001 / 20	0.049 / 93
RWQCB Wetland Waters of the State	<0.001 / 5	0.014 / 89

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BRAFig 4 Impacts Map_Dewatering_c

4 Mitigation and Monitoring Plans

4.1 Mitigation of Impacts to Special Status Species and Aquatic Resources

Project mitigation for temporary impacts will include re-establishment and enhancement of aquatic resources. All temporary impacts for RC-01 will be re-establishment of aquatic resources including non-wetland waters of the U.S./State and wetland waters of the U.S./State (Table 4). Temporary impacts for RC-07 will include 0.063 acres/ 96 linear feet of re-establishment and 0.014 acres/ 96 linear feet of enhancement (

Table 5). Temporary impacts for RC-10 will include 0.049 acres/ 93 linear feet of re-establishment and 0.014 acres/ 89 linear feet of enhancement (

establishment (Est.), reestablishment (Re-est.), rehabilitation (Reh.), enhancement (Enh.), preservation (Pres.)

Table 6).

Table 4 Project Mitigation Quantities for Temporary Impacts for RC-01

Aquatic Resource Type	Units	Method				
		Est.	Re-est.	Reh.	Enh.	Pres.
CDFW Lakebed/Non-Wetland Waters of the U.S/State	Acres		0.35			
	Linear Feet		95			
Wetland Waters of the U.S/State	Acres		0.02			
	Linear Feet		5			

establishment (Est.), reestablishment (Re-est.), rehabilitation (Reh.), enhancement (Enh.), preservation (Pres.)

Table 5 Project Mitigation Quantity for Temporary Impacts for RC-07

Aquatic Resource Type	Units	Method				
		Est.	Re-est.	Reh.	Enh.	Pres.
CDFW Lakebed/Non-Wetland Waters of the State	Acres		0.063			
	Linear Feet		96			
Wetland Waters of the State	Acres				0.014	
	Linear Feet				96	

establishment (Est.), reestablishment (Re-est.), rehabilitation (Reh.), enhancement (Enh.), preservation (Pres.)

Table 6 Project Mitigation Quantities for Temporary Impacts for RC-10

Aquatic Resource Type	Units	Method				
		Est.	Re-est.	Reh.	Enh.	Pres.
Lakebed/Non-Wetland Waters of the State	Acres		0.049			
	Linear Feet		93			
Wetland Waters of the State	Acres				0.014	
	Linear Feet				89	

establishment (Est.), reestablishment (Re-est.), rehabilitation (Reh.), enhancement (Enh.), preservation (Pres.)

Project compensatory mitigation for permanent physical loss of area will include the establishment of wetland habitat (Table 7). At RC-10, 0.013 acres/ 95 linear feet of upland will be graded for the establishment of wetland habitat and will compensate for the 0.004 acres of permanently impacted other waters from the placement of permanent outfall pipe in RC-07 and overflow pipe at RC-10.

Table 7 Project Mitigation Quantity for Permanent Physical Loss of Area

Aquatic Resource Type	Units	Method				
		Est.	Re-est.	Reh.	Enh.	Pres.
	Acres	0.013				

Wetland Waters of the State	Linear Feet	95

establishment (Est.), reestablishment (Re-est.), rehabilitation (Reh.), enhancement (Enh.), preservation (Pres.)

4.1.1 Project Design Features and Habitat Plan Conditions

Design features have been incorporated into the project description to avoid impacts to biological resources and will be incorporated into the project to reduce temporary impacts and "take" of or otherwise adverse impacts to special status species. Proposed design features to re-establish and enhance habitat are described in detail below.

Condition 1 Avoid Direct Impacts on Legally Protected Plant and Wildlife Species

This permit condition applies to all covered actives and requires avoidance of Contra Costa goldfields (*Lasthenia conjugens*), a federally endangered species not included for coverage under the HCP; and species that are fully protected by CFGC (Sections 3511 and 4700), the MBTA, and Bald and Golden Eagle Protection Act. These species including but not limited to:

- Golden eagle
- Bald eagle
- American peregrine falcon
- Southern bald eagle
- White-tailed kite
- California condor
- Ring-tailed cat
- Migratory birds (including western burrowing owl, least Bell's vireo, and tricolored blackbird)

California red-legged frog (federally threatened) are known to breed in Pond RC-07, and have been observed in Pond RC-01. Nesting birds protected under MBTA, CFGC, and the Bald and Golden Eagle Protection Act, have potential to breed and forage throughout the study area and vicinity. Active nests could be disturbed by construction activity and could result in nest destruction or abandonment. The project will comply with Condition 1 by conducting pre-construction surveys and mitigation measures as described below:

- The project itself would improve habitat and result in an overall benefit to the local CRLF population. In addition to obtaining incidental take permits for construction, adherence to mitigation measure BIO 1(a) and BIO 1(c) would mitigate impacts to CRLF sufficiently mitigate impacts to CRLF.
- Adherence to mitigation measure BIO 1(g) would mitigate impacts to Nesting birds protected under MBTA, CFGC, and the Bald and Golden Eagle Protection Act.

Habitat Plan Condition 3 Maintain Hydrologic Conditions and Project Water Quality

This condition applies to all covered activities and requires compliance with regulations under National Pollutant Discharge Elimination System (NPDES) permit requirements. The Central Coast Regional Board administers the NPDES program for the Pajaro Watershed which includes the Llagas Creek subbasin

NPDES compliance will be assured and the following will be implemented to protect watershed health and reduce stormwater discharge and pollutant runoff:

- To the extent possible, restore the hydrograph to more closely resemble predevelopment conditions.
- Invasive plant species removed during maintenance will be handled and disposed of in such a manner as to prevent further spread of the invasive species.
- When possible, maintain a vegetated buffer strip between staging/excavation areas and receiving waters.
- Use existing roads for access and disturbed area for staging as site constraints allow. Off-road travel will avoid sensitive communities such as wetlands to the maximum extent possible.
- Only clear/prepare land which will be actively under construction in the near term.
- When possible, avoid wet season construction.
- Fiber rolls used for erosion control will be certified as free of noxious weed seed.
- Filter fences and mesh will be of material that will not entrap reptiles and amphibians.
- Seed mixtures applied for erosion control will not contain invasive nonnative species and will be composed of native species or sterile nonnative species. If sterile nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives.
- Topsoil removed during soil excavation will be preserved and used as topsoil during revegetation when it is necessary to conserve the natural seed bank and aid in revegetation of the site.
- To the extent feasible, vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas.
- The potential for traffic impacts on terrestrial animal species will be minimized by adopting traffic speed limits.
- All trash will be removed from the site daily to avoid attracting potential predators to the site. Personnel will clean the work site before leaving each day by removing all litter and construction-related materials.
- To prevent inadvertent entrapment of animals during excavation, all excavated, steep-walled holes or trenches more than 2-feet deep will be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps constructed of earth fill or wooden planks.
- All disturbed soils will be revegetated with native plants and/or grasses or sterile nonnative species suitable for the altered soil conditions upon completion of construction. Local watershed native plants will be used if available. If sterile nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives. All disturbed

areas that have been compacted should be de-compacted prior to planting or seeding. Cut-and-fill slopes will be planted with local native or non-invasive plants suitable for the altered soil conditions.

- All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for wildlife by properly trained construction personnel before the pipe is subsequently buried, capped, or otherwise used or moved in anyway.

Habitat Plan Condition 7 Rural Development Design and Construction Requirements

This condition largely addresses residential and transportation development, but also includes capital project outside the urban service area. Condition 7 requires low impact design and construction best management practices (limiting disturbance foot print, stream setbacks and buffers, invasive species avoidance, etc.) to avoid and minimize impacts to sensitive communities (including wetlands and hydrology) and covered species The following measures will be implemented to lessen the impacts of rural development:

- At project sites that are adjacent to any drainage, natural or manmade, exposed soils will be stabilized or otherwise contained on site to prevent excessive sediment from entering a waterway.
- Ground-disturbing activities should be timed to occur during dry weather months to reduce the possibility of landslides or other sediment being transported to local streams during wet weather.
- If construction extends into wet weather, appropriate erosion control materials will be implemented to prevent loss of soil and sediment.
- Construction on steep slopes will be timed for dry weather months to reduce the potential for landslides.
- All temporarily disturbed soils will be revegetated with native plants and/or grasses to provide long-term erosion control and slow colonization by invasive nonnatives. All disturbed areas that have been compacted should be de-compacted prior to planting or seeding.
- All temporarily disturbed areas, such as staging areas, will be returned to pre- project or ecologically improved conditions within 1 year of completing construction or the impact will be considered permanent.
- No plants identified by the California Invasive Plant Council as invasive will be planted on the project site.

Habitat Plan Condition 12 Wetland and Pond Avoidance and Minimization

This condition requires minimization of direct and indirect impacts to wetlands and ponds and in some cases, avoidance of direct and indirect impacts to high quality wetlands and ponds, and includes a wetland fee for impacts. This condition also requires low impact design and construction BMPs for the protection of wetlands and ponds

Impacts to wetlands and ponds will be minimized through implementation of Restoration following construction. The proposed project aims to restore and improve habitat quality at each of the ponds, however, the following measures should be implemented as feasible, to minimize additional negative impacts:

- Personnel conducting ground-disturbing activities in or adjacent to wetlands and ponds will attend the worker environmental awareness training conducted by a qualified biologist so that they will understand appropriate avoidance and minimization measures necessary to reduce impacts to sensitive wetland and pond habitat which may support protected wildlife species.
- The limits of work should be clearly defined in the field with high visibility fencing where practical to avoid encroachment and unnecessary impacts.
- Silt fencing will be erected around the project site to reduce erosion where necessary.
- In addition to silt fencing, appropriate erosion control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) will be used on site to reduce siltation and runoff of contaminants into wetlands, ponds, streams, or riparian woodlands. Filter fences and mesh will be of material that will not trap reptiles and amphibians. Erosion control blankets will be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians.
- Erosion-control measures will be placed at the outer edge of the project site.
- Fiber rolls used for erosion control will be certified as free of noxious weed seed.
- Seed mixtures applied for erosion control will not contain invasive nonnative species and should be composed of native species appropriate for the site or sterile, nonnative species. If sterile, nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives.
- No construction or maintenance vehicles will be refueled within 200 feet of avoided wetlands and ponds unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.
- Where appropriate to control serious invasive plants, herbicides that have been approved by the U.S. Environmental Protection Agency for use in or adjacent to aquatic habitats may be used as long as label instructions are followed, and applications avoid or minimize impacts on covered species and their habitats. In wetland environments, appropriate herbicides may be applied during the dry season to control nonnative invasive species (e.g.: yellow star-thistle). Herbicide drift will be minimized by applying the herbicide as close to the target area as possible. Herbicides will only be applied by certified personnel in accordance with label instructions.
- All equipment brought into the site should be clean and free of contaminated sediments and weeds. All organic matter should be removed from boots, vehicle tires, construction equipment, and all other surfaces that have come into contact with ponds, wetlands, or potentially contaminated sediments. Equipment should be rinsed with clean water before leaving the project site.
- Measures will be implemented to minimize the spread of disease (such as Phytophthora and chytrid fungus) and nonnative species based on current wildlife agency protocols and other best available science.
    - Wetland plants will come from nurseries that practice phytophthora Best Management Practices.

Habitat Plan Condition 14 Valley Oak and Blue Oak Woodland Avoidance and Minimization

This condition applies to all covered activities and requires avoidance and minimization measures for stands of valley oak and blue oak, including protection of root zones and pruning under the direction of a certified arborist.

- Temporary project access points will be constructed as close as possible to the work area to minimize necessity for tree removal.
- Roads and pathways will be aligned outside of the tree's root protection zone whenever possible.
- Roads and pathways designed beneath or within 25 feet of the dripline of oak trees will be graded using hand-held equipment and will use permeable surfacing (e.g., grass pavers that allow runoff to infiltrate the ground).
- Alteration of natural grade through fill or other means within the root protection zone of oak trees will be minimized.
- Trenching for utility lines and other purposes will be minimized within root protection zones. Utilities may be installed in these areas by boring below the root zone.
- If extensive pruning of blue oaks and valley oaks is necessary, pruning will be conducted during the winter dormant period for these species and under the supervision of an arborist certified to International Society of Arboriculture or similar standards.

Habitat Plan Condition 17 Tricolored Blackbird

In areas mapped as suitable habitat (freshwater marsh with cattails, tule, etc.) in the Habitat Plan or identified during the project specific evaluation, preconstruction surveys are required 2 days prior to on-site disturbance for work within 250 feet. A 250-foot avoidance buffer is required for active tricolored blackbird colonies, and the SCVHA must be notified immediately. A biological monitor will also be required to ensure the buffer is enforced and is sufficient to prevent disturbance

- Adherence to design feature 7 would avoid impacts to Nesting birds protected under MBTA, CFGC, and the Bald and Golden Eagle Protection Act

4.1.2 Reduced Impact Scheduling

To reduce the likelihood of impacts to special status species, construction activities including draining the ponds, excavation, fill, vegetation removal, or other ground-disturbing activities within or immediately adjacent to CRLF and FYLF potential breeding habitat shall be confined to the dry season (June 15th to October 31st). To the extent possible, construction activities shall not occur during the wet season (November to June).

4.2 Special Status Species Habitat Enhancement Management

4.2.1 Hydrologic Targets

Hydrologic targets were determined by assessing special species biological requirements and site conditions. Sherwood Design Engineers (Sherwood; 2022) provided detailed information on how

ponding depth and will be achieved given expected evaporation, drainage and flow. A summary of ponding depth management is provided below.

Pond RC-01

Embankment seepage will be addressed through the addition of a new clay liner and clay cut off wall along the inboard toe of the earthen dam that will reduce and minimize seepage. The existing earthen spillway will be monitored for debris and sediment accumulation and will cleaned out for periodically. Additional observation should include the new landslide on the hillside above the spillway. Based on hydrological evaluations (Sherwood 2022) Pond RC-01 should be drained in August- September, allowing the target species, the California red legged frog, to fully metamorphose and leave the pond, thus controlling only the bull frog and non-native fish populations. Per the water balance, in the month of October (on an average rainfall year) the pond receives an estimated 424,703 cubic feet of water volume through precipitation and overland flow, which fills the Pond to its original maximum water level. The pond may return to its maximum capacity later in the rainy season due to rainfall variability.

Pond RC-07

The goal for Pond RC-07 is to provide temporary measures to stabilize a failure in the berm so the pond can continue to function as California red-legged frog breeding habitat for as long as possible. To ensure the that proposed pond design will continue to provide habitat for the target species, Sherwood completed a water balance for the current conditions and after implementation of the temporary stabilization measures (Sherwood 2022). The water balance calculations for Pond RC-07 indicate that the existing pond remains wet from October through April in an average rainfall year. The pond will be completely full in November and be completely dry in the month of May. Per the water balance calculations, the proposed pond retains water from October – May, therefore, slightly increasing the hydrologic period of the pond. The increased hydrologic period is the result of the proposed pond geometry being deeper, with smaller pond surface area. This new geometry leads to less losses of water through evaporation and infiltration. Our results indicate that although the proposed pond volume is 8 percent less, the ponding duration will extend into August during an average rainfall year.

Pond RC-10

The proposed improvements and grading will result in a 30 percent reduction in pond volume. Similar to Pond RC-07, the updated geometry will deepen the pond and reduced the pond surface area. As a result, the proposed pond's hydrologic period matches the existing conditions. The results indicate that the proposed design at RC-10 will continue to provide suitable habitat for the target species.

4.2.2 Vegetation Management

Vegetation in the Study Area will be annually managed for at least five years to improve habitat quality for the three special status species targeted by the SCVOSA: California red-legged frog, western pond turtle, and California tiger salamander. Habitat suitability for a target species increases when plant species composition and vegetation structure meet target thresholds.

Nonnative, invasive plant species will be targeted for control in the study site if they are ranked as moderate or high threat by the California Invasive Plant Council (Cal-IPC). Invasive plant species

which may be controlled at the project site include Himalayan blackberry (*Rubus armeniacus*), yellow star-thistle (*Centaurea solstitialis*), and black mustard (*Brassica nigra*). Invasive plant species control will consist primarily of physical removal. Herbicides will not be used to control vegetation at the project site to the extent feasible, and if required will be at least 50 feet from waters or wetlands. Invasive plant species control will be conducted in a manner so to not disturb nesting birds. If invasive plant species control is planned during nesting bird season (February 1 – August 31), a nesting bird survey will be conducted prior to the control activity. The cover of invasive plant species will be assessed during annual monitoring of the ecological performance standards and periodic maintenance visits.

Some areas are designated to provide open water pond habitat and bare ground habitat for California tiger salamander. These areas will not be included in cattle exclusion fencing, allowing cattle use will naturally thin vegetation in these areas.

4.2.3 Aquatic Predator Management

The abundance of aquatic predators will be assessed during annual monitoring of the ecological performance standards and three annual maintenance visits (see Section 5).

Physical removal of adult and juvenile American bullfrogs will be conducted according to the methods accepted methodology. Adults can typically be captured by hand or with the use of Hawaiian slings (gigs). Tadpoles will be captured via seine netting in June or July. If present, bullfrog egg masses will also be removed. Physical removal of adult and juvenile nonnative fishes will similarly be accomplished via seine netting in June or July. All captured individuals will be humanely killed.

4.2.4 Native Vegetation Management

Native wetland vegetation is expected to re-establish rapidly in the ponds following construction activities.

Source of Seeds/Plants

All propagules (seeds, divisions, or cuttings) will be collected from Santa Clara County when feasible to ensure that the plant material is adapted to the climatic conditions of the project site. Plant propagules will be derived from as close to the site as feasible from locations with similar hydrology and soils. If adequate propagules are unavailable from Santa Clara County, then they will originate from a location that exhibits similar environmental conditions to those found at the site, such as neighboring San Francisco Bay Area counties. A nursery contract will be established in sufficient time to collect propagules and ensure they have enough growing time as container stock in the nursery before they are installed at the site. Bare root divisions may also be collected for use as direct transplants to supplement nursery container stock; these root divisions will be collected from as close to the site as feasible, irrigated while in storage and stored for no longer than 48 hours, and directly transplanted into the designated planting areas.

Planting Methods

A seed mix of native herbaceous species will be applied to all temporarily disturbed areas outside of delineated ponds, following construction activities. Seeds will be broadcast by hand, and lightly raked into the spoil at a depth of 0.25 inch. The area will immediately be irrigated. This will reduce soil erosion and to reduce competitive pressure by nonnative herbaceous species. Table 8 provides

the preliminary upland native seed mix that will be applied, but the plant palette may be adjusted based on seed cost and/or availability to be determined by a qualified botanist and/or restoration specialist.

Table 8 Upland Native Seed Mix

Common Name[1]	Scientific Name[1]	Application Rate (pounds PLS/1,000 square feet) [2]
Narrow-leaf milkweed	*Asclepias fascicularis*	0.6
Blue wild rye	*Elymus glaucus*	0.3
California poppy	*Eschscholzia californica*	0.02
Six weeks grass	*Festuca microstachys*	0.1
Meadow barley	*Hordeum brachyantherum*	0.3
California plantain	*Plantago erecta*	0.02
Blue eyed grass	*Sisyrinchium bellum*	0.02
Purple needlegrass	*Stipa pulchra*	0.1
Total		**1.46**

[1] Names derived from the Jepson Manual, Second Edition (Baldwin et al. 2012).

[2] PLS (pure live seed) = the proportion of total seed that is pure and viable. To find the total weight of raw seed needed to achieve the application rate in the table, find %PLS as follows: [(% purity of seed lot) (% germination rate of species)/100]. Then, divide the application rate in the table (pounds) by the %PLS (expressed as a decimal) to find total weight of raw seed applied per acre for each species.

Container stock and/or direct transplants of wetland plants will be installed to supplement existing vegetation in areas designed to support wetland vegetation (Table 9). Short statured emergent wetland species will be installed in areas expected to be subject to greater depth and longer duration of inundation. Drought tolerant seasonal wetland species will be installed in areas where inundation and soil saturation is expected to be of lesser depth and shorter duration, such as around the elevation of the maximum water level. Table 3 provides the wetland native seed mix and container stock that will be applied but the plant palette may be adjusted based on seed and container stock cost and/or availability to be determined by a qualified botanist and/or restoration specialist.

Container plantings will be installed between when rainfall has saturated the soils (October – December). Excavated planting holes will be two times the width and equal to the depth of the root volume of the planting. Planting holes will be backfilled with site soil. All plantings will be irrigated immediately following installation, but further irrigation is not expected to be required.

Table 9 Suggested Wetland Plant Palette and Specific Pond Installation

Common Name[1]	Scientific Name[1]	Pond	Container Type
Coast carex	*Carex nudata*	RC-07	1 Gallon
Needle spikerush	*Eleocharis macrostachya*	RC-07	D-40
Panicled bulrush	*Scirpus microcarpus*	RC-07	1 Gallon
Broadfruit bur reed	*Sparganium eurycarpum*	RC-07	1 Gallon
Clustered field sedge	*Carex praegracilis*	RC-01, RC-10	D-16
Needle spikerush	*Eleocharis macrostachya*	RC-01, RC-10	D-40
Beardless wild rye	*Elymus triticoides*	RC-01, RC-10	D-40

Iris leaved rush	*Juncus xiphioides*	RC-01, RC-10	D-40

[1] Names derived from the Jepson Manual, Second Edition (Baldwin et al. 2012).

5 Ecological Performance Standards

Ecological performance standards were generated to qualify achievement of project objectives outlined in Section 2. The standards incorporate the USACE South Pacific Division uniform performance standards to the extent practicable and are consistent with performance standards in place for other pond restoration efforts under the authority of SCVHA.

A combination of site-specific physical and target species-specific ecological performance standards will be used to assess achievement of project objectives. The performance standards will be used to assess if the project site is moving towards functional ecological habitat and hydrologic targets desirable to maintain or enhance populations of special status species.

The ecological performance standards will be assessed during annual monitoring visits (three per year) by a qualified biologist and hydrologist for a minimum five-year monitoring period. These experts will document findings in an annual report, described in Section 6.

1. Target Hydrologic Regime. The ponds RC-01, RC-07 and RC-10 will achieve a target hydrologic regime that supports the California red-legged frog and California tiger salamander breeding by having a portion of the pond inundated by at least 0.5 feet of water through August 31 of each monitoring year that exhibits average or above average precipitation. Gauges will be installed to accurately measure pond inundation.

2. Sedimentation and Geomorphic Stability. The ponds RC-01, RC-07 and RC-10 will demonstrate minimal sedimentation as determined by topographic cross-section surveys and review of the hydrologic regime and California red-legged frog, California tiger salamander and western pond turtle survey results. Minimal sedimentation is defined as a surface area/volume of sedimentation that does not compromise attainment of the other ecological performance standards (e.g., target hydrologic regime, wetland vegetation cover criteria, surface area of restored, jurisdictional pond and wetland habitat).

The ponds RC-01, RC-07 and RC-10, will remain geomorphically stable, as assessed by a qualified hydrologist. The ponds will be considered geomorphically stable if the soil movement does not compromise attainment of the other ecological performance standards.

3. California Red-legged Frog/California Tiger Salamander/Western Pond Turtle. The California red-legged frog will continue to occur at RC-01 and RC-07. Western pond turtle will continue to occur at the RC-10 pond.

4. Aquatic Predator Presence/Absence. Bullfrog abundance at RC-01 will be managed at levels below current conditions. Bullfrogs will not colonize RC-07 or RC-10. If annual monitoring determines that the numbers of bullfrogs in the ponds have increased since the previous year, the ponds will be drained in mid-September of the current year and allowed to dry completely until winter rains refill the pond (i.e., in most years, in December or January).

5. Wetland Vegetation Percent Cover. Average percent cover of wetland vegetation will exhibit an increasing temporal trend across monitoring years at the ponds RC-01 and RC-07. Percent cover will be determined by species; at least three wetland species will be observed at each site during each monitoring year. At the Pond RC-10 site, vegetation cover will not exceed 50% in the open water pond habitat during any monitoring year to encourage of breeding habitat for the California red-legged frog and California tiger salamander.

6. Invasive Plant Cover. The average percent cover of nonnative, invasive plant species at the pond sites will be less than 25% in each monitoring year. All species with a Cal-IPC rating of moderate or high will be considered nonnative, invasive plant species.

6 Reporting Program

To adaptively manage the ponds for conditions suitable for special status species, a qualified biologist and hydrologist will monitor the ponds, as described in Section 5. Their findings will be documented in annual reports for assessment by oversight agencies. Review of these reports will enable implantation of adaptive management strategies, should further management of these ponds be required to maintain populations of target special status species.

6.1 Qualitative Monitoring Memoranda

The qualified biologist shall prepare and provide a brief memorandum (memo) to the Responsible Party within two weeks following each qualitative monitoring visit (three per year). The memo shall include date, time, and weather conditions; a discussion of general site conditions; and recommendations for remedial actions as needed to facilitate progress toward mitigation success. Selected photos taken during qualitative monitoring visits shall be included with each memo. All qualitative monitoring reports shall be submitted in digital format.

6.2 Annual Mitigation Status Reports

The Responsible Party shall prepare an Annual Mitigation Status Report and Mitigation Accounting Form to submit to SCVHA by April 1 of each year of the five-year mitigation and maintenance period or until restoration success criteria have been met. The annual report shall include, at a minimum, documentation of the following:

- Location and extent of mitigation area, including a Geographic Information System-based map of the project site
- Restoration installation methods
- An overview of the maintenance activities performed during the year, including replacement planting, weed control, and any erosion control/stabilization efforts
- A summary of remedial actions taken during the year (if any) and a discussion of any adaptive management strategies that have been implemented
- Monitoring methodology
- Percentage cover of native and nonnative species by vegetation community
- Photographs from established photo points
- Summary of success criteria
- A discussion of the monitoring results in relation to success criteria
- Summary of significant issues that may affect mitigation success, and pertinent recommendations/remedial actions required to meet success criteria

Additional information and data collected during qualitative monitoring visits, as outlined in Section 4.2, may be included to provide greater detail. All annual mitigation status reports shall be submitted by April 1 of each year to SCVHA in digital format.

7 Guidelines for Long-Term Operations and Maintenance of Project Site

The goal of SCVOSA is to foster the long-term viability of the site's special status species and waters of the United States and State of California. Routine monitoring and minor maintenance tasks are intended to assure the viability of the site in perpetuity. Long-term management ant monitoring activities will focus on the natural communities in the ponds and the plant and wildlife species that occur there.

Annual site monitoring of selected characteristics to determine stability and functional recovery trends of the ponds and special status species are recommended. Annual monitoring will assess the property's conduction, degree of erosion, assessment of nonnative plant species abundance and aquatic predator abundance, water quality, fire hazard, and/or other aspects that may warrant management actions.

Adaptive management and contingency measures will be employed to respond to unforeseen circumstances and adjust mitigation strategies as needed. Specific time-sensitive maintenance and project management activities may be identified based on the results of each monitoring visit. As part of each annual monitoring report, maintenance and management activities implemented during the previous year will be described and the results will be evaluated under the framework of adaptive management. If management and maintenance methods are not successful in addressing negative environmental stressors identified in monitoring memos and/or annual monitoring reports, the methods will be examined and altered to increase the potential for success based on the qualified biologist's best professional judgment and management methods that are shown to be successful based on scientific research. In some cases, the effectiveness of management and maintenance activities may not be evident over the course of only one year. This will be accounted for in annual monitoring reports through evaluation of whether or not management actions are contributing to progress towards the success criteria. In some cases, it may be necessary to wait for two years or more before altering methods as part of an adaptive management strategy.

There can be unforeseen effects on a mitigation project in the event that a disaster such as fire, flood, drought, or vandalism should have a significantly negative impact on the mitigation area during the maintenance period. The qualified biologist will coordinate with the Responsible Party in the event of any such unforeseen event, and contingency measures will be developed in coordination with the USACE, RWQCB, and/or CDFW. Modifications to this HMMP may be required and additional remedial actions may need to be implemented.

At the end of three years of maintenance and monitoring, if the qualified biologist determines that the mitigation area will not meet success criteria at the end of the five-year maintenance and monitoring period using the maintenance methods outlined in Section 4, corrective actions will be undertaken. Corrective actions may consist of re-seeding consistent with the baseline native plant palette and/or installation of locally sourced container plants, draining of ponds for predator control or elevated predator capture, depending on site conditions. Detailed methods of the proposed corrective actions will be provided in the Year Three Annual Report, and agency concurrence with these methods will be sought prior to implementation.

8 References

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Central Coast Regional Water Quality Control Board

September 27, 2022

Galli Basson
Santa Clara Valley Open Space Authority
33 Las Colinas Lane
San Jose, CA 95119
Email: gbasson@openspaceauthority.org

VIA ELECTRONIC MAIL

Dear Galli Basson:

WATER QUALITY CERTIFICATION NO. 34321WQ03 FOR THE POND MANAGEMENT AND ENHANCEMENT AT RANCHO CANADA DEL ORO OPEN SPACE PRESERVE PROJECT, SANTA CLARA COUNTY

Thank you for the opportunity to review your April 27, 2021 application for water quality certification of the Pond Management and Enhancement at Rancho Canada del Oro Open Space Preserve Project (Project). All required materials were received on April 27, 2021. All supplemental information requested was received by September 20, 2022. The Project, if implemented as described in your application and with the additional mitigation and other conditions required by this Clean Water Act Section 401 Water Quality Certification (Certification), appears to be protective of beneficial uses of State waters. We are issuing the enclosed Certification. Should new information come to our attention that indicates a water quality problem, we may require additional monitoring and reporting, issue waste discharge requirements, or take other action.

Your Certification application and submitted documents indicate that Project activities have the potential to affect beneficial uses and water quality. The Central Coast Regional Water Quality Control Board (Central Coast Water Board) issues this Certification to protect water quality and associated beneficial uses from Project activities. We need reports to determine compliance with this Certification. All technical and monitoring reports requested in this Certification, or any time after, are required per section 13383 of the California Water Code. Failure to submit reports required by this Certification, or failure to submit a report of technical quality acceptable to the Executive Officer, may subject you to enforcement action per section 13385 of the California Water Code.

Any person affected by this Central Coast Water Board action may petition the State Water Resources Control Board (State Water Board) to review this action in accordance with California Water Code section 13320; and Title 23, California Code of Regulations, sections 2050 and 3867-3869. The State Water Board, Office of Chief Counsel, PO Box 100, Sacramento, CA 95812, must receive the petition within 30 days of the date of this Certification. We will provide upon request copies of the law and regulations applicable to filing petitions.

In compliance with Title 40, Code of Federal Regulations (CFR) Part 121.7(d)(2), an explanation for each certification condition is provided in Attachment A.

If you have questions, please contact **Mark Cassady** at (805) 549-3689 or via email at Mark.Cassady@waterboards.ca.gov, or Phil Hammer at (805) 549-3882. Please mention the above certification number in all future correspondence pertaining to this Project.

Sincerely,

Digitally signed by Phillip Hammer
Date: 2022.09.27 09:51:43 -07'00'

for
Matthew T. Keeling
Executive Officer

Enclosure: Action on Request for CWA Section 401 Water Quality Certification

cc: With enclosures

Colby Boggs, Rincon Consultants, Inc.: cboggs@rinconconsultants.com

Katerina Galacatos, U.S. Army Corps of Engineers: Katerina.galacatos@usace.army.mil

Kristin Garrison, California Department of Fish and Wildlife: Kristin.Garrison@wildlife.ca.gov

Brenda Blinn, California Department of Fish and Wildlife: Brenda.blinn@wildlife.ca.gov

U.S. Environmental Protection Agency: R9cwa401@epa.gov

CWA Section 401 WQC Program, SWRCB: Stateboard401@waterboards.ca.gov

Jackson Welch, Central Coast Water Board: Jackson.Welch@waterboards.ca.gov

Phil Hammer, Central Coast Water Board: Phillip.Hammer@waterboards.ca.gov

Mark Cassady, Central Coast Water Board: Mark.Cassady@waterboards.ca.gov

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Action on Request for
Clean Water Act Section 401 Water Quality Certification
for Discharge of Dredged and/or Fill Materials

PROJECT: Pond Management and Enhancement at Rancho Canada del Oro Open Space Preserve

PERMITTEE: Galli Basson
Santa Clara Valley Open Space Authority
33 Las Colinas Lane
San Jose, CA 95119

ACTION:
1. ☐ Order for Standard Certification
2. ■ Order for Technically Conditioned Certification
3. ☐ Order for Denial of Certification

STANDARD CONDITIONS:

1. This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment per section 13330 of the California Water Code and section 3867 of Title 23 of the California Code of Regulations (23 CCR).

2. This Certification action is not intended to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent Certification application was filed per 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license was being sought.

3. The validity of any non-denial Certification action (Actions 1 and 2) is conditioned upon total payment of the fee required under 23 CCR section 3833, unless otherwise stated in writing by the certifying agency.

ADMINISTRATIVE CONDITIONS:

1. This Certification is subject to the acquisition of all local, regional, state, and federal permits and approvals as required by law. Failure to meet any conditions contained herein or any conditions contained in any other permit or approval issued by the State of California or any subdivision thereof may result in the revocation of this Certification and civil or criminal liability.

2. In the event of a violation or threatened violation of this Certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under state law. For purposes of section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Certification.

3. In response to a suspected violation of any condition of this Certification, the Central Coast Water Board may require the holder of any permit or license subject to this Certification to furnish, under penalty of perjury, any technical or monitoring reports the Central Coast Water Board deems appropriate, provided that the burden, including costs, of the reports shall have a reasonable relationship to the need for the reports and the benefits obtained from the reports.

4. In response to any violation of the conditions of this Certification, the Central Coast Water Board may add to or modify the conditions of this Certification as appropriate to ensure compliance.

5. The Central Coast Water Board reserves the right to suspend, cancel, or modify and reissue this Certification, after providing notice to the Permittee, if the Central Coast Water Board determines that the Project fails to comply with any of the terms or conditions of this Certification.

6. A copy of this Certification, the application, and supporting documentation must be available at the Project site during construction for review by site personnel and agencies. A copy of this Certification must also be provided to the contractor and all subcontractors who will work at the Project site. All personnel performing work on the proposed Project shall be familiar with the content of this Certification and its posted location on the Project site.

7. The Permittee shall grant Central Coast Water Board staff, or an authorized representative, upon presentation of credentials and other documents as may be required by law, permission to enter the Project site at reasonable times, to ensure compliance with the terms and conditions of this Certification and/or to determine the impacts the Project may have on waters of the State.

8. The Permittee must, at all times, fully comply with the application, engineering plans, specifications, and technical reports submitted to support this Certification; all subsequent submittals required as part of this Certification; and the attached Project Information and Conditions. The conditions within this Certification and attachment(s) supersede conflicting provisions within Permittee submittals.

9. The Permittee shall notify the Central Coast Water Board within 24 hours of any unauthorized discharge to waters of the U.S. and/or State; measures that were implemented to stop and contain the discharge; measures implemented to clean-up the discharge; the volume and type of materials discharged and recovered; and additional best management practices (BMPs) or other measures that will be implemented to prevent future discharges.

10. This Certification is not transferable to any person except after notice to the Executive Officer of the Central Coast Water Board. The Permittee shall submit this notice in writing at least 30 days in advance of any proposed transfer. The notice must include a written agreement between the existing and new responsible party containing a specific date for the transfer of this Certification's responsibility and coverage between the current responsible party and the new responsible party. This agreement shall include an acknowledgement that the existing responsible party is liable for compliance and violations up to the transfer date and that the new responsible party is liable from the transfer date on.

11. This Order and all of its conditions contained herein continue to have full force and effect regardless of the expiration or revocation of any federal license or permit issued for the

Project. For purposes of Clean Water Act, section 401(d), this condition constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements of state law. This Order expires if Project construction does not begin within five years from the date of this Order.

12. The total certification fee for this Project is $551. The remaining certification fee payable to the Central Coast Water Board is $0. Annual fees may apply.

CALIFORNIA ENVIRONMENTAL QUALITY ACT FINDINGS:

The Central Coast Water Board has determined that the Project is exempt from review under CEQA pursuant to California Code of Regulations, title 14, section 15061. Specifically, the issuance of this Order and the activities described herein meet the exemption criteria under California Code of Regulations, title 14, section 15333. Additionally, the Central Coast Water Board concludes that no exceptions to the CEQA exemption apply to the activities approved by this Order.

CENTRAL COAST WATER BOARD CONTACT PERSON:

Mark Cassady
(805) 549-3689
Mark.Cassady@waterboards.ca.gov

Please refer to the above certification number when corresponding with the Central Coast Water Board concerning this Project.

WATER QUALITY CERTIFICATION:

I hereby issue an order certifying that as long as all the conditions listed in this Certification are met, any discharge from the Pond Management and Enhancement at Rancho Canada del Oro Open Space Preserve Project shall comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ("Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. This discharge is also regulated pursuant to State Water Board Water Quality Order No. 2003-0017-DWQ, which requires compliance with all conditions of this Certification.

Except insofar as may be modified by any preceding conditions, all Certification actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the Permittee's Project description, Certification conditions, and the attached Project Information and Conditions, and (b) compliance with all applicable requirements of the Central Coast Water Board's policies and Water Quality Control Plan (Basin Plan).

Digitally signed by Phillip Hammer
Date: 2022.09.27 09:52:14 -07'00'
Water Boards

for
Matthew T. Keeling
Executive Officer
Central Coast Water Board

PROJECT INFORMATION AND CONDITIONS

Application Date	Received: April 27, 2021 Completed: April 27, 2021
Permittee	Galli Basson Santa Clara Valley Open Space Authority 33 Las Colinas Lane San Jose, CA 95119 gbasson@openspaceauthority.org 408-224-7476
Permittee Representatives	Colby Boggs Rincon Consultants, Inc. 437 Figueroa Street, Suite 203 Monterey, CA 93940 cboggs@rinconconsultants.com 805-704-4955
Project Name	Pond Management and Enhancement at Rancho Canada del Oro Open Space Preserve
Application Number	34321WQ03
Type of Project	Ecological Aquatic/Stream/Habitat Restoration
Project Location	Morgan Hill Latitude: 37.137413 Longitude: -121.786203
County	Santa Clara
Receiving Water(s)	Unnamed tributary to Llagas Creek (above Chesbro Reservoir) 305.20 Pajaro River Hydrologic Unit
Water Body Type	Streambed, wetland, managed ponds
Designated Beneficial Uses	Municipal and Domestic Supply (MUN) Agricultural Supply (AGR) Ground Water Recharge (GWR) Water Contact Recreation (REC-1) Non-Contact Recreation (REC-2) Wildlife Habitat (WILD) Cold Fresh Water Habitat (COLD) Warm Fresh Water Habitat (WARM) Rare, Threatened or Endangered Species (RARE) Freshwater Replenishment (FRSH) Commercial and Sport Fishing (COMM)
Project Description (purpose/goal)	The purpose of this Project is to restore three ponds to enhance habitat for California red-legged frog, California tiger salamander, and western pond turtle. Central Coast Regional Water Quality Control Board (Central Coast Water Board) staff understands that the Project includes the following activities: 1) Pond RC-01: a) Install a bentonite clay liner to reinforce the berm and reduce seepage. b) Install basking ramps for pond turtles. c) Install fencing to exclude cattle from part of the pond. d) Drain pond periodically to control bullfrogs. 2) Pond RC-07:

	a) Add compacted fill to the earthen embankment to address downslope stability. b) Excavate the drained pond to improve breeding conditions for red-legged frogs. c) Improve the outfall spillway, plug the existing outlet pipe, and install a vertical standpipe and outlet pipe to an energy dissipater. d) Place a new rock energy dissipater at the pond inlet to limit further erosion. 3) Pond RC-10: a) Conduct excavation to enlarge and deepen the pond to increase ponding duration and accommodate wetland enhancement. b) Install an overflow pipe to direct flow to a rock energy dissipater. c) Install basking ramps for pond turtles. d) Install fencing to exclude cattle from part of the pond.
U.S. Army Corps of Engineers Permit No.	Regional General Permit 18
Federal Public Notice	N/A
Dept. of Fish and Wildlife Streambed Alteration Agreement	Streambed Alteration Agreement is pending. Final, signed copy shall be forwarded immediately upon execution.
CEQA Information	Categorical Exemption Lead Agency: SCVOSA
Total Certification Fee	$551

Total Authorized Project Fill/Excavation Quantity

Aquatic Resource Type	Temporary Impact			Permanent Impact					
				Physical Loss of Area			Degradation of Ecological Condition		
	Acres	CY[1]	LF[1]	Acres	CY	LF	Acres	CY	LF
Lake	0.46	607	274	0.002	219	34			
Wetland	0.05	3	190	0.002	3	12			

Required Project Mitigation Quantity for Temporary Impacts

Aquatic Resource Type	Units	Method[2]				
		Est.	Re-est.	Reh.	Enh.	Pres.
Lake	Acres		0.46			
	LF		274			
Wetland	Acres		0.05			
	LF		190			

[1] Cubic Yards (CY); Linear Feet (LF)

[2] Methods: establishment (Est.), reestablishment (Re-est.), rehabilitation (Reh.), enhancement (Enh.), preservation (Pres.)

Required Project Compensatory Mitigation Quantity for Permanent Physical Loss of Area							
Aquatic Resource Type	**Mit. Type[3]**	**Units**	**Method**				
			Est.	**Re-est.**	**Reh.**	**Enh.**	**Pres.**
Wetland	PR	Acres	0.013				
		LF	95				
Mitigation Requirements	1. The Permittee shall implement compensatory mitigation installation, maintenance, and monitoring as described in the Pond Management and Enhancement Project Habitat Mitigation and Monitoring Plan dated September 2022.						
Project Requirements	<u>The Permittee shall comply with the following requirements:</u> 1. All personnel who engage in construction activities or their oversight at the Project site (superintendent, construction manager, foreman, crew, contractor, biological monitor, etc.) must attend trainings on the conditions of this Certification and how to perform their duties in compliance with those conditions. Every person shall attend an initial training within five working days of their start date at the Project site. Trainings shall be conducted by a qualified individual with expertise in 401 Water Quality Certification conditions and compliance. 2. All work performed within waters of the State shall be completed in a manner that minimizes impacts to beneficial uses and habitat. Measures shall be employed to minimize land disturbances that will adversely impact the water quality of waters of the State. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete Project implementation. 3. Portions of the Project that occur below top of creek banks or in other waters of the State shall be stabilized for the winter prior to October 1 of each year, either by completing construction of those portions of the Project (including installation of permanent erosion control measures) or by implementing winterization stabilization measures capable of effectively stabilizing the area and preventing erosion under winter rain and flow conditions generated by the 10-year 24-hour storm event. No construction activities shall be conducted below top of creek banks or in other waters of the State during the winter period (October 1 – May 31), unless prior written approval has been obtained from Central Coast Water Board staff. Requests to conduct construction activities below top of creek banks or in other waters of the State during the winter period shall be submitted to Central Coast Water Board staff at least 21 days prior to the planned winter period work date. If approval is obtained, the Permittee shall implement the approved winter work as specified in the Central Coast Water Board staff approval and as described in any documentation submitted by the Permittee while seeking the approval. 4. Erosion and sediment control measures shall be on site prior to the start of construction and kept on site at all times so they are immediately available for installation in anticipation of rain events. 5. The Permittee shall implement and maintain an effective combination of erosion and sediment control measures (e.g., revegetation, fiber rolls, erosion control blankets, hydromulching, compost, straw with tackifiers, temporary basins) to prevent erosion and capture sediment. The						

[3] Mitigation Type: in-lieu fee (ILF); mitigation bank (MB); permittee responsible (PR)

	Permittee shall implement and maintain washout, trackout, dust control, and any other applicable source control BMPs. 6. Erosion and sediment control measures and other construction BMPs shall be implemented and maintained in accordance with all specifications governing their proper design, installation, operation, and maintenance. 7. At any time of year, the Permittee shall not conduct construction activities below top of creek banks or in other waters of the State during rain events or on any day for which the National Weather Service has predicted a 25% or more chance of at least 0.1-inch rain in 24 hours (Predicted Rain Event). The Permittee shall install effective erosion control, sediment control, and other protective measures no later than the day prior to the Predicted Rain Event, and prior to the start of any rainfall. Construction activities below top of creek banks or in other waters of the State may resume after the rain has ceased, the National Weather Service predicts clear weather for at least 24 hours, and site conditions are dry enough to continue work without discharge of sediment or other pollutants from the Project site. 8. Any material stockpiled that is not actively being used during construction shall be covered and surrounded with a linear sediment barrier. 9. The Permittee shall retain a spill plan and appropriate spill control and clean up materials (e.g., oil absorbent pads) onsite in case spills occur. 10. The Permittee shall confine all trash and debris in appropriate enclosed bins and dispose of the trash and debris at an approved site at least weekly. 11. All construction vehicles and equipment used on site shall be well maintained and checked daily for fuel, oil, and hydraulic fluid leaks or other problems that could result in spills of toxic materials. 12. All vehicle fueling and maintenance activity shall occur at least 100 feet away from waterways and in designated staging areas, unless a requested exception on a case-by case basis granted by prior written approval has been obtained from Central Coast Water Board staff. 13. All temporary dewatering/diversion methods shall be designed to have the minimum necessary impacts to waters of the State to isolate the immediate work area. All dewatering/diversion methods shall be installed such that natural flow is maintained upstream and downstream of the Project area. Any temporary dams or diversions shall be installed such that the diversion does not cause sedimentation, siltation, or erosion upstream or downstream of the Project area. All dewatering/diversion methods shall be removed immediately upon completion of dewatering/diversion activities. 14. All construction-related equipment, materials, and any temporary BMPs no longer needed shall be removed and cleared from the site upon completion of the Project. 15. Central Coast Water Board staff shall be notified if mitigations as described in the 401 Water Quality Certification application for this Project are altered by the imposition of subsequent permit conditions by any local, state or federal regulatory authority. The Permittee shall inform Central Coast Water Board staff of any modifications that interfere with compliance with this Certification.

Monitoring and Reporting Requirements	The Permittee shall conduct the following monitoring: 1. Visually inspect the Project site and areas of waters of the State adjacent to Project impact areas following completion of Project construction and for five subsequent rainy seasons to ensure that the Project is not causing excessive erosion, stream instability, or other water quality impacts. If the Project does cause water quality impacts, contact the Central Coast Water Board staff member overseeing the Project. You will be responsible for implementing corrective measures to protect water quality and obtaining any additional permits necessary corrective measure implementation. 2. Monitor the compensatory mitigation site for five years. If success criteria are not achieved within that time, continue annual monitoring and maintenance until success criteria are achieved. Compensatory mitigation monitoring shall include assessment of survival, percent cover, erosion, progress towards achieving success criteria, and any other measures identified in the Pond Management and Enhancement Project Habitat Mitigation and Monitoring Plan dated September 2022. **The Permittee shall provide the following reporting to RB3_401Reporting@waterboards.ca.gov [Note: Annual fees are based on submittal and approval of reporting item 2 below]:** 1. Streambed Alteration Agreement - Submit a signed copy of the Department of Fish and Wildlife's streambed alteration agreement to the Central Coast Water Board immediately upon execution and prior to any discharge to waters of the State. 2. Certification Termination Report – To terminate Certification coverage, the Permittee must submit for Central Coast Water Board staff review and approval a Certification Termination Report demonstrating compensatory mitigation success criteria achievement and monitoring completion. The Certification Termination Report shall include all information required for Annual Project Status Reports as specified below. The Certification Termination Report may serve as the final Annual Project Status Report. The Certification Termination Report submittal must include "Certification Termination Report" in the title. 3. Annual Project Status Report – The Permittee shall submit to the Central Coast Water Board an Annual Project Status Report by May 31 of each year following the issuance of this Certification, regardless of whether Project construction has started or not. At a minimum, Annual Project Status Reports shall address activities conducted during the prior calendar year. The Permittee shall submit Annual Project Status Reports until the Permittee has conducted all required monitoring, mitigation has achieved all success criteria, and the Permittee has submitted a Certification Termination Report. Each Annual Project Status Report shall include at a minimum: a. The status of the Project: construction not started, construction started, or construction complete. b. The date of construction initiation, if applicable. c. The date of construction completion, if applicable. d. If Project construction is complete: i. A summary of daily activities, monitoring and inspection observations, and problems incurred and actions taken;

	ii. Identification of when site personnel trainings occurred, description of the topics covered during trainings, and confirmation that every person that engaged in construction activities or their oversight at the Project site was trained. iii. A description of the results of the annual visual inspection of the Project site and areas of waters of the State adjacent to Project impact areas, including: 1. Erosion conditions; 2. Stream stability conditions; and 3. Water quality and beneficial use conditions; iv. If the visual inspection monitoring period is over, but water quality problems persist, the Annual Report shall identify corrective measures to be undertaken, including extension of the monitoring period until the Project is no longer causing excessive erosion, stream instability, or other water quality problems. e. Mitigation reporting, if mitigation installation has completed and restoration monitoring has begun, including the following information: i. Confirmation mitigation was installed according to the requirements of this Certification and as described in the application, Pond Management and Enhancement Project Habitat Mitigation and Monitoring Plan dated September 2022, and any other associated submittals; ii. Analysis of monitoring data collected in the field; iii. Quantification of percent cover, use by target species, and documentation of progress toward achieving all mitigation performance criteria; iv. Qualitative and quantitative comparisons of current mitigation conditions with preconstruction conditions and previous mitigation monitoring results; v. Any remedial or maintenance actions taken or needed; vi. Any additional information specified in the Pond Management and Enhancement Project Habitat Mitigation and Monitoring Plan dated September 2022; and vii. Annual photo-documentation representative of all restoration areas, taken from vantage points from which Central Coast Water Board staff can identify changes in size and cover of plants. Compare photos of installed mitigation with photos of the mitigation areas prior to installation. f. A description of mitigation completion status that identifies the amount of mitigation monitoring and maintenance remaining or certifies and demonstrates that mitigation is complete and all required mitigation monitoring and maintenance has been conducted and all success criteria achieved. If the monitoring period is over, but all success criteria have not been achieved, the Annual Project Status Report shall identify corrective measures to be undertaken, including extension of the monitoring period until the criteria are met.

Attachment A - 40 CFR Part 121.7 Information

The purpose of Attachment A is to provide information pursuant to title 40, Code of Federal Regulations (40 CFR) part 121.7(d)(2), which necessitates that all Certification conditions be accompanied by an explanation of why the condition is necessary to assure that any discharge authorized under the Certification will comply with water quality requirements, and a citation to federal, state, or tribal law that authorizes the condition.

Notwithstanding any determinations by the U.S. Army Corps of Engineers or other federal agency made pursuant to 40 CFR section 121.9, dischargers must comply with the entirety of this Certification because the Certification also serves as waste discharge requirements in accordance with State Water Resources Control Board (State Water Board) Water Quality General Order No. 2003-0017-DWQ.

This attachment includes citations to some sources of authority that are applicable to all Certification conditions. These sources are specifically identified where they are most relevant but are also generally applicable to the conditions below. California Code of Regulations, title 23,[4] chapter 28 sets forth regulations pertaining to water quality certifications. Conditions are set forth in this Certification to assure that the discharge complies with water quality objectives adopted or approved under sections 13170 or 13245 of the California Water Code. These conditions are also generally required to comply with the state's Anti-Degradation Policy (State Water Board Resolution No. 68-16), which requires that for any "activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the state will be maintained." All Regional Water Boards' Water Quality Control Plans incorporate the state's Anti-Degradation Policy by reference. The state Anti-Degradation Policy incorporates the federal Antidegradation Policy (40 CFR Part 131.12 (a)(1)), which requires "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." According to the United States Environmental Protection Agency (USEPA), discharges of dredged or fill material comply with the federal Antidegradation Policy by complying with USEPA's section 404(b)(1) Guidelines. The State Water Board adopted a modified version of USEPA's section 404(b)(1) Guidelines in the Dredge or Fill Procedures (State Supplemental Guidelines).

STANDARD CONDITIONS

Standard Condition No. 1

This is a standard condition that "shall be included as conditions of all water quality certification actions" (California Code of Regulations section 3860(a)).

[4] Unless as otherwise noted, all citations are to title 23 of California Code of Regulations.

Standard Condition No. 2
This is a standard condition that "shall be included as conditions of all water quality certification actions" (California Code of Regulations section 3860(a)).

Standard Condition No. 3
This is a standard condition that "shall be included as conditions of all water quality certification actions" (California Code of Regulations section 3860(a)). This fee requirement condition is also required pursuant to California Code of Regulations sections 3861(c)(4) and 3833(b), which require payment of fees by Project proponents discharging dredge or fill material.

ADMINISTRATIVE CONDITIONS

Administrative Condition No. 1
This condition is required pursuant to California Code of Regulations section 3856(e), which requires that copies be provided to the Water Boards of "any final and signed federal, state, and local licenses, permits, and agreements (or copies of the draft documents, if not finalized) that will be required for any construction, operation, maintenance, or other actions associated with the activity. If no final or draft document is available, a list of all remaining agency regulatory approvals being sought shall be included."

Administrative Condition No. 2
This condition provides notice of the Water Boards' rights to levee penalties as allowed by state law in order to protect water quality.

Administrative Condition No. 3
California Water Code section 13267 authorizes the Central Coast Water Board to require any person or entity who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within the region to furnish, under penalty of perjury, technical or monitoring reports when necessary to investigate the quality of any waters of the state. These reports are necessary to ensure compliance with water quality standards.

Administrative Condition Nos. 4, 5
In the event of non-compliance, modified conditions may be necessary to return the discharger to compliance and prevent violation of water quality standards. If a Permittee is violating the terms of a Certification that protect water quality standards, canceling the Certification halts authorization to discharge, which can ensure compliance with water quality standards. California Water Code section 13381 states that waste discharge requirements or dredged or fill material permits may be terminated or modified for cause, including, but not limited to, all of the following: (a) Violation of any condition contained in the requirements or permits; (b) Obtaining the requirements by misrepresentation, or failure to disclose fully all relevant facts; and (c) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

Administrative Condition No. 6
This condition requires site personnel and agencies to be familiar with the content of the Certification and availability of the document at the Project site. This condition is required to assure that any authorized discharge will comply with the terms and conditions of the Certification, which requires compliance with water quality objectives and beneficial uses adopted or approved under sections 13170 or 13245 of the California Water Code.

Administrative Condition No. 7
Conditions related to site access requirements are authorized pursuant to the Central Coast Water Board's authority to investigate the quality of any waters of the state within its region under California Water Code section 13267. California Water Code section 13267(c) provides that "the regional board may inspect the facilities of any person to ascertain whether the purposes of this division are being met and waste discharge requirements are being complied with."

Administrative Condition No. 8
This Certification is issued based on information submitted by the applicant. If the applicant does not implement the Project in accordance with the submitted information, the Project may not comply with water quality standards. Therefore, the applicant must implement the Project as described in order for compliance with water quality standards to be assured, in accordance with water quality objectives and beneficial uses adopted or approved under sections 13170 or 13245 of the California Water Code.

Administrative Condition No. 9
This condition related to the accidental discharge of hazardous materials is necessary to assure that discharges comply with any water quality objectives adopted or approved under sections 13170 or 13245 of the California Water Code. Conditions related to notification and reporting requirements in the event of an accidental discharge of hazardous materials are required pursuant to section 13271 of the California Water Code, which requires immediate notification of the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the state toxic disaster contingency plan adopted pursuant to article 3.7 (commencing with Section 8574.16) of chapter 7 of division 1 of title 2 of the Government Code. These monitoring and reporting requirements are also consistent with the Central Coast Water Board's authority to investigate the quality of any waters of the state within its region under California Water Code sections 13267 and 13383. The reports related to accidental discharges also ensure that corrective actions, if any, that are necessary to minimize the impact or clean up such discharges can be taken as soon as possible in order to achieve compliance with water quality standards.

Administrative Condition No. 10
Authorization under this Certification is granted based on the application information submitted, including the legally responsible party. Notification is necessary to confirm whether the new owner wishes to assume legal responsibility for compliance with this Certification. If not, the original discharger remains responsible for compliance with this Certification. Correct identification of a legally responsible party is necessary to ensure compliance with water quality standards. California Water Code section 13264 prohibits any discharge that is not specifically authorized in this Certification.

Administrative Condition No. 11
In accordance with State Water Resources Control Board Water Quality Order No. 2003-0017-DWQ, waste discharge requirements are issued to all persons proposing to discharge dredged or fill material to waters of the United States where such discharge is also subject to the water quality certification requirements of Clean Water Act section 401 and such certification has been issued by the Central Coast Water Board. In order to meet the provisions contained in Division 7 of Clean Water Act and regulations adopted thereunder, Order No. 2003-0017-DWQ requires dischargers to implement all the terms and conditions of the applicable certification issued for

the discharge irrespective of whether the federal license or permit for which the Certification was obtained is subsequently deemed invalid because the water body subject to the discharge has been deemed outside of federal jurisdiction. In addition, continued compliance with certification/waste discharge requirements is necessary, regardless of federal permit status, to ensure compliance with water quality standards is maintained.

Administrative Condition No. 12
This fee requirement condition is required pursuant to California Code of Regulations sections 3861(c)(4) and 3833(b), which require payment of fees by Project proponents enrolling in this Certification.

PROJECT INFORMATION AND CONDITIONS

Required Project Mitigation and Compensatory Mitigation Quantities; Compensatory Mitigation Requirements

Conditions related to restoration and/or mitigation of temporary impacts are required to assure that the discharge complies with water quality standards adopted or approved under sections 13170 or 13245 of the California Water Code. These conditions are also consistent with the Dredge or Fill Procedures, which require "in all cases where temporary impacts are proposed, a draft restoration plan that outlines design, implementation, assessment, and maintenance for restoring areas of temporary impacts to pre-project conditions" (Dredge or Fill Procedures section IV. A.2(d) and B.4). Restoration and/or mitigation of temporary impacts is necessary to control discharges of waste, such as sediment from disturbed areas, so that compliance with water quality standards is maintained. Restoration requirements for temporary impacts are also authorized by California Water Code section 13263, which requires the imposition of requirements that implement water quality control plans and take into consideration the beneficial uses to be protected and the need to prevent nuisance.

Conditions regarding compensatory mitigation are necessary to ensure compliance with state and federal anti-degradation policies. Compensatory mitigation requirements are consistent with State Supplemental Guidelines section 230.10 restrictions on discharge and Dredge or Fill Procedures section IV.B.1.a (California Code of Regulations section 3013), which specifies that the Water Boards will approve a project only after it has been determined that a sequence of actions has been taken to first avoid, then to minimize, and lastly to compensate for adverse impacts that cannot be practicably avoided or minimized (see also California Code of Regulations section 3856(h), requiring submittal of proposed mitigation and description of steps taken to avoid, minimize, or compensate). Compensatory mitigation conditions are consistent with Executive Order W-59-93, commonly referred to as California's "no net loss" policy for wetlands. Compensatory mitigation requirements are also authorized by California Water Code section 13263, which requires the imposition of requirements that implement water quality control plans and take into consideration the beneficial uses to be protected and the need to prevent nuisance.

Project Requirements

Project Requirement No. 1
This condition requires site personnel and agencies to be familiar with the content of the Certification. Familiarity with the requirements of this Certification is necessary to assure that any authorized discharge will comply with the terms and conditions of the Certification, which

requires compliance with water quality objectives and beneficial uses adopted or approved under sections 13170 or 13245 of the California Water Code.

Project Requirement No. 2
Conditions related to compliance with water quality objectives and designated beneficial uses are required pursuant to the state's Anti-Degradation Policy (State Board Resolution No. 68-16), which requires that for any "activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the state will be maintained." The state Anti-Degradation Policy incorporates the federal Antidegradation Policy (40 CFR Part 131.12 (a)(1)), which states: "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." According to USEPA, dischargers of dredged or fill material comply with the federal Antidegradation Policy by complying with USEPA's section 404(b)(1) Guidelines. The State Water Boards adopted a modified version of USEPA's section 404(b)(1) Guidelines in the Dredge or Fill Procedures (State Supplemental Guidelines).

Project Requirements Nos. 3, 4, 6, 7
Disturbed areas in delineated waters must be stabilized prior to a rainfall event to assure that sediment is controlled and the discharge from the proposed Project will comply with water quality objectives established for surface waters. The Water Quality Control Plan for the Central Coastal Region, section 4.8.5.2, states: "timing [of construction activities] should be established with reference to environmental sensitivity factors such as fish migrations, spawning or hatching, and minimum stream flow conditions."

Conditions related to stormwater management are required to comply with Water Quality Control Plans and to assure that the discharge complies with water quality objectives adopted or approved under Sections 13170 or 13245 of the California Water Code. Post-rain erosion and sedimentation problems can contribute to significant degradation of the waters of the state; therefore, it is necessary to take corrective action to eliminate such discharges in order to avoid or minimize such degradation. Design, implementation, and maintenance of control measures and best management practices (BMPs) described in the conditions will assure compliance with water quality objectives for sediment, turbidity, temperature, suspended material, and settleable material. The Water Quality Control Plan for the Central Coastal Region, section 3.3.2, prohibits alteration of the suspended sediment load and suspended sediment discharge rate of surface waters in such as manner as to cause nuisance or adversely affect beneficial uses.

Project Requirements Nos. 3-5, 7, 8
Conditions related to erosion and sediment control design requirements are required to sustain fluvial geomorphic equilibrium. Improperly designed and installed BMPs result in excess sediment, which impairs surface waters, adversely affect beneficial uses, and results in violations of water quality objectives in the Water Quality Control Plans in California. Water Quality Control Plans impose design requirements to ensure excess stormwater sediment does not exceed water quality objectives in the plans. For example: "The discharge or threatened discharge of soil, silt, bark, slash, sawdust, or other organic and earthen materials into any stream in the basin in violation of best management practices for timber harvesting, construction, and other soil disturbance activities and in quantities deleterious to fish, wildlife, and other beneficial uses is prohibited. The placing or disposal of soil, silt, bark, slash, sawdust, or other organic and earthen materials from timber harvesting, construction, and other soil

disturbance activities at locations above the anticipated high-water line of any stream in the basin where they may be washed into said waters by rainfall or runoff in quantities deleterious to fish, wildlife, and other beneficial uses is prohibited" (Water Quality Control Plan for the Central Coastal Basin, section 4.8.5.1).

In addition, disturbed areas in delineated waters must be stabilized prior to a rainfall event to assure that the discharge from the proposed Project will comply with water quality objectives established for surface waters. For example, the Water Quality Control Plan for the Central Coastal Region, section 3.3.2, prohibits the suspended sediment load and suspended sediment discharge rate of surface waters not to be altered in such as manner as to cause nuisance or adversely affect beneficial uses.

Conditions related to stormwater management are required to comply with the Water Quality Control Plans and to assure that the discharge complies with water quality objectives adopted or approved under sections 13170 or 13245 of the California Water Code. Post-rain erosion and sedimentation problems can contribute to significant degradation of the waters of the state; therefore, it is necessary to take corrective action to eliminate such discharges in order to avoid or minimize such degradation. Implementation of control measures and BMPs described in the conditions will assure compliance with water quality objectives for sediment, turbidity, temperature, suspended material, and settleable material. For example, the Water Quality Control Plan for the Central Coastal Region, section 4.6.4.1, prohibits the discharge of solid wastes "to rivers, streams, creeks, or any natural drainageways or flood plains of the foregoing."

Project Requirement No. 9

On-site availability of materials and supplies assures BMPs can be reasonably implemented and that the discharge complies with water quality objectives. This condition and other conditions related to BMPs are consistent with the Central Coast Water Board's authority to establish, "[w]ater quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area" pursuant to Water Code section 13241(c). The activities authorized under this Certification have the potential to result in a discharge that exceed water quality objectives and work in waters of the state must not cause an exceedance of water quality objectives. As required by California Water Code section 13369, all Water Quality Control Plans incentivize the use of BMPs to prevent prohibited discharges into waters of the state.

Project Requirement No. 10

California Water Code section 13264 prohibits any discharge that is not specifically authorized in this Certification. This condition is necessary to prevent violation of state discharge prohibitions that protect water quality objectives. Water Quality Control Plans prohibit the discharge of construction materials and byproducts from being discharged into waters of the state. For example, section 4.6.4.1 of the Water Quality Control Plan for the Central Coast Region prohibits the discharge of solid wastes "to rivers, streams, creeks, or any natural drainageways or flood plains of the foregoing."

This condition prohibiting discharge of materials detrimental to water quality or hazardous to aquatic life is also consistent with the Dredge or Fill Procedures, Appendix A, Subpart H, which requires actions to minimize and avoid adverse effects, including actions concerning the location of discharged material and controlling the material after the discharge (section 230.70 et seq.).

Project Requirements Nos. 11 - 12
These conditions are required pursuant to the Water Quality Control Plan for the Central Coastal Basin and the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP), which prohibit the discharge of substances in concentrations toxic to human, plant, animal, or aquatic life. For example, the SIP states: "All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life." In addition, "Survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality conditions, shall not be less than that for the same waterbody in areas unaffected by the waste discharge …" (Water Quality Control Plan for the Central Coastal Basin, section 3.3.2.1). Conditions related to toxic and hazardous materials are necessary to assure that discharges comply with any water quality objectives adopted or approved under sections 13170 or 13245 of the California Water Code.

Project Requirement No. 13
Work in waters of the state must not cause exceedances of water quality objectives; accordingly, these conditions require implementation of best practicable treatments and controls to prevent pollution and nuisance and to maintain water quality. Consistent with the Dredge or Fill Procedures section IV.A.2.c, water quality monitoring plans are required for any in-water work, including temporary dewatering or diversions. Appropriate stream diversion and dewatering measures are BMPs needed to assure that 1) the discharge shall not adversely affect the beneficial uses of the receiving water or cause a condition of nuisance; 2) the discharge shall comply with all applicable water quality objectives; and 3) treatment and control of the discharge shall be implemented to assure that pollution and nuisance will not occur, and the highest water quality is maintained.

These conditions are also required pursuant to the state's Anti-Degradation Policy (State Water Board Resolution No. 68-16), which requires that any "activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the state will be maintained." All Water Quality Control Plans incorporate the state's Anti-Degradation Policy by reference.

If surface waters or ponded waters are not appropriately diverted from areas undergoing grading, construction, excavation, and/or vegetation removal, the waters will be susceptible to erosion and increased sediment loads, contamination and pollution from construction equipment, temperature fluctuations, etc. Diverting waters away from these areas will ensure that the discharge will not exceed water quality objectives, adversely affect beneficial uses of the receiving waters, or cause a condition of nuisance. Dewatered areas must also be stabilized prior to a rainfall event to assure that the discharge from the proposed Project will comply with water quality objectives established for surface waters. For example, the Water Quality Control Plan for the Central Coastal Region, section 3.3.2, prohibits alteration of the suspended sediment load and suspended sediment discharge rate of surface waters in such as manner as to cause nuisance or adversely affect beneficial uses.

Project Requirement No. 14
California Water Code section 13264 prohibits any discharge that is not specifically authorized in this Certification. This condition is necessary to prevent violation of state discharge prohibitions that protect water quality objectives. Water Quality Control Plans prohibit the

discharge of construction materials and byproducts from being discharged into waters of the state. For example, “The discharge or threatened discharge of soil, silt, bark, slash, sawdust, or other organic and earthen materials into any stream in the basin in violation of best management practices for timber harvesting, construction, and other soil disturbance activities and in quantities deleterious to fish, wildlife, and other beneficial uses is prohibited.” (Water Quality Control Plan for the Central Coast Basin, section 4.8.5.1).

This condition prohibiting discharge of materials detrimental to water quality or hazardous to aquatic life is also consistent with the Dredge or Fill Procedures, Appendix A, Subpart H, which requires actions to minimize and avoid adverse effects, including actions concerning the location of discharged material and controlling the material after the discharge (section 230.70 et seq.).

Project Requirement No. 15

Authorization under this Certification is granted based on the submitted application information. California Water Code section 13264 prohibits any discharge that is not specifically authorized in this Certification. As such, dischargers must inform the Central Coast Water Board of modifications so they may be addressed. This condition is necessary to ensure the Project remains eligible for coverage under this Certification if Project modifications become necessary after Certification has occurred. California Water Code sections 13267 and 13383 authorize the Central Coast Water Board to require submittal of information.

Monitoring and Reporting Requirements

These monitoring and reporting requirements are also consistent with the Central Coast Water Board’s authority to investigate the quality of any waters of the state within its region under California Water Code sections 13267 and 13383. The reports confirm that the BMPs and other measures required under this order are sufficient to protect beneficial uses and water quality objectives. Conditions regarding monitoring and reporting of BMP implementation and mitigation are necessary to ensure compliance with state and federal anti-degradation policies and Executive Order W-59-93, commonly referred to as California’s “no net loss” policy for wetlands.

The condition for a streamed alteration agreement submittal is required pursuant to California Code of Regulations section 3856(e), which requires that copies be provided to the Water Boards of “any final and signed federal, state, and local licenses, permits, and agreements (or copies of the draft documents, if not finalized) that will be required for any construction, operation, maintenance, or other actions associated with the activity. If no final or draft document is available, a list of all remaining agency regulatory approvals being sought shall be included.”

PARTICIPATING SPECIAL ENTITY AGREEMENT

Between

THE SANTA CLARA VALLEY HABITAT AGENCY

And

SANTA CLARA VALLEY OPEN SPACE AUTHORITY

For

RANCHO DEL ORO PONDS RESTORATION PROJECT

1.0 PARTIES

This Agreement, for reference dated May 15, 2024, is made and entered into by the Santa Clara Valley Habitat Agency, a California joint exercise of powers agency ("Agency"), and Santa Clara Valley Open Space Authority (OSA), a California public corporation ("Participating Special Entity" or "PSE") as of the Effective Date.

2.0 RECITALS

The Parties have entered into this Agreement in consideration of the following facts:

2.1 The Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan ("SCVHP" or "Plan") is intended to provide a comprehensive framework to protect natural resources within Santa Clara County, specifically in portions of the Santa Clara Valley bounded on the east by the Diablo Range, on the west by the Santa Cruz Mountains, and on the North by the San Francisco Bay shoreline (the Plan Area), while improving and streamlining the environmental permitting process for certain projects that would cause impacts on endangered and threatened species. The primary policy priority of the Plan is to provide comprehensive species, wetlands, and ecosystem conservation and contribute to recovery of endangered and threatened species within the Plan Area while balancing open space, habitat, agriculture, and urban development. To that end, the Plan describes how to avoid, minimize, and mitigate, to the maximum extent practicable, impacts on Covered Species and their habitats while allowing for certain development and other activities in selected regions of the County of Santa Clara and the Cities of San Jose, Morgan Hill, and Gilroy.

2.2 The Agency is a joint powers authority formed by its members, the County of Santa Clara ("County"), the City of San Jose ("San Jose"),

the City of Morgan Hill ("Morgan Hill"), and the City of Gilroy ("Gilroy"), to implement the SCVHP.

2.3 The SCVHP covers almost two-thirds (62%) of the County, or 519,506 acres, all in Santa Clara Valley, in which impacts from certain development and other activities are evaluated, and in which conservation will occur.

2.4 The area covered by the SCVHP has been determined to provide, or potentially provide, habitat for eighteen (18) species that are listed as endangered or threatened, that could in the future be listed as endangered or threatened, or that have some other special status under federal or state laws.

2.5 The Agency has received authorization from the United States Fish and Wildlife Service ("USFWS") under incidental take permit TE 94345A-0, and the California Department of Fish and Wildlife ("CDFW"), under incidental take permit 2835-2012-002-03, for the take of the eighteen (18) special-status species and certain other species, as take is defined respectively under federal and state law, while carrying out certain development and other activities.

2.6 The Agency may enter into agreements with participating special entities that allow certain activities of theirs to be covered by the Federal Permit and the State Permit, subject to the conditions in the Implementing Agreement ("IA"), the SCVHP and the Permits.

2.7 PSE proposes to implement a conservation enhancement project to restore 3 ponds in the Upper Llagas Creek watershed that were cut into natural drainages to create cattle ponds. The project is intended to enhance habitat for California red-legged frog, northwestern pond turtle and California tiger salamander by restoring and enhancing the three ponds. Work includes repairing the earthen embankment at Pond RC-07, lining the berm at Pond RC-01, adding or improving overflow spillways in RC-01 and RC-10, deepening RC-10 to increase ponding duration, and adding floating ramps for northwestern pond turtle basking at Ponds RC-01 and RC-10. Once the ponds and habitat are improved, OSA will operate them for the benefit of the covered species for at least 5 years, with continual monitoring and reporting on the success (or failure) of the species utilization of the restored ponds.

2.8 The Agency has concluded, based on the terms of this Agreement, including the location/site map attached hereto and incorporated herein by reference as Exhibit 1, and the Conditions of Approval attached hereto and incorporated by reference as Exhibit 2, that PSE has provided adequate assurances that it will comply with all

applicable terms and conditions of the IA, the SCVHP, and the Permits.

3.0 DEFINITIONS

The following terms as used in this Agreement will have the meanings set forth below. Terms specifically defined in FESA, CESA or NCCPA or the regulations adopted by USFWS and CDFW under those statutes shall have the same meaning when used in this Agreement. Definitions used in this Agreement may elaborate on, but are not intended to conflict with, such statutory or regulatory definitions.

3.1 **"Application"** means the relevant application submitted by the PSE in accordance with Chapter 8.4 of the SCVHP. The Application contains a cover sheet, a location/site map of the project, the results of required planning surveys, the PSE's proposed avoidance, minimization and mitigation measures, and the proposed conditions under Chapter 6 of the SCVHP, for inclusion as conditions of the PSE using Agency's Permits.

3.2 **"Authorized Take"** means the extent of incidental Take of Covered Species authorized by the USFWS in the Federal Permit issued to the Agency pursuant to Section 10(a)(1)(B) of FESA, and the extent of Take of Covered Species authorized by CDFW in the State Permit issued to the Agency pursuant to California Fish and Game Code section 2835.

3.3 **"CDFW"** means the California Department of Fish and Wildlife, a department of the California Resources Agency.

3.4 **"CESA"** means the California Endangered Species Act (Fish & G. Code, § 2050 et seq.) and all rules, regulations and guidelines promulgated pursuant to that Act.

3.5 **"Changed Circumstances"** means changes in circumstances affecting a Covered Species or the geographic area covered by the SCVHP that can reasonably be anticipated by the Parties and that can reasonably be planned for in the SCVHP. Changed Circumstances and planned responses to Changed Circumstances are more particularly defined in Sections 3.7, 11.3, and 11.3.1 of the IA and in Chapter 10.2.1 and Exhibit A of the SCVHP. Changed Circumstances do not include Unforeseen Circumstances.

3.6 **"Conditions of Approval"** means the conditions of approval required by the Agency for the approval of this PSE Agreement, including but not limited to conditions relating to compliance with

Chapter 6 of the SCVHP and all avoidance, minimization and mitigation measures that are specified in Exhibit 2 hereto.

3.7 **"Covered Activities"** means those land uses and conservation and other activities described in Chapter 2.3 of the SCVHP to be carried out by the Agency or its agents that may result in Authorized Take of Covered Species during the term of the SCVHP, and that are otherwise lawful.

3.8 **"Covered Species"** means the species, listed and non-listed, whose conservation and management are provided for in the SCVHP and for which incidental Take is authorized by the Wildlife Agencies pursuant to the Permits. Covered Species are specified in Exhibit A of the IA.

3.9 **"Effective Date"** means the date when this Agreement is fully executed.

3.10 **"Federal Listed Species"** means the Covered Species which are listed as threatened or endangered species under FESA as of the Effective Date, and the Covered Species which are listed as threatened or endangered pursuant to FESA during the term of the SCVHP as of the date of such listing.

3.11 **"Federal Permit"** means the federal incidental Take permit issued by USFWS to the Agency and other local agencies pursuant to Section 10(a)(1)(B) of FESA (permit number TE 94345A-0), as it may be amended from time to time.

3.12 **"FESA"** means the Federal Endangered Species Act of 1973, as amended (16 U.S.C § 1531 et seq.) and all rules, regulations and guidelines promulgated pursuant to that Act.

3.13 **"Fully Protected Species"** means any species identified in California Fish and Game Code sections 3511, 4700, 4800, 5050 or 5515 that occur within the Plan Area.

3.14 **"SCVHP"** or **"Plan"** means the Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan.

3.15 **"Implementing Agreement"** or **"IA"** means the "Santa Clara Valley Habitat Plan Implementing Agreement."

3.16 **"Jurisdictional Wetlands and Waters"** means State and federally regulated wetlands and other water bodies that cannot be filled or altered without permits from either the U.S. Army Corps of Engineers under section 404 of the Clean Water Act or, from the State Water Resources Control Boards under either section 401 of the Clean Water Act or the Porter-Cologne Water Quality Act, or CDFW under

section 1602 of the Fish and Game Code, as further explained in Chapter 1.3.5 of the SCVHP.

3.17 **"Listed Species"** means a species (including a subspecies, or a distinct population segment of a vertebrate species) that is listed as endangered or threatened under FESA or CESA.

3.18 **"NCCPA"** means the Natural Community Conservation Planning Act (Fish & G. Code, § 2800 et seq.) and all rules, regulations and guidelines promulgated pursuant to that Act.

3.19 **"Non-listed Species"** means a species (including a subspecies, or a distinct population segment of a vertebrate species) that is not listed as endangered or threatened under FESA or CESA.

3.20 **"Party"** or **"Parties"** means any or all of the signatories to this Agreement.

3.21 **"Permit Area"** means the area within the Plan Area where the Agency has received authorization from the Wildlife Agencies for the Authorized Take of Covered Species while carrying out Covered Activities.

3.22 **"Permits"** means the Federal Permit and the State Permit.

3.23 **"Plan Area"** means the geographic area analyzed in the SCVHP, located in within Santa Clara County, specifically in portions of the Santa Clara Valley bounded on the east by the Diablo Range, on the west by the Santa Cruz Mountains, and on the North by the San Francisco Bay shoreline, as depicted in Figures 1-1 and 1-2 of the SCVHP. The Plan Area is further described in detail in Chapter 1.2.2 of the SCVHP.

3.24 **"Planning Survey"** collectively means all of the land cover and species surveys required by Chapter 6.8 of the SCVHP.

3.25 **"Preserve System"** means the land acquired and dedicated in perpetuity through either a fee interest or conservation easement intended to meet the preservation, conservation, enhancement and restoration objectives of the SCVHP.

3.26 **"Project"** means the Project as described in Section 2.7 of this Agreement.

3.27 **"State Permit"** means the state Take permit issued to the Agency and other local agencies pursuant to Section 2835 of the California Fish and Game Code (permit number 2835-2012-002-03), as it may be amended from time to time.

3.28 **"Take"** has the same meaning provided by FESA and its implementing regulations with regard to activities subject to FESA, and also has the same meaning provided in the California Fish and Game Code with regard to activities subject to CESA and NCCPA.

3.29 **"Unforeseen Circumstances"** under the Federal Permit means changes in circumstances affecting a Covered Species or geographic area covered by the SCVHP that could not reasonably have been anticipated by the Plan developers and USFWS at the time of the Plan's negotiation and development, and that result in a substantial and adverse change in the status of a Covered Species. "Unforeseen Circumstances" under the State Permit means changes affecting one or more species, habitat, natural community, or the geographic area covered by the Plan that could not reasonably have been anticipated at the time of Plan development, and that result in a substantial adverse change in the status of one or more Covered Species.

3.30 **"USFWS"** means the United States Fish and Wildlife Service, an agency of the United States Department of Interior.

3.31 **"Wildlife Agencies"** means USFWS and CDFW collectively.

4.0 PURPOSES

This Agreement defines the Parties' roles and responsibilities and provides a common understanding of actions that will be undertaken to avoid, minimize and mitigate the effects on the Covered Species caused by the Project, and to provide for the conservation of the Covered Species within the Plan Area. The purposes of this Agreement are to ensure implementation of each of the terms and conditions of this Agreement, and the relevant terms of the IA, the SCVHP, and the Permits, and to describe remedies and recourse should either Party fail to perform its obligations as set forth in this Agreement.

5.0 AVOIDANCE, MINIMIZATION AND MITIGATION OF IMPACTS

5.1 General Framework

As required by FESA and NCCPA, the SCVHP includes measures to avoid and minimize take of Covered Species and to conserve natural communities and Covered Species at the landscape-, habitat- and species-level. Chapter 6 of the SCVHP provides further instructions to determine which avoidance and minimization measures are applicable to particular Covered Activities. PSE shall implement all applicable avoidance and minimization measures as required by the SCVHP, including but not limited to those identified in Chapter 6, as described in this Agreement and Conditions of Approval (Exhibit 2).

5.2 Surveys and Avoidance Measures

Planning Surveys are required prior to carrying out any Covered Activity for which a fee is collected or land in lieu of a fee is provided. PSE has submitted Planning Surveys with its application for approval by the Agency in accordance with Chapter 6.8 of the SCVHP. The Planning Survey report is contained within the Application, which describes the results of the Planning Survey and describes in detail the pre-construction surveys, construction monitoring, avoidance measures and mitigation measures that apply to the Project and shall be performed by PSE. Based on the Application, the Agency has incorporated specific Conditions of Approval in Exhibit 2 to this Agreement and has determined that PSE will implement and comply with all applicable preconstruction surveys and construction monitoring requirements described in Chapters 6.3, 6.4, 6.5 and 6.6 of the SCVHP and the Conditions of Approval hereto.

5.3 No-Take Conditions

Nothing in this Agreement, the SCVHP or the Permits shall be construed to allow the Take of the following species as described below:

5.3.1 Burrowing Owl - Injury or death to Burrowing Owl, including, but not limited to, passive relocation occurring before a positive growth trend as described in Chapter 5.4.6 of the SCVHP is achieved.

5.3.2 Least Bell's Vireo – Disturbance of active nests during the breeding season as described in Condition 16 of Chapter 6 of the SCVHP.

5.3.3 Tricolored Blackbird – Disturbance of nesting colonies as described in Condition 17 of Chapter 6 of the SCVHP.

5.3.4 San Joaquin Kit Fox - Injury or death to San Joaquin Kit Fox as specified in Condition 18 of Section 6.6.1 of the SCVHP ("San Joaquin Kit Fox – Avoidance and Minimization").

5.3.5 Tiburon Indian Paintbrush - Loss of occurrences of Tiburon Indian Paintbrush, as described in Table 4-6 of the SCVHP.

5.3.6 Coyote Ceanothus - Loss of occurrences of Coyote Ceanothus, as described in Table 4-6 of the SCVHP.

5.3.7 Loma Prieta Hoita - Loss of occurrences of Loma Prieta Hoita until additional occurrences are found, as described in Table 4-6 of the SCVHP.

5.3.8 Contra Costa Goldfields - as described in Condition 1 of Chapter 6 of the SCVHP.

5.3.9 Fully Protected Species under California Fish and Game Code sections 3511, 4700, 4800, 5050 or 5515.

5.4 Delineation of Jurisdictional Wetlands and Waters

The Oro Pond Enhancement Project will permanently impact grassland and 0.0004acres and 0.0012 acres of seasonal and pond jurisdictional wetlands. No Waters of the U.S. will be permanently impacted.

5.5 Fees and Dedications

The payment of fees and charges, and/or dedication of land, must be made in full before any ground-disturbance associated with the Project occurs. PSE agrees to pay all fees, including all applicable mitigation fees (Subsection 5.5.1), and PSE charge (Subsection 5.5.4), or a combination thereof, that are required for the Project in the following manner and in the amounts specified in Exhibit 3 hereto:

5.5.1 Mitigation Fees. The project is a habitat enhancement Conservation Activity, therefore no Mitigation Fees are assessed. Land cover impacts include 0.0171 acres of CA annual grassland. The project also expects to temporarily impact 0.7076 acres of CA annual grassland and 0.0506ac and 0.4365ac of seasonal and pond land covers, respectively. Total mitigation fees will include the Notice of Exemption filing fee ($50.00). The land cover and specialty fee amount is the sum of all applicable fees multiplied by the acres of impact or miles of stream or vehicle trips (as applicable) for each fee category listed in Table 9-6 of the SCVHP and as adopted by the Agency's Governing Board Ordinance No. 2013-01 and Governing Board Resolution No. G-2015-003 and as may be adjusted periodically. AND

5.5.2 Fee Adjustments. Notwithstanding the above, the Parties acknowledge that (a) the Agency adjusts its fee schedule annually and may make other periodic adjustments to the fees in accordance with the fee adjustment provisions of Chapter 9.4.1 of the SCVHP, and (b) fees that apply to the applicant's project may require adjustment as the result of refinement of the project, changes resulting from conditions that vary from those previously evaluated, or other similar conditions requiring an adjustment to fees. If the PSE pays in full and construction of the Project commences before any fee adjustment occurring after the effective date of this Agreement, the amount due will be as stated above. If PSE pays on or after any fee adjustment occurring after the effective date of this Agreement, or commences construction of the Project on or after any fee adjustment occurring after the effective date of this Agreement, then the amount due will be subject to all fee adjustments applicable at the time of payment and construction as authorized in Chapter 9.4.1

of the SCVHP and Ordinance No. 2013-01. Based on these adjustments, if PSE pays before any fee adjustment, but construction does not commence until after the fee adjustment or there are changes to the project pursuant to Section 5.5.3(b) herein following commencement of construction, PSE will either be required to submit an additional payment for any increases or be entitled to a refund without interest for any decreases.

5.6 PSE Charges

In addition to the fees specified above in Section 5.5, Chapter 8.4 of the SCVHP authorizes the Agency to require PSEs to pay charges over and above those specified in Chapter 9 to cover indirect costs of extending permit coverage under the SVHCP, including the cost of Agency staff time to assist with permit coverage, a portion of the costs of Implementing Entity staff time to assist with permit coverage, a portion of the costs of the initial preparation of the Plan, and a portion of the costs of conservation actions designed to contribute to species recovery. Such charges have been adopted by the Agency Governing Board resolution, which may be amended from time to time, as follows:

5.6.1 Application Processing Costs. PSE shall pay to the Agency all of Agency's actual costs of review and consideration of the PSE's application (including amendments thereto), including all costs of staff, consultants, legal counsel, and other costs including reproduction, public notice, publication, and any other cost necessary to process PSE's application for consideration of approval by the Agency. The Agency may require the PSE to deposit a sum at the time of submission of PSE's application in an amount estimated to compensate Agency for all such application processing costs. In the event that such amount is insufficient to compensate the Agency for its application processing costs, then PSE shall deposit additional funds for such costs within 10 calendar days of receipt of a request for additional funds by the Agency. If the deposit exceeds the amount of the application processing costs, then Agency shall refund such excess deposit to the PSE within 60 calendar days of the final Agency determination on the PSE application. All such application processing costs shall be paid in full by PSE to Agency prior to the effective date of this Agreement.

5.6.3 This Section 5.6 is not intended to, and shall not be construed to, limit PSE's duty to indemnify the Agency as provided in Section 7.7 of this Agreement.

5.7 Total Fees

The total charges include the Mitigation Fees, any fee adjustments, and Application Processing Costs. Because this project is a conservation/restoration/enhancement activity, no mitigation or PSE application fees are assessed. The total fees include two $50.00 Notice of Exemption filing fees and the application processing costs in 2024, which are $1,459.11. This project had previously applied for a permit in 2021. The application processing costs for 2021 are $2,918.22 for a total of $4,331.41 (See Fees and Charges, Exhibit 3).

6.0 TAKE AUTHORIZATION

6.1 Extension of Take Authorization to PSE

As provided in Chapter 8.4 of the SCVHP, after receipt of the Wildlife Agencies' written concurrence that the Proposed Activity complies with the SCVHP, the Permits and the IA, and after execution of this Agreement, payment of fees, compliance with the California Environmental Quality Act (Public Resources Code section 21000, et seq.) ("CEQA"), the Agency shall issue a Certificate of Inclusion to PSE that specifically describes the Authorized Take and required conservation measures and extends Take authorization under the Permits to PSE. PSE is ultimately responsible for compliance with all applicable terms and conditions of this Agreement, the IA, the SCVHP and the Permits.

6.1.1 Compliance with the California Environmental Quality Act. The Agency's issuance of a Certificate of Inclusion to the PSE is a public agency action that must comply with CEQA. For purposes of the Project, the Habitat Agency is the CEQA lead agency. The Habitat Agency prepared a Notice of Exemption (NOE) for the Project. The Agency is a CEQA responsible agency for purposes of the Project and, as such, will rely on the NOE for purposes of fulfilling its responsibilities under CEQA.

6.2 Duration of Take Authorization

6.2.1 After the Take authorization has been extended to the Project, the project and/or activities for which it is granted shall commence and progress in a timely and consistent manner towards completion within 36 calendar months of issuance of the Take authorization, or the Take authorization will automatically expire at the end of that period. The time for commencement and progression of work or the expiration date of the Take authorization may be

extended by the Parties by written amendment to this Agreement.

6.2.2 Unless the Take authorization expires for failure to timely commence and progress the Project as described in Section 6.2.1, it shall remain in effect unless and until the Permits are revoked by USFWS or CDFW, in which case the Take authorization may also be suspended or terminated as provided in the SCVHP and the IA.

6.3 Section 7 Consultations with USFWS

Nothing in this Agreement is intended to alter the obligation of a federal agency to consult with USFWS pursuant to Section 7 of FESA (16 U.S.C. §1536(a)). The PSE acknowledges that, if the Proposed Activities are authorized, funded, or carried out by a federal agency, the federal agency and the Proposed Activities must also comply with Section 7. As provided in Section 12.4 of the IA, USFWS has made a commitment that, unless otherwise required by law or regulation, it will not require any measures under Section 7 that are inconsistent with or exceed the requirements of the SCVHP and the Permits for activities covered by the SCVHP and the Permits.

The Project is not authorized, funded, or carried out by a federal agency and therefore PSE is not required to comply with Section 7 of FESA with regard to the Project.

7.0 RIGHTS AND OBLIGATIONS OF PSE

7.1 Rights

Upon the Agency's issuance of a Certificate of Inclusion to PSE, PSE may Take the Covered Species while carrying out the Project in the Permit Area, as further authorized by and subject to the conditions of this Agreement, the IA, the SCVHP, and the Permits. The authority issued to PSE applies to all of its elected officials, officers, directors, employees, agents, subsidiaries, contractors, and subcontractors, and their officers, directors, employees and agents to the extent that they participate in the implementation of the Project. PSE shall periodically conduct an educational program to fully inform all such persons and entities of the terms and conditions of the Permits, and PSE shall be responsible for supervising their compliance with those terms and conditions. All contracts between PSE and such persons and entities shall require their compliance with the Permits.

7.2 General Obligations

The PSE will fully and faithfully perform all obligations assigned to it under this Agreement, the IA, the SCVHP, the Permits, including but not limited to the obligations assigned in the following chapters of the SCVHP: Chapter 6

(Conditions on Covered Activities), Chapter 8.4 (Participating Special Entities), and Chapter 9 (Funding). PSE shall implement all measures and adhere to all standards included in the Conditions of Approval, and PSE shall reserve funding sufficient to fulfill its obligations under this Agreement, the IA, the SCVHP and the Permits throughout the term of this Agreement. PSE will promptly notify the Agency of any material change in its financial ability to fulfill its obligations under this Agreement.

7.3 Obligations In The Event of Suspension or Revocation

In the event that USFWS and/or CDFW suspend or revoke the Permits pursuant to Section 16 of the IA, PSE will remain obligated to fulfill its mitigation, enforcement, management, and monitoring obligations, and its other SCVHP obligations, in accordance with this Agreement and applicable statutory and regulatory requirements for all impacts resulting from implementation of the Project prior to the suspension or revocation.

7.4 Interim Obligations upon a Finding of Unforeseen Circumstances

If the Wildlife Agencies make a finding of Unforeseen Circumstances (as defined in Section 11.3 of the IA) with regard to a Federal Listed Covered Species, during the period necessary to determine the nature and location of additional or modified mitigation, PSE will avoid contributing to an appreciable reduction in the likelihood of the survival and recovery of the affected species. As described in Section 12.3 of the IA, the Wildlife Agencies shall be responsible for implementing such additional measures or modifications, unless PSE consents to do so.

7.5 Obligations In The Event Of Changed Circumstances

Changed Circumstances, as described in 50 Code of Federal Regulations section 17.22(b)(5)(i), are adequately addressed in Section 11.3 of the IA and further described in Chapter 10.2.1 of the HCCP/NCCP of the SCVHP, and PSE shall implement any measures for such circumstances as called for in the SCVHP, as described in Section 11.3.1 of the IA.

7.6 Indemnification

PSE agrees to defend, indemnify, and hold harmless the Agency and its board members, officers, contractors, consultants, attorneys, employees and agents from any and all claim(s), action(s), or proceeding(s) (collectively referred to as "Proceedings") brought against Agency or its board members, officers, contractors, consultants, attorneys, employees, or agents arising out of or resulting from any of the following:

- Decisions or actions of the Agency related to the Project, this PSE Agreement, or compliance with the California Environmental Quality Act of 1970, as amended ("CEQA") with regard to the Project; and
- The negligence, recklessness, or intentional misconduct of any representative, employee, or agent of PSE.

Notwithstanding the above, (i) PSE shall have no duty to defend, indemnify, or hold harmless the Agency to the extent damages are sought in a tort claim arising out of or resulting from the individual negligence, recklessness, or intentional misconduct of any representative, employee, or agent of the Agency and (ii) the indemnification obligations set forth above shall in no way limit the rights and remedies of PSE with respect to any breach of the terms and conditions of this PSE Agreement by the Agency.

PSE's duty to indemnify the Agency includes, but is not limited to, damages, fees and/or costs awarded against or incurred by Agency, if any, and costs of suit, claim or litigation, including without limitation attorneys' fees and other costs, liabilities and expenses incurred in connection with any Proceedings.

7.6.1 Enforcement of Indemnification Provision

PSE agrees to indemnify Agency for all of Agency's costs, fees, and damages incurred in enforcing the indemnification provisions of this Agreement.

7.6.2 Compliance Costs

PSE agrees to defend, indemnify and hold harmless Agency, its officers, contractors, consultants, attorneys, employees and agents from and for all costs and fees incurred in additional investigation or study of, or for supplementing, redrafting, revising, or amending, any document (such as this Agreement or any document required for purposes of compliance with CEQA) if made necessary by any Proceedings.

7.6.3 Obligations in the Event of Litigation

In the event that PSE is required to defend Agency pursuant to Section 7.6 f this Agreement in connection with any Proceedings, Agency shall have and retain the right to approve, which approval shall not be withheld unreasonably:

- the counsel to so defend Agency;
- all significant decisions concerning the manner in which the defense is conducted; and
- any and all settlements.

Agency shall also have and retain the right to decline to participate in the defense, except that Agency agrees to reasonably cooperate with PSE in the defense of the Proceedings. If Agency participates in the defense, all Agency fees and costs shall be paid by PSE.

PSE's defense and indemnification of Agency set forth herein shall remain in full force and effect throughout all stages of litigation including any and all appeals of any lower court judgments rendered in the Proceedings.

8.0 REMEDIES AND ENFORCEMENT

If PSE fails to comply with the terms of this Agreement, the IA, the SCVHP, or the Permits, the Agency may withdraw the Certificate of Inclusion and terminate any Take authorization extended to PSE. The Agency shall also have all of the remedies available in equity (including specific performance and injunctive relief) and at law to enforce the terms of this Agreement, the IA, the SCVHP and the Permits, and to seek redress and compensation for any breach or violation thereof. The Parties acknowledge that the Covered Species are unique and that their loss as species would be irreparable and that therefore injunctive and temporary relief may be appropriate in certain instances involving a breach of this Agreement.

9.0 FORCE MAJEURE

In the event that a Party is wholly or partially prevented from performing obligations under this Agreement because of unforeseeable causes beyond the reasonable control of and without the fault or negligence of Party ("Force Majeure"), including, but not limited to, acts of God, labor disputes, sudden actions of the elements not identified as Changed Circumstances, or actions of non-participating federal or state agencies or local jurisdictions, the Party shall be excused from whatever performance is affected by such unforeseeable cause to the extent so affected, and such failure to perform shall not be considered a material violation or breach, provided that nothing in this section shall be deemed to authorize either Party to violate FESA, CESA or NCCPA, and provided further that:

- The suspension of performance is of no greater scope and no longer duration than is required by the Force Majeure;
- Within seven (7) days after the occurrence of the Force Majeure, the Party invoking this section shall give the other Party written notice describing the particulars of the occurrence;
- The Party shall use best efforts to remedy its inability to perform (however, this paragraph shall not require the settlement of any strike, walk-out, lock-out or other labor dispute on terms which in the sole judgment of the Party is contrary to its interest); and
- When the Party is able to resume performance of their obligations, it shall give the other Party written notice to that effect.

10.0 MISCELLANEOUS PROVISIONS

10.1 Calendar Days

Throughout this Agreement and the SCVHP, the use of the term "day" or "days" means calendar days, unless otherwise specified.

10.2 Notices

Any notice permitted or required by this Agreement shall be in writing, and delivered personally, by overnight mail, or by United States mail, certified and postage prepaid, return receipt requested. Delivery shall be to the name and address of the individual responsible for each of the Parties, as follows:

For Agency:

Santa Clara Valley Habitat Agency
c/o Executive Officer
535 Alkire Avenue, Suite 100, Morgan Hill, CA 95037
Email: Edmund.Sullivan@scv-habitatagency.org
Phone: 408-779-7261

For PSE:

Rachel Clemons, Watershed Restoration Specialist
Santa Clara Valley Open Space Authority
33 Las Colinas Lane
San José, CA 95119
Email: rclemons@openspaceauthority.org
Phone: (669) 210-9161

Notices shall be transmitted so that they are received within the specified deadlines. Notices delivered personally shall be deemed received on the date they are delivered. Notices delivered via overnight delivery shall be deemed received on the next business day after deposit with the overnight mail delivery service. Notice delivered via certified mail, return receipt requested, shall be deemed received as of the date on the return receipt or five (5) days after deposit in the United States mail, whichever is sooner. Notices delivered by facsimile or other electronic means shall be deemed received on the date they are received.

10.3 Entire Agreement

This Agreement, together with the IA, the SCVHP and the Permits, constitutes the entire agreement among the Parties. This Agreement supersedes any and all other agreements, either oral or in writing, between the Parties with respect to the subject matter hereof and contains all of the covenants and agreements among them with respect to said matters, and each Party acknowledges that no representation, inducement, promise of agreement, oral or otherwise, has been

made by any other Party or anyone acting on behalf of any other Party that is not embodied herein.

10.4 Amendment

This Agreement may only be amended with the written consent of both Parties.

10.5 Attorneys' Fees

If any action at law or equity, including any action for declaratory relief is brought to enforce or interpret the provisions of this Agreement, the prevailing Party shall be able to recover its attorneys' fees and costs.

10.6 Governing Law

This Agreement shall be governed by and construed in accordance with the laws of the United States and the State of California, as applicable.

10.7 Duplicate Originals

This Agreement may be executed in any number of duplicate originals. A complete original of this Agreement shall be maintained in the official records of each of the Parties hereto.

10.8 Relationship to the FESA, CESA, NCCPA and Other Authorities

The terms of this Agreement are consistent with and shall be governed by and construed in accordance with FESA, CESA, NCCPA and other applicable state and federal law.

10.9 No Third-Party Beneficiaries

Without limiting the applicability of rights granted to the public pursuant to FESA, CESA, NCCPA or other applicable law, this Agreement shall not create any right or interest in the public, or any member thereof, as a third party beneficiary thereof, nor shall it authorize anyone not a Party to this Agreement to maintain a suit for personal injuries or property damages under the provisions of this Agreement. The duties, obligations, and responsibilities of the Parties to this Agreement with respect to third party beneficiaries shall remain as imposed under existing state and federal law.

10.10 References to Regulations

Any reference in this Agreement, the IA, the SCVHP, or the Permits to any regulation or rule of the Wildlife Agencies shall be deemed to be a reference to such regulation or rule in existence at the time an action is taken.

10.11 Applicable Laws

All activities undertaken pursuant to this Agreement, the IA, the SCVHP, or the Permits must be in compliance with all applicable local, state and federal laws and regulations.

10.12 Severability

In the event one or more of the provisions contained in this Agreement is held invalid, illegal or unenforceable by any court of competent jurisdiction, such portion shall be deemed severed from this Agreement and the remaining parts of this Agreement shall remain in full force and effect as though such invalid, illegal, or unenforceable portion had never been a part of this Agreement.

10.13 Due Authorization

Each Party represents and warrants that (1) the execution and delivery of this Agreement has been duly authorized and approved by all requisite action, (2) no other authorization or approval, whether of governmental bodies or otherwise, will be necessary in order to enable it to enter into and comply with the terms of this Agreement, and (3) the person executing this Agreement on behalf of each Party has the authority to bind that Party.

10.14 No Assignment

The Parties shall not assign their rights or obligations under this Agreement, the Permits, or the SCVHP to any other individual or entity.

10.15 Headings

Headings are using in this Agreement for convenience only and do not affect or define the Agreement's terms and conditions.

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this Participating Special Entity Agreement to be in effect as of the date last signed below.

SANTA CLARA VALLEY HABITAT AGENCY:

DATE: 5/22/2024

By: _____
Edmund Sullivan, Executive Officer

Approved as to form:

By: _____
Valerie J. Armento, General Counsel

SANTA CLARA VALLEY OPEN SPACE AUTHORITY

DATE: 5/17/2024

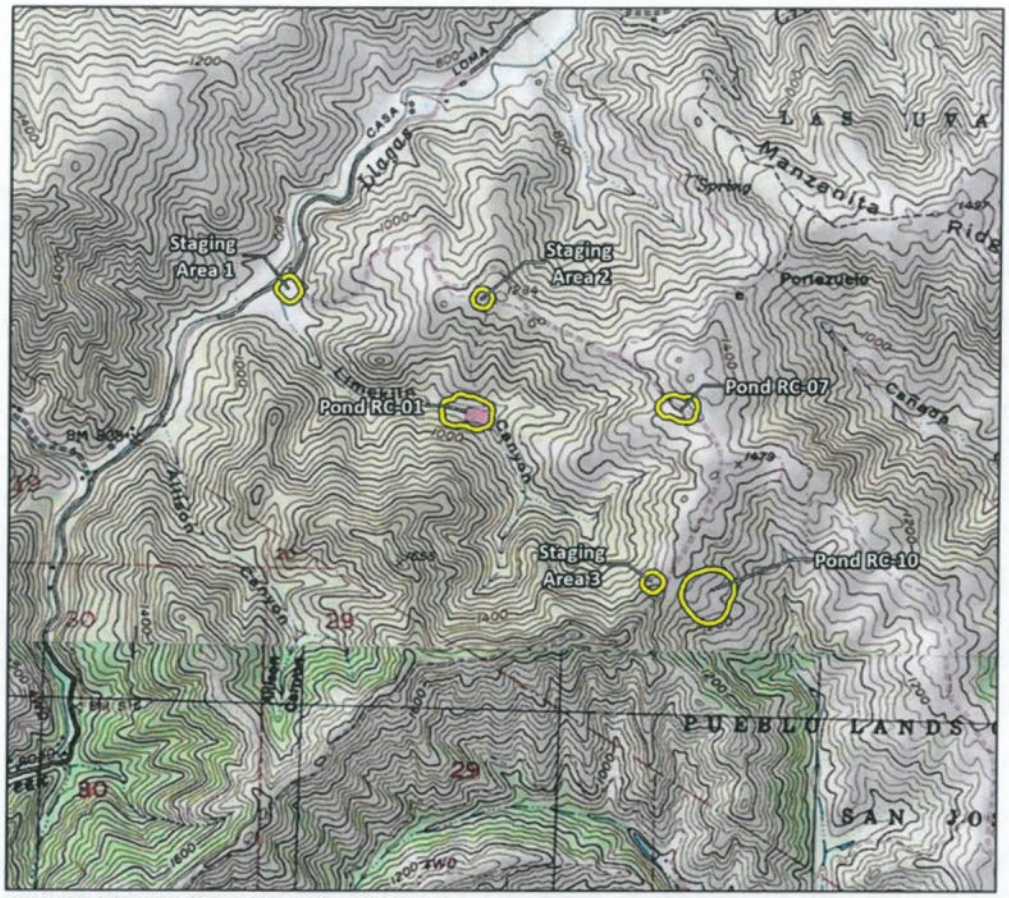
By: _____
Aaron Hebert, Natural Resources Manager

Exhibits:

EXHIBIT 1 (Location/Site Map of Project)
EXHIBIT 2 (Conditions of Approval)
EXHIBIT 3 (Fees and Charges)

EXHIBIT 1

LOCATION AND SITE MAP
ORO POND ENHANCEMENT PROJECT



Imagery provided by National Geographic Society, Esri and its licensors © 2020. Santa Teresa Hills Quadrangle. T09S R02E S20,2128,29. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may havechanged since the original topographic map was assembled.

Study Area

0 1,000 2,000 Feet

N

EXHIBIT 2

CONDITIONS OF APPROVAL

The following provides Condition Compliance Documentation as prescribed by Items 4, 5, 6, and 7 and Part IV of the Santa Clara Valley Habitat Plan Application for Participating Special Entities.

Condition 1. Avoid Direct Impacts on Legally Protected Plant and Wildlife Species

The project will comply with requirements of Condition 1, the Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Protection Act. The fully protected white-tailed kite could potentially nest near and forage on the project site, and a number of other bird species protected under the MBTA are expected to nest in or adjacent to the site. The project will implement measures (i.e., pre-construction surveys for nesting birds and buffers around any active nests) to avoid take of active nests of the white-tailed kite and other birds protected under the MBTA, as required by Condition 1 of the VHP.

Condition 3. Maintain Hydrologic Conditions and Protect Water Quality

To protect watershed health, stormwater discharge and pollutant runoff measures, the project will implement Habitat Plan BMPs, performance standards and control measures to minimize increases of peak discharge of storm water and reduce runoff of pollutants, including during project construction, including preconstruction construction site, and post-construction actions. The project will implement the aquatic avoidance and minimization measures described in Condition 3 of the VHP (and listed in VHP Table 6-2), as applicable, to protect water quality and reduce impacts on covered species associated with all project activities.

Condition 4. Avoidance and Minimization for In-stream Projects

The Project must be designed to minimize adverse impacts on stream morphology, aquatic and riparian habitat, and flow conditions. All avoidance and minimization measures listed in Table 6-2 are required unless the avoidance and minimization measure is not appropriate for the activity or field data collected at the site or in comparable areas demonstrate that the avoidance and minimization measure

would not benefit wildlife or reduce impacts on natural communities.

Condition 5. Avoidance and Minimization Measures for In-stream Operations and Maintenance

The Project must include avoidance and minimization measures to be applied when conducting in-stream operations and maintenance activities. The measures will help reduce impacts on stream and riparian land cover types and covered species.

Condition 14. Valley Oak and Blue Oak Avoidance and Minimization

Valley oak woodland and blue oak woodland are considered by CDFG to be sensitive biotic communities (California Department of Fish and Game 2003). Several project activities will occur adjacent to oak woodlands including Blue Oak. The Project must implement the applicable avoidance and minimization measures in Condition 14.

Condition 17. Tricolored Blackbird

The project site is located in the Geobrowser mapped tricolored blackbird survey areas. The applicant shall conduct field verification surveys for tricolored blackbird to determine if suitable habitat for tricolored blackbird is present in or within 250-feet of the project area. If suitable habitat for tricolored blackbird is found, surveys will be conducted within a 250-foot buffer area around areas of disturbance. An additional survey will be conducted no more than 2 days prior to construction.

Condition 21. Additional Condition for Northwestern Pond Turtle

Pond work should avoid the overwintering season for NWPT (October-March) to avoid injuring or killing any NWPTs that may be buried in the mud at the pond bottom. Additionally, if the work is to be done on the pond bottom when the air temperature is >90 degrees Fahrenheit, OSA shall check for any buried NWPT and relocate them to a suitable aestivation habitat nearby (pond bottom or leaf litter if necessary). Finally, OSA shall search for NWPT nests within suitable grassland habitat within the staging areas and maintain a 25-foot buffer around any nests.

EXHIBIT 3

FEES AND CHARGES

Project			
Santa Clara Open Space Authority Rancho del Oro Pond Enhancement			
Fee Summary			
Mitigation Fees	$0	$0	$0
PSE Charge	$0	$0	$0
	2021	***2024***	***Total***
Habitat Agency Exec Officer	$260.60	$137.16	$397.76
Habitat Agency Attorney	$301.62	$158.75	$460.37
Habitat Agency Principal Planner	$386.08	$203.20	$589.28
Habitat Agency Planner	$1,824.00	$960.00	$2,784.00
County NOE filing fee	$0	$50.00	$50.00
Total Application Fees	2,772.30	$1,509.11	$4,281.41
Deposit Received		$0.00	($5,000.00)
Total Due (Refund)			**($718.59)**

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102

July 22, 2024

Regulatory Division

Subject: File Number SPN-2020-00434 (Rancho Cañada del Oro Open Space Preserve Pond Enhancement Project)

Ms. Rachel Clemons
Santa Clara Valley Open Space Authority
33 Las Colinas Lane
San José, California 95119
rclemons@openspaceauthority.org

Dear Ms. Clemons:

This correspondence is in reference to your submittal of March 29, 2024, concerning Department of the Army (DA) authorization to enhance wildlife habitat located at RC-01 within the Rancho Cañada del Oro Open Space Preserve (37.1329° latitude, -121.7776° longitude).

Based on a review of the information you submitted, your project qualifies for authorization under Covered Activity 8 – *Restoration, establishment, enhancement activities involving soil disturbances, including removal and modification of fish passage impediments* of Department of the Army Regional General Permit (RGP) 18 – *Santa Clara Valley Habitat Plan Regional General Permit* (http://www.spn.usace.army.mil/Portals/68/docs/regulatory/RGP/RGP18_2021.pdf), pursuant to Section 404 of the CWA of 1972, as amended (33 U.S.C. § 1344 et seq.). Work within U.S. Army Corps of Engineers' (Corps) jurisdiction will include minor grading associated with the installation of a bentonite clay liner within Pond RC-01. Work will require the placement of 33 cubic yards of permanent fill within 0.32 acre of open water within Pond RC-01 and within 0.02 acre of lacustrine fringe wetland located on the margins of Pond RC-01. Work will not result in a loss of waters of the U.S. All work shall be completed in accordance with the plans and drawings titled "USACE File ID SPN-2020-00434, Rancho Cañada del Oro Open Space Preserve Pond Enhancement Project, Santa Clara County, April 12, 2022," in seven sheets and provided as enclosure 1.

The project must be in compliance with the terms and conditions cited in RGP 18 for the authorization to remain valid. You must also be in compliance with any special conditions specified in this letter for the RGP authorization to remain valid. Non-compliance with any term or condition could result in the suspension, modification, or revocation of the authorization for your project, thereby requiring you to obtain a Nationwide or Individual Permit from the Corps. This RGP authorization does not obviate the need to obtain other State or local approvals required by law.

This authorization will remain valid until January 28, 2026, unless RGP 18 is suspended, modified, or revoked. Upon completion of the project and all associated mitigation requirements, you shall sign and return the enclosed Certification of Compliance (enclosure 2) verifying that you have complied with the terms and conditions of the permit.

You shall comply with all terms and conditions set forth by the "Water Quality Certification No. 34321WQ03 For The Pond Management And Enhancement At Rancho Canada Del Oro Open Space Preserve Project, Santa Clara County," issued by the Central Coast Regional Water Quality Control Board on September 27, 2022 (enclosure 3). You shall consider such conditions to be an integral part of the RGP authorization for your project.

As the principal federal lead agency for RGP 18, the Corps initiated consultation with the United States Fish and Wildlife Service (USFWS) to address project related impacts to listed species, pursuant to Section 7(a) of the Endangered Species Act of 1973, as amended,16 U.S.C. § 1531 *et seq*. By letter of January 14, 2021, USFWS issued a biological opinion (BO; 08ESMF00-2015-F-1169-R001; https://www.spn.usace.army.mil/Portals/68/docs/regulatory/BOs/RGP/RGP18_2021_USFWS_BO.pdf), extending to the Corps the incidental take exemption for the California red-legged frog (*Rana draytonii*) already provided to the Santa Clara Valley Habitat Plan co-permittees through their incidental take permit (TE-94345A-0). Project authorization under the RGP is conditional upon compliance with the mandatory terms and conditions and the associated reasonable and prudent measures of the USFWS's "Biological and Conference Opinion, Issuance of a Section 10(s)(1)(B) Permit for the Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan" (pages 256-257, Service file number 81420-2009-F-0077), dated April 2013 (https://scv-habitatagency.org/DocumentCenter/View/343/Biological-and-Conference-Opinion-for-Issuance-of-Section-10a1B-Permit).

In order to ensure compliance with this RGP authorization, the following special conditions shall be implemented:

1. A post construction report shall be submitted 45 days after the conclusion of construction activities. The report shall document construction activities, contain as-built drawings (if different from drawings submitted with application), and include before and after photographs.

2. The permittee shall arrange for a tribal representative or qualified archaeologist to conduct a cultural sensitivity training for all employees who

will be working at the site. If additional employees are hired for the project, the permittee shall contact the archaeologist or tribal representative one week prior to these employees' first day on the project site to arrange additional cultural sensitivity training for the new employees. Cultural sensitivity training shall include information on how to identify cultural resources and high-sensitivity soils and the appropriate protocol for stopping work within 100 feet of the find and notifying the Corps, a qualified archaeologist, and the appropriate tribal representative.

3. To minimize potential impacts to cultural resources, the permittee shall retain a qualified cultural tribal monitor for the project's ground disturbing activities into native soil. The permittee shall provide this monitor with the construction schedule at least two weeks prior to the start of ground disturbance and give the monitor access to the construction site.

4. Should any buried archaeological materials be uncovered during project activities, such activities shall cease within 100 feet of the find. Prehistoric archaeological indicators include: obsidian and chert flakes, and chipped stone tools; bedrock outcrops and boulders with mortar cups; ground stone implements (grinding slabs, mortars, and pestles) and locally darkened midden soils containing some of the previously listed items plus fragments of bone and fire affected stones. Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations, privy pits, wells and dumps, and old trails. The Corps and Chairwoman Quirina Geary of the Tamien Nation shall be notified of the discovery and a professional archaeologist shall be retained by the permittee to evaluate the find and recommend appropriate mitigation measures. Proposed mitigation measures shall be submitted to the Corps for approval, and project-related activities shall not resume within 100 feet of the find until all approved mitigation measures have been completed to the satisfaction of the Corps.

You may refer any questions on this matter to me by e-mail at sarah.m.firestone@usace.army.mil. All correspondence should be addressed to the Regulatory Division, South Branch, referencing the file number at the head of this letter.

The San Francisco District is committed to improving service to our customers. The Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner, while preserving and protecting our nation's aquatic resources. If you would like to provide comments on our Regulatory Program, please

complete the Customer Service Survey Form available on our website: http://www.spn.usace.army.mil/Missions/ Regulatory.aspx

Sincerely,

Sarah Firestone
Senior Project Manager, Regulatory Division

Enclosures

Electronic Copy Furnished (w/ encls):

Santa Clara Valley Habitat Agency (Attn: Gerry Haas, gerry.haas@scv-habitatagency.org)
CA RWQCB, Oakland, CA (Attn: Phil Hammer, Phillip.Hammer@waterboards.ca.gov)

Pathogen Control Measures

Equipment, footwear, and vehicles brought to the Preserve from other areas could carry pathogen spores in soil or debris. One example is the invasive water mold *Phytophthora ramorum*, which causes Sudden Oak Death (SOD). P. ramorum can infect over 100 plant species including trees, shrubs, vines, and ferns. The disease attacks both foliage and trunks of plants and has killed millions of trees in California and Oregon, primarily tanoak (*Notholithocarpus densifloris*) and coast live oak (*Quercus agrifolia*).

The following best management practices shall be followed to limit the introduction of pathogens to the Preserve:

- **Vehicles and equipment/large tools will be thoroughly cleaned** to remove soil and debris from other sites prior to entering the Preserve.
    - Vehicles should be washed at a commercial vehicle or truck washing facility or equivalent.
    - A high-pressure washer should be used to remove all soil from tires, wheel wells, vehicle undercarriages, and other surfaces as well as equipment which will be used on site.
    - The inside of vehicles should be vacuumed to remove soil and other particles.
    - Vehicles and equipment or large tools should be dry before entering the Preserve.
    - Compressed air can be used to help blow debris and soil out of equipment and may be used to speed drying of wetted surfaces.

- Vehicles, equipment, and large tools will be cleaned prior to when they first enter the Preserve, and again whenever they have been used at or visited another project site and returned.

- Vehicles will stay on established roads whenever possible.

- **Footwear and small tools will be thoroughly cleaned** prior to entering the Preserve.
    - Debris and soil can be brushed out of shoe soles with a stiff brush. It may be necessary to use a screwdriver or similar tool to remove soil and debris from deep crevices. If surfaces are contaminated with clinging mud or damp debris, tap water and a brush may be used to remove accumulated material.
    - After large accumulations of soil or debris have been removed, an appropriate **cleaning agent (ethyl or isopropyl alcohol, of at least 70% concentration) will be used** to remove or kill pathogen spores which may be present on boot soles or tools.
    - In the field, routine cleaning of potentially infested soil from shoes or small tools can be accomplished most easily using a spray bottle filled with an alcohol-based cleaning agent.

- Cleaning agents may be applied using spray bottles filled with alcohol (ethanol or isopropyl, at least 70% by volume) to thoroughly wet the surface. Boot soles and hand tools should be sprayed with enough alcohol that surfaces are fully coated and wet.
- Whenever possible, allow surfaces wetted with alcohol to dry thoroughly to reduce the chances of pathogen survival.
- Brushes and other implements used to help remove soil will be cleaned after use with alcohol.

- **<u>Boot soles and small tools will be cleaned daily.</u>**

Northwestern Pond Turtle Monitoring and Relocation Plan

Rancho Cañada del Oro Stock Pond Restoration Project
Summer 2025

Acronyms

CDFW – California Department of Fish & Wildlife
CESA – State of California Endangered Species Act
ESA – Federal Endangered Species Act
NWPT – Northwestern pond turtle (*Actinemys marmorata*), formerly known as "western pond turtle"
OSA – Santa Clara Valley Open Space Authority (Authority)
PSE – Participating Special Entity Agreement
USFWS – U.S. Fish & Wildlife Service
VHA – Santa Clara Valley Habitat Agency

Purpose of this document

Summarize the permit requirements related to NWPT for the Rancho Cañada del Oro stock pond restoration project and outline the Authority's plan for compliance.

Basking Northwestern pond turtle. Photo credit: K Schneider, iNaturalist

Regulatory background

CDFW lists NWPT as a Species of Special Concern. USFWS has proposed listing NWPT as a threatened species under the ESA. The Authority has obtained CESA and ESA coverage for this project through the Santa Clara Valley Habitat Plan, via a PSE agreement, which is administered by VHA.

Goals

- Create alignment between agencies on the strategy for relocating NWPT as necessary during construction activities (see requirement 3 below).
- Outline scope of work for biologist(s) that will assist the Authority with implementation of requirements.
- Communicate requirements re: NWPT to construction Bidders/Contractor.

Summary of relevant permit conditions, per PSE Condition 21

1. Avoid overwintering season (October – March).
2. A qualified biologist will conduct pre-construction survey for NWPT nests within suitable grassland areas of project and staging areas. Contractor will maintain a 25-foot buffer around any nests.
3. ***When work is occurring on the pond bottom, <u>and</u> the pond is dry or the air temperature is over 90 degrees Fahrenheit, a qualified biologist will search for buried NWPT and relocate them to a suitable aestivation habitat.***

Project setting and activities

Construction activities will take place within three ponds: RC-01, RC-07, and RC-10. Pond RC-01 is a 1-acre perennial stock pond fed by shallow groundwater flow in the dry season and additional surface water flow from two small, steep headwater tributaries (Limekiln Canyon Creek, unnamed tributary) in the wet season. The lowest point of the pond is approximately 12-feet deep. RC-01 is known to have NWPT; they have been observed in low numbers via protocol-level surveys (2016, 2020) and incidental staff sightings (2022-2024).

The Authority does not anticipate encountering NWPT at Ponds RC-07 or RC-10. They are small, seasonal ponds, are expected to be dry at the time of construction, and no NWPT have previously been observed there. NWPT have been documented in other stock ponds within the preserve (RC-06, RC-08, and RC-09) but these ponds are between 1.5 and 2 miles away from RC-01, and similar to RC-07 and RC-10, all of these ponds are seasonal and expected to be dry at the time of construction. The closest perennial waterbodies are reservoirs (Chesbro, Almaden, and Calero) and ponds on the west side of Coyote Valley, where red-eared sliders and other predators/competitors have been documented.

The goals of the project for Pond RC-01 are to reduce berm seepage and non-native fish and bullfrog populations, to extend the life and utility of the pond for the benefit of NWPT, California red-legged frog, and other native aquatic species. The pond will be drained with a portable pump prior to construction in order to access the pond bottom and berm edge, where a bentonite clay liner will be installed to prevent future seepage. Draining the pond will have the added benefit of reducing non-native fish and bullfrog populations, which need perennial waters to survive. The pond will be further dewatered as-needed during construction. When the pond is sufficiently dry, native soil will be excavated from the berm, mixed with bentonite clay, and added back to the berm area. After work on the pond's berm, protective cattle fencing will be installed, and the pond area will be revegetated with native plants and seeds. Two floating turtle ramps will also be placed into the pond to support NWPT basking.

Pond draining is expected to take up to 1 week. The grading and earthwork at Pond RC-01 is expected to take approximately 2 weeks. The pond should begin to refill with groundwater shortly after construction and return to its maximum capacity later in the rainy season depending on precipitation levels.

Proposed relocation strategy

Because the pond must be drained to conduct the berm repairs and continually dewatered during construction, NWPT may burrow into the pond bottom or attempt to leave the pond and move into less suitable habitat. A qualified biologist retained by the Authority will be on site to search for and remove NWPT from the work area and the surrounding pond. The Authority has outlined several relocation options below. However, preconstruction surveys and a walk-through of site conditions close to the construction dates will be critical to determining the appropriate relocation option. The Authority will allow sufficient time for the biologist(s) to walk the site and fully prepare for the best option. Any occurrence of NWPT (or other special status species) will be recorded by the biologist(s) or Authority staff and submitted to the California Natural Diversity Database.

1. <u>Relocate within the pond.</u>
   If suitable pond habitat remains on site at the eastern end of the pond (away from the project's limits of disturbance), the biologist(s) may place individuals there. However, creating a relocation area with a coffer dam within the pond would likely not be feasible since construction is occurring in the dry season and any

standing water must be pumped out. It would be impractical, expensive, and possibly not achievable to create a divide in the pond such that one area is completely dry, and the other area has a water depth of at least 3-4 feet to support NWPT and protect them from predation. However, suitable aestivation habitat may be present within or near the edges of the pond. Biologist(s) could monitor relocated turtles to see if they attempt to leave their new location and intercept as needed.

2. Relocate to suitable aestivation habitat nearby.
   If NWPT cannot be relocated within the pond, the biologist(s) will attempt to find a suitable location nearby. As discussed above, no additional NWPT ponds (that have water in the dry season) exist within the immediate vicinity of the project. Depending on soil moisture and site conditions, the biologist(s) may find suitable aestivation habitat in upland or riparian habitat near the project site. Under this scenario, there is no guarantee that relocated NWPTs would successfully return to RC-01 when sufficient water depth returns. However, biologist(s) will document and monitor relocated turtles and the habitat they are now occupying. If turtles are intercepted leaving their temporary relocation space, they would then be relocated to an off-site location (option 3, below).

3. Relocate to artificial aestivation habitat off site.
   To be prepared in the event that suitable aestivation habitat does not exist nearby, or that there is not enough habitat to support all NWPT encountered in the project area, the Authority proposes to create and transport NWPT to an artificial aestivation habitat off site. The site would mimic aestivation conditions in a wooden box filled with duff, stored in a cool, dark location. This off-site location would be designed by qualified biologist(s) with expertise in NWPT life cycles and handling. Relocated turtles may stay in the box(es) for up to 4 weeks before being returned to the pond from which they were removed. While more logistics are involved here, this option is the most cautious in protecting NWPT from potential predation, dehydration, and general stress from a rapid transition. It gives individuals the best chance at returning to Pond RC-01 when conditions are again safe and suitable.

Summary and conclusion

As a special status species not documented within a mile of the project site, NWPT are a unique biological resource in Pond RC-01. While the project itself is for the benefit of the species, it's important to consider the effects of rapidly draining the pond and plan an appropriate response. As a native species, NWPT are adapted to seasonal changes and able to survive summer months by aestivating. They bury themselves in shallow pools, mud, or moist leaf litter. This behavior will occur when Pond RC-01 is drained for construction. The Authority seeks to support the species' success during this transition with the minimum necessary amount of interference.

Per the PSE agreement, when the pond bottom is dry, a biologist(s) must search for buried NWPT within the work area and relocate them to a suitable aestivation habitat. The Authority feels that the best way to accomplish this is to prepare for all three relocation scenarios described above, and then defer to the best judgment of a qualified biologist(s) with expertise related to NWPT as relocation becomes necessary. Along with a pre-construction survey for NWPT nests in upland grassy areas, biologist(s) will analyze the project site and immediate vicinity for suitable relocation habitat, which may largely depend on precipitation amounts in water year 2025. If none or not enough is found, or if individuals reject the site to which they are relocated, then an off-site artificial aestivation habitat may be a more secure option.

GEOTECHNICAL INVESTIGATION
DESIGN PHASE

FOR
PONDS RC-01, 05, 08 AND 10
RANCHO CANADA DEL ORO OPEN SPACE PRESERVE
SANTA CLARA COUNTY, CALIFORNIA

PREPARED FOR
SHERWOOD DESIGN ENGINEERS

PROJECT NO. 19-169-SCL

PREPARED BY
BUTANO GEOTECHNICAL ENGINEERING, INC.

JANUARY 2020

BUTANO GEOTECHNICAL ENGINEERING, INC.
231 GREEN VALLEY ROAD, SUITE E, FREEDOM, CALIFORNIA 95019
PHONE: 831.724.2612
WWW.BUTANOGEOTECH.COM

January 31, 2020
Project No. 19-169-SCL

Sherwood Design Engineers
1525 Seabright Avenue
Santa Cruz, CA 95062

ATTENTION: Janice Westlake

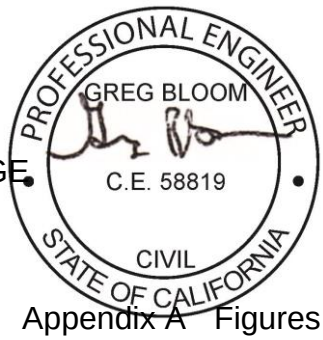
SUBJECT: **GEOTECHNICAL INVESTIGATION - DESIGN PHASE**
Pond Enhancement and Restoration
Rancho Canada Del Oro Open Space
Ponds RC-01, RC-05, RC-08 and RC-10
Morgan Hill, Santa Clara County, California

Dear Mrs. Westlake:

In accordance with your authorization, we have completed a geotechnical investigation for the subject project. This report summarizes the findings, conclusions, and recommendations from our field exploration, laboratory testing, and engineering analysis. It is a pleasure being associated with you on this project. If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office.

Sincerely,

BUTANO GEOTECHNICAL ENGINEERING, INC.



Greg Bloom, PE, GE
Principal Engineer
R.C.E. 58819

Appendices
Appendix A Figures and Standard Details
Appendix B Field Exploration Program
Appendix C Laboratory Testing Program
Appendix D Pond Stability Analyses

Distribution: (4) Addressee

1.0 INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed enhancement of ponds RC-01, RC-05, RC-08 and RC-10 in the Rancho Canada Open Space Preserve (RCOSP), Santa Clara County, California. The existing ponds are managed by Santa Clara Valley Open Space Authority (SCVOSA).

The purpose of our investigation is to provide preliminary geotechnical design parameters and recommendations for the pond enhancement and restoration project. Conclusions and recommendations related to site grading and drainage are presented herein.

Our work included site reconnaissance, subsurface exploration, engineering analyses and preparation of this report. The scope of services for this investigation is outlined in our agreement June 11, 2019.

The recommendations contained in this report are subject to the limitations presented in Section 8.0 of this report. The Association of Engineering Firms Practicing the Geosciences has produced a pamphlet for your information titled “Important Information About Your Geotechnical Report”. This pamphlet has been included with the copies of your report.

2.0 PROJECT DESCRIPTION

Based on our discussions with the land owner (SCVOSA) and Sherwood Design Engineers (SDE) the project consists of pond enhancements. The ponds are habitat for the California red legged frog and other sensitive and endangered biota.

The proposed pond enhancements are still in the design phase but may include: sediment reduction, embankment enlargements and improvements and spillway improvements.

The following document was provided to us for use in our design:

> POND SURVEY REPORT AND MANAGEMENT RECOMMENDATIONS, *Rancho Canada Del Oro Open Space Preserve, Santa Clara County, California,* Job Number J-331, October 2016

Additionally, lidar was provided to us for ponds RC-01, RC-05, and RC-08. A topographic survey was provided to us for pond RC-10.

3.0 FIELD EXPLORATION AND LABORATORY TESTING PROGRAMS

Our field exploration program included drilling, logging, and interval sampling of 8 borings. The borings were advanced June 13 and 26 with 6 inch diameter hollow stem augers advanced with a track mounted drill rig. The borings were advanced to depths ranging from 16 ½ to 31 ½ feet below existing grade. Details of the field exploration program, including the Boring Logs, are presented in Appendix B, Figures B-3 through B-11.

Representative samples obtained during the field investigation were taken to the laboratory for testing to determine physical and engineering properties. Details of the laboratory testing program are presented in Appendix C. Test results are presented on the Boring Logs and in appendix C.

4.0 SITE AND PROJECT DESCRIPTION

4.1 Location

The project sites are located west of Highway 101 within the RCOSP in unincorporated Santa Clara County, California. The site locations are shown on the Site Location Map, Appendix A, Figure A-1.

4.2 Surface Conditions

The ponds are located within the 4,400 acre RCOSP in the Santa Cruz Mountains. The terrain is mountainous and is vegetated with a mix of oak woodland, chaparral, grassland and other habitats. The preserve includes a number of springs, streams and artificial ponds (the focus of this project).

Pond RC-01

Pond RC-01 is located in the southern central portion of the preserve. The pond is moderate in size and located in the path of the convergence of a seasonal stream and a larger seasonal-to-perennial stream in a narrow canyon. There is an embankment berm located on the western edge of the pond. The fill embankment is estimated at approximately 20 feet tall. The downslope side of the embankment berm is vegetated with grass.

The depth of water within the pond is controlled by a spillway which consists of a ditch located south of the pond. Based on our observations the ditch appears to have been created by cutting into the hillside. This has resulted in very steep side slopes which have experienced recent cut-slope failures.

Pond RC-05

Pond 05 is located near the very southern-central end of the Blair property, beside the main access road joining the ridge road and Uvas Road. The pond is moderate in size and is fed by two seasonal drainages. The embankment is located on the southeastern side of the pond. There is a pump station located on the embankment that is piped to a tank to the southwest. The embankment is vegetated with several trees on the embankment and the downslope face has grass. The fill embankment is estimated at approximately 20 feet tall.

The depth of water is controlled by the pump station and a spillway on the north side of the embankment. The spillway is cut into the hillside to the north.

Pond RC-08

Pond R08 is located near the northeast edge of the Blair parcel. The pond is located within mountainous terrain and is fed by a seasonal steep drainage. The pond is moderate in size and is controlled by a concrete spillway on the northeast side. The pond is surrounded by oak woodlands. The embankment is roughly 25 feet in height. The face of the embankment is vegetated with grass, shrubs and trees.

Pond RC-10

Pond 10 is located on a moderately sloping hillside near the center of the southern portion of the preserve. The pond is fed by surface runoff and groundwater. The pond is relatively small and is controlled by a spillway to the northeast. The spillway consists of an eroded drainage on a moderate slope.

The site is vegetated with grass.

4.3 Subsurface Conditions

The sites are located in areas mapped as being Franciscan Assemblage. Within this area mélange, serpentine, greenstone, and graywacke sandstone are encountered. Three of the ponds (1, 5, and 8) are located within the paths of natural drainages and have a thin layer of alluvium overlying the bedrock.

The conditions encountered are in conformance with the geologic mapping of the area.

A total of eight borings were advanced to analyze the ponds (2 at each pond embankment). The fill embankments were constructed by mining local sources (either alluvium or bedrock) and consist of silty sand, sandy lean clay and clayey

sand. The fill embankments are generally loose to medium dense (silty and clayey sands) and/or stiff (sandy lean clay and lean clay). The fill thicknesses vary from 9 feet (Pond 10) up to 14 feet.

Thin layers of alluvium were encountered below the fill at ponds 1 and 5. The alluvium is up to 11 feet thick at pond 1 and consists of stiff sandy lean clay. The alluvium is up to 3 feet thick at pond 5 and consists of clayey sand with gravel.

Bedrock consisting of graywacke sandstone and serpentine were encountered below the embankment fill and alluvium.

Groundwater was encountered at a depth of 11 and 8 feet in B1 and B2 (Pond 1), respectively. Groundwater was not encountered in Pond 10 (B3 and B4). Groundwater was encountered at depth of 26 feet in B5 and no groundwater was encountered in B6 (Pond 5). Groundwater was encountered at a depth of 12 feet in B7 and B8 (Pond 8). The depth to groundwater may vary seasonally and with the depth of the ponds.

Complete soil profiles are presented on the Boring Logs, Appendix B, Figures B-3 through B-11. The boring locations are shown on the Boring Site Plans, Figures B-2a through B-2d.

5.0 GEOTECHNICAL HAZARDS

5.1 General

In our opinion the geotechnical hazards that could potentially affect the proposed project are:

- Intense seismic shaking
- Collateral seismic hazards
- Erosion
- Dam Embankment Stability
- Faulting

5.1.1 Intense Seismic Shaking

The hazard of intense seismic shaking is present throughout central California. Intense seismic shaking may occur at the site during the design lifetime of the proposed structure from an earthquake along one of the regions many faults. Generally, the intensity of shaking will increase the closer the site is to the epicenter of an earthquake, however, seismic shaking is a complex phenomenon and may be modified by local

topography and soil conditions. The transmission of earthquake vibrations from the ground into the structure may cause structural damage.

The County of Santa Clara has adopted the seismic provisions set forth in the 2019 California Building Code to address seismic shaking. The seismic provisions in the 2019 CBC are minimum load requirements for the seismic design for the proposed structure. The provisions set forth in the 2019 CBC will not prevent structural and nonstructural damage from direct fault ground surface rupture, coseismic ground cracking, liquefaction and lateral spreading, seismically induced differential compaction, seismically induced landsliding, or seismically induced inundation.

Table 1 has been constructed based on the 2019 CBC requirements for the seismic design of the proposed structure. The Site Class has been determined based on our field investigation and laboratory testing.

Table 1. Seismic Design Parameters

S_S	S_1	Site Class	F_a	F_v	S_{DS}	S_{D1}	F_{PGA}	PGA_M	Risk Category	Seismic Design Category
2.195	0.749	C	1.2	1.4	1.756	0.699	1.2	1.075	II	N/A

5.1.2 Collateral Seismic Hazards

In addition to intense seismic shaking, other seismic hazards that may have an adverse affect to the site and/or the structure are: fault ground surface rupture, coseismic ground cracking, seismically induced liquefaction and lateral spreading, seismically induced differential compaction, seismically induced landsliding, and seismically induced inundation (tsunami and seiche). It is our opinion that the potential for collateral seismic hazards to affect the site and to damage the proposed structure is low.

5.1.3 Erosion

The spillways generally consist of an earthen ditch located at a lower elevation than the embankment. We did not observe any erosion on the embankment faces during our site reconnaissance. We did observe erosion in the spillway ditches at all of the ponds. It is our understanding that the ponds will be upgraded to improve the spillways with risers to better control

water levels and decrease erosion potential.

5.1.4 Dam Embankment Stability

Quantitative slope stability analyses were performed on the existing dam profiles (see cross-sections W-W', X-X', Y-Y' and Z-Z'). We utilized the modified Bishop's method of analysis. Details of the analyses and figures are shown in Appendix D. Our work was limited to analyzing the stability of the embankment, alluvium and shallow bedrock.

Static safety factors varied between 2.04 and 3.09 for the ponds. Seismic safety factors varied between 1.15 and 1.68. These factors of safety are within the acceptable range for the ponds.

The slope stability was run with the water level for the pond at the maximum elevation based on the existing dam height.

The final design configuration will be based on the geotechnical data and a pond depth conducive to the biotic goals of the project. Our firm should review the final configuration.

5.1.5 Faulting

Pond RC-01 is located within a mapped shear zone. Analysis of the exact location of this zone and its potential activity is beyond our scope of work.

6.0 DISCUSSIONS AND CONCLUSIONS

Based on our field investigation and discussions with Sherwood Design Engineers it is proposed at this time that Pond RC-10 be enlarged, and spillway improvements be performed at Ponds RC-01, 05, 08, and 10.

The results of the stability analysis are in Appendix D. The results indicate that the existing configurations are considered stable both statically and seismically. Our analysis indicates that the pond embankment fill was moderately compacted. The embankment slopes are moderate resulting in the acceptable factors of safety.

7.0 RECOMMENDATIONS

7.1 General

Based on the results of our field investigation, laboratory testing, and engineering analysis it is our opinion that from the geotechnical standpoint, the subject site will be suitable for the pond enhancements and repair.

The on-site soil/bedrock consists of material that will break down into clayey sand and sandy lean clay. In order for this soil to be used as a pond liner it will need be mixed with bentonite to achieve the desired permeability range.

7.2 Site Grading

7.2.1 Site Clearing

The site should be cleared of loose soil, organics, and debris within the project limits.

7.2.2 Preparation of On-Site Soils

All fill should be moisture conditioned 1 to 3 percent over optimum and compacted with heavy vibratory equipment to a minimum of 90 percent relative compaction. **Fill placed as part of the embankment should be compacted to a minimum of 93 percent relative compaction.** Fill should be compacted by mechanical means in uniform horizontal loose lifts not exceeding 8 inches in thickness. The relative compaction and required moisture content shall be based on the maximum dry density and optimum moisture content obtained in accordance with laboratory test procedure ASTM D1557.

The majority of embankment fill may be re-used as engineered fill once it is processed. Processing should include moisture conditioning and removing any deleterious material. All soils, both existing on-site and imported, to be used as fill on the **dam embankment**, should contain a minimum of 50 percent fines, with the fines fraction having a minimum liquid limit of 35 and plasticity index of 15. All material should be verified by a representative of Butano Geotechnical Engineering, Inc. in the field during grading operations.

Any surface or subsurface obstruction, or questionable material encountered during grading, should be brought immediately to the attention of the Geotechnical Engineer for proper processing as required.

7.2.3 Cut and Fill Slopes

Temporary cuts within the embankment fill should be made not steeper than 1:1 (H:V) to a maximum height of 14 feet.

Permanent cut and fill slopes should be graded no steeper than 2:1 (H:V). Fills should be keyed and benched into the hillside on slopes greater than 20 percent per the typical Keying and Benching Detail, Figure A-2.

7.2.4 Excavating Conditions

The on-site soil may be excavated with conventional earthwork equipment. The underlying bedrock may require rock teeth to excavate.

7.2.5 Surface Drainage

It is recommended that no water be allowed to sheet flow onto the dam face. A properly designed spillway system should minimize the potential for erosion.

The spillways may release back into natural drainages via energy dissipators. The release point should be a minimum of 25 feet beyond the base of the fill embankment.

As an option a primary spillway using a pipe and riser system may be incorporated into the design. The existing spillway may be backfilled with soil and utilized as a secondary system. The dam fill should be keyed and benched into the existing dam.

7.2.6 Erosion Control

Erosion control should be placed on any disturbed slopes. This should be designed by the project civil/environmental engineer with the assistance of the geotechnical engineer.

7.3 Plan Review

The recommendations presented in this report are based on preliminary design information for the proposed project and on the findings of our geotechnical investigation. When completed, the Grading Plans, Foundation Plans and design loads should be reviewed by the geotechnical engineer of record, Inc. prior to submitting the plans and contract bidding. Additional field exploration and laboratory testing may be required upon review of the final project design plans.

7.4 Observation and Testing

Field observation and testing must be provided by a representative of Butano Geotechnical Engineering, Inc. to enable them to form an opinion regarding the adequacy of the site preparation, the adequacy of fill materials, and the extent to which the earthwork is performed in accordance with the geotechnical conditions present, the requirements of the regulating agencies, the project specifications, and the recommendations presented in this report. Any earthwork performed in connection with the subject project without the full knowledge of, and not under the direct observation of the geotechnical engineer of record, will render the recommendations of this report invalid.

Butano Geotechnical Engineering, Inc. should be notified at least 5 working days prior to any site clearing or other earthwork operations on the subject project in order to observe the stripping and disposal of unsuitable materials and to ensure coordination with the grading contractor. During this period, a preconstruction meeting should be held on the site to discuss project specifications, observation and testing requirements and responsibilities, and scheduling.

8.0 LIMITATIONS

The recommendations contained in this report are based on our field explorations, laboratory testing, and our understanding of the proposed construction. The subsurface data used in the preparation of this report was obtained from the borings drilled during our field investigation. Variation in soil, geologic, and groundwater conditions can vary significantly between sample locations. As in most projects, conditions revealed during construction excavation may be at variance with preliminary findings. If this occurs, the changed conditions must be evaluated by the Project Geotechnical Engineer and the Geologist, and revised recommendations be provided as required. In addition, if the scope of the proposed construction changes from the described in this report, our firm should also be notified.

Our investigation was performed in accordance with the usual and current standards of the profession, as they relate to this and similar localities. No other warranty, expressed or implied, is provided as to the conclusions and professional advice presented in this report.

This report is issued with the understanding that it is the responsibility of the Owner, or of his Representative, to ensure that the information and recommendations contained herein are brought to the attention of the Architect and Engineer for the project and incorporated into the plans, and that it is ensured that the Contractor and Subcontractors implement such recommendations in the field. The use of information contained in this report for bidding purposes should be done at the Contractor's option and risk.

This firm does not practice or consult in the field of safety engineering. We do not direct the Contractor's operations, and we are not responsible for other than our own personnel on the site; therefore, the safety of others is the responsibility of the Contractor. The Contractor should notify the Owner if he considers any of the recommended actions presented herein to be unsafe.

The findings of this report are considered valid as of the present date. However, changes in the conditions of a site can occur with the passage of time, whether they be due to natural events or to human activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, this report may become invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified.

The scope of our services mutually agreed upon did not include any environmental assessment or study for the presence of hazardous to toxic materials in the soil, surface water, or air, on or below or around the site. Butano Geotechnical Engineering, Inc. is not a mold prevention consultant; none of our services performed in connection with the proposed project are for the purpose of mold prevention. Proper implementation of the

recommendations conveyed in our reports will not itself be sufficient to prevent mold from growing in or on the structures involved.

REFERENCES

ASTM International (2015). Annual Book of ASTM Standards, Section Four, Construction. Volume 4.08, Soil and Rock (I): D 430 - D 5611.

ASTM International (2015). Annual Book of ASTM Standards, Section Four, Construction. Volume 4.09, Soil and Rock (II): D 5714 - Latest.

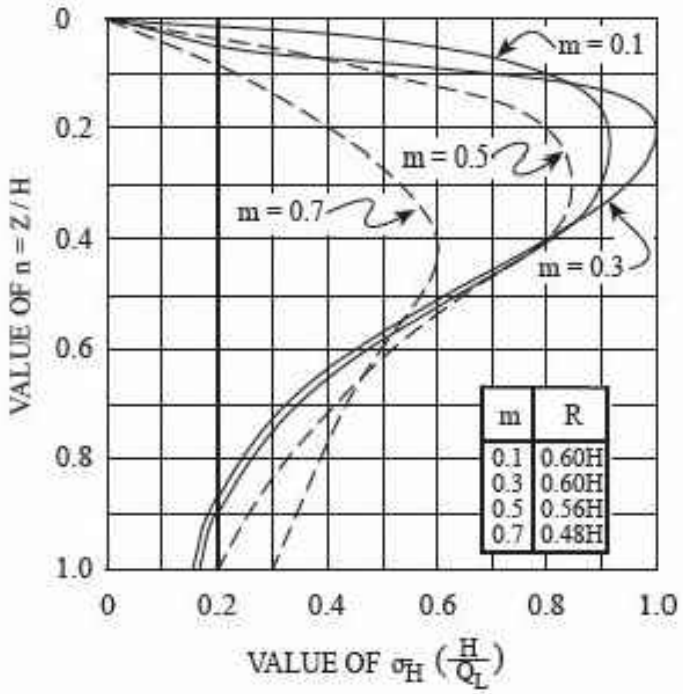
Dibblee, T.W., and Minch, J.A., 2005, Geologic map of the Santa Teresa Hills quadrangle, Santa Clara County, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-158, scale 1:24,000

California Building Code (2019).

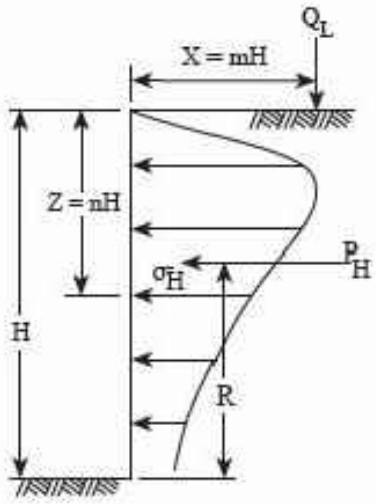
APPENDIX A

FIGURES AND STANDARD DETAILS

LINE LOAD



m	R
0.1	0.60H
0.3	0.60H
0.5	0.56H
0.7	0.48H



FOR m ≦ 0.4:

$$\sigma_H \left(\frac{H}{Q_L}\right) = \frac{0.20\,n}{(0.16+n^2)^2}$$

$$P_H = 0.55\,Q_L$$

FOR m > 0.4:

$$\sigma_H \left(\frac{H}{Q_L}\right) = \frac{1.28\,m^2 n}{(m^2+n^2)^2}$$

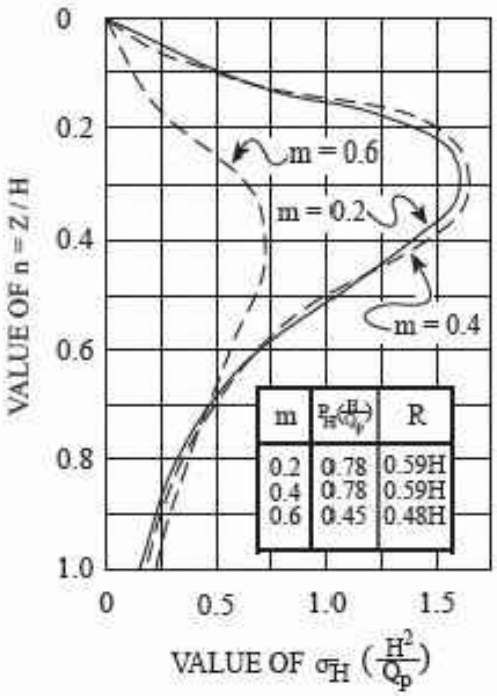
RESULTANT $P_H = \frac{0.64\,Q_L}{(m^2+1)}$

PRESSURES FROM LINE LOAD Q_L

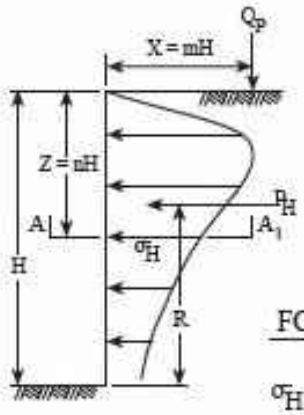
(BOISSINESQ EQUATION MODIFIED BY EXPERMENT)

REFERENCE: Design Manual
NAVFAC DM-7.02
Figure 11
Page 7.2-74

POINT LOAD



m	$\frac{P_H}{Q_p}\left(\frac{H}{Q_p}\right)$	R
0.2	0.78	0.59H
0.4	0.78	0.59H
0.6	0.45	0.48H



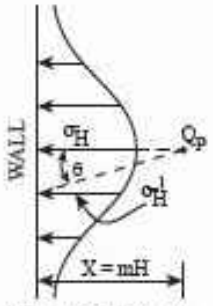
FOR m ≦ 0.4:

$$\sigma_H \left(\frac{H^2}{Q_p}\right) = \frac{0.28\,n^2}{(0.16+n^2)^3}$$

FOR m > 0.4:

$$\sigma_H \left(\frac{H^2}{Q_p}\right) = \frac{1.77\,m^2 n^2}{(m^2+n^2)^3}$$

$$\sigma_H^1 = \sigma_H \cos^2(1.1\,\theta)$$

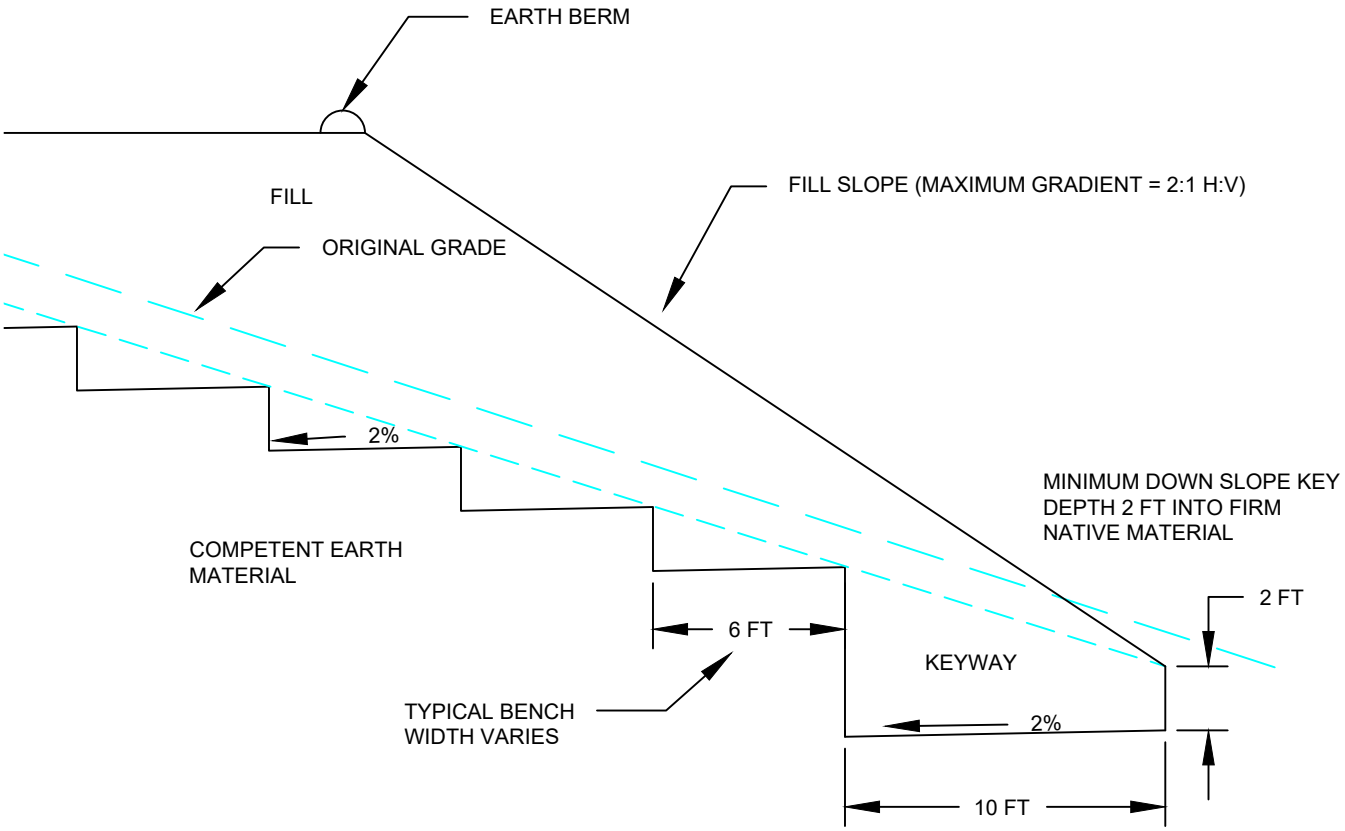


SECTION A-A_1

PRESSURES FROM POINT LOAD Q_P

(BOISSINESQ EQUATION MODIFIED BY EXPERMENT)

BUTANO GEOTECHNICAL ENGINEERING, INC.	**S□□CHA□GE P□ESS□□E DIAG□AM**	FIGURE A-□



NOTES:

1. DRAWING IS NOT TO SCALE
2. FILLS SITUATED ON SLOPES STEEPER THAN 5:1 (H:V) SHOULD BE KEYED AND BENCHED.
3. FILL MATERIAL SHOULD BE PLACED PER THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT.
4. LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE GEOTECHNICAL ENGINEER.

N.T.S.

BUTANO GEOTECHNICAL ENGINEERING, INC.	**KEYING AND BENCHING TYPICAL**	FIGURE A-2

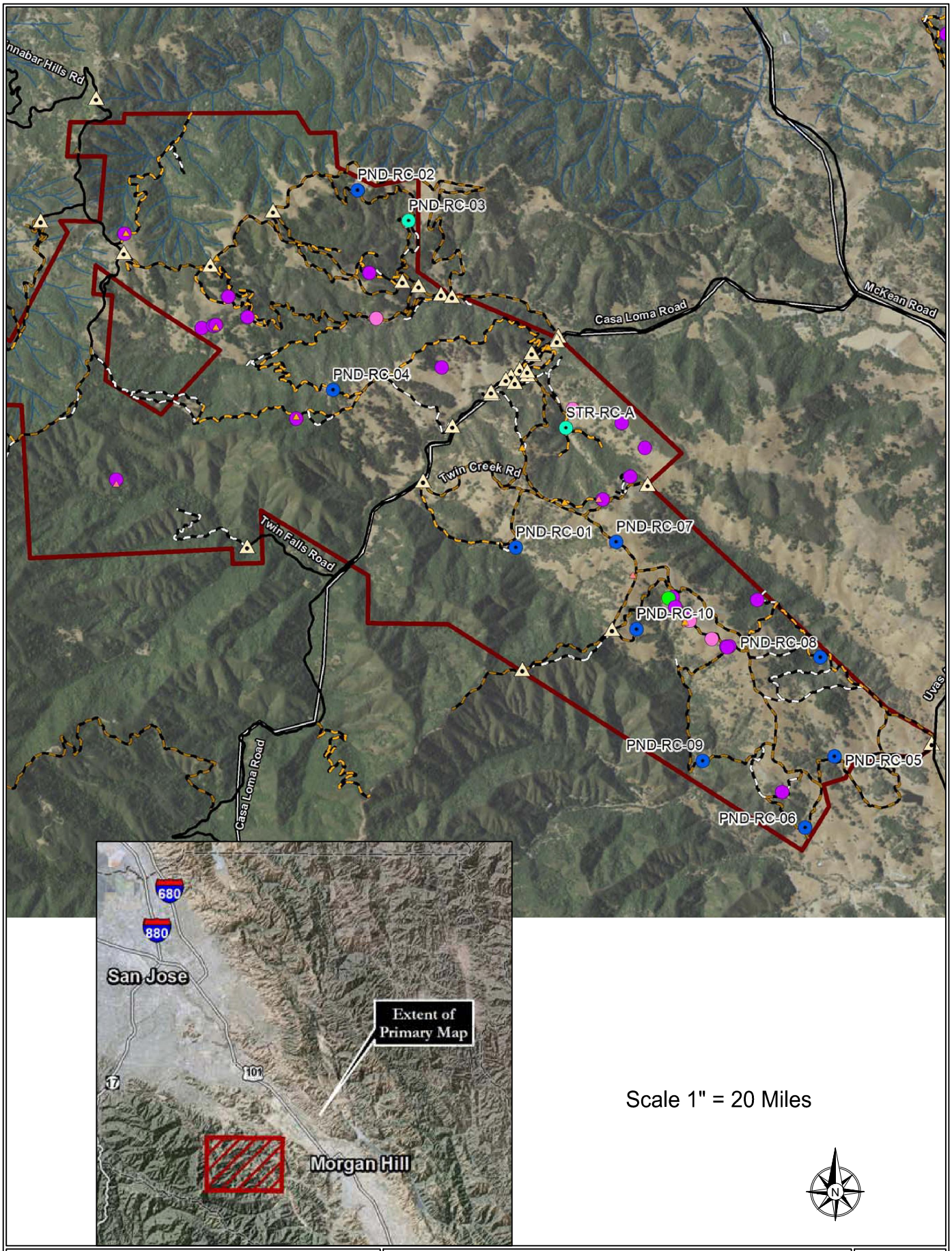
APPENDIX B

FIELD EXPLORATION PROGRAM

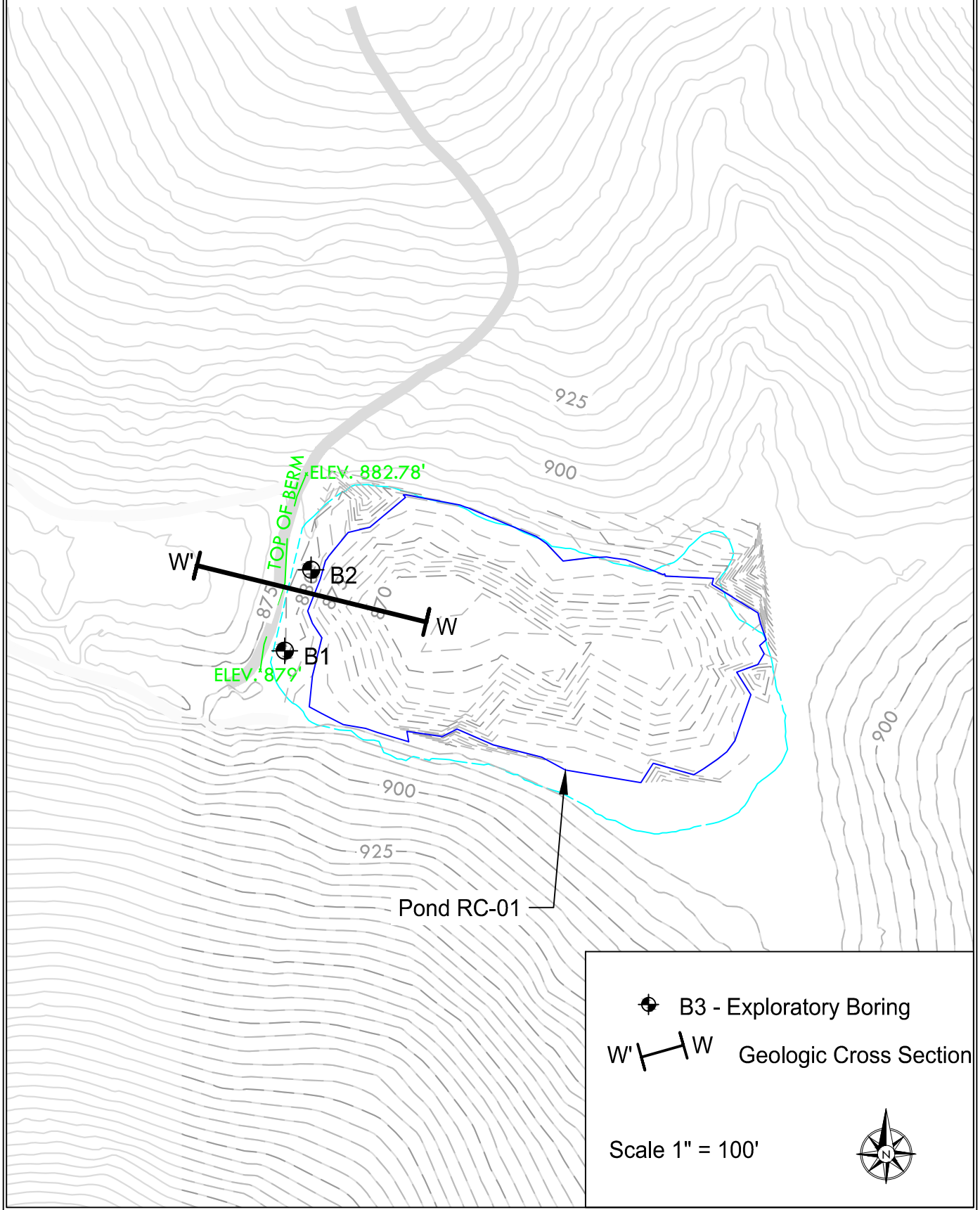
FIELD EXPLORATION PROCEDURES

Subsurface conditions were explored by advancing 8 borings below existing grade. The borings were advanced using a six-inch diameter hollow stem auger on a track mounted drill rig. The Key to The Logs and the Logs of the Borings are included in Appendix B, Figures B-3 through B-11. The approximate locations of the borings are shown on the Boring Site Plan, Figures B-2a through B-2d. The boring holes were located in the field by tape measurements from known landmarks. Their locations as shown are therefore within the accuracy of such measurement.

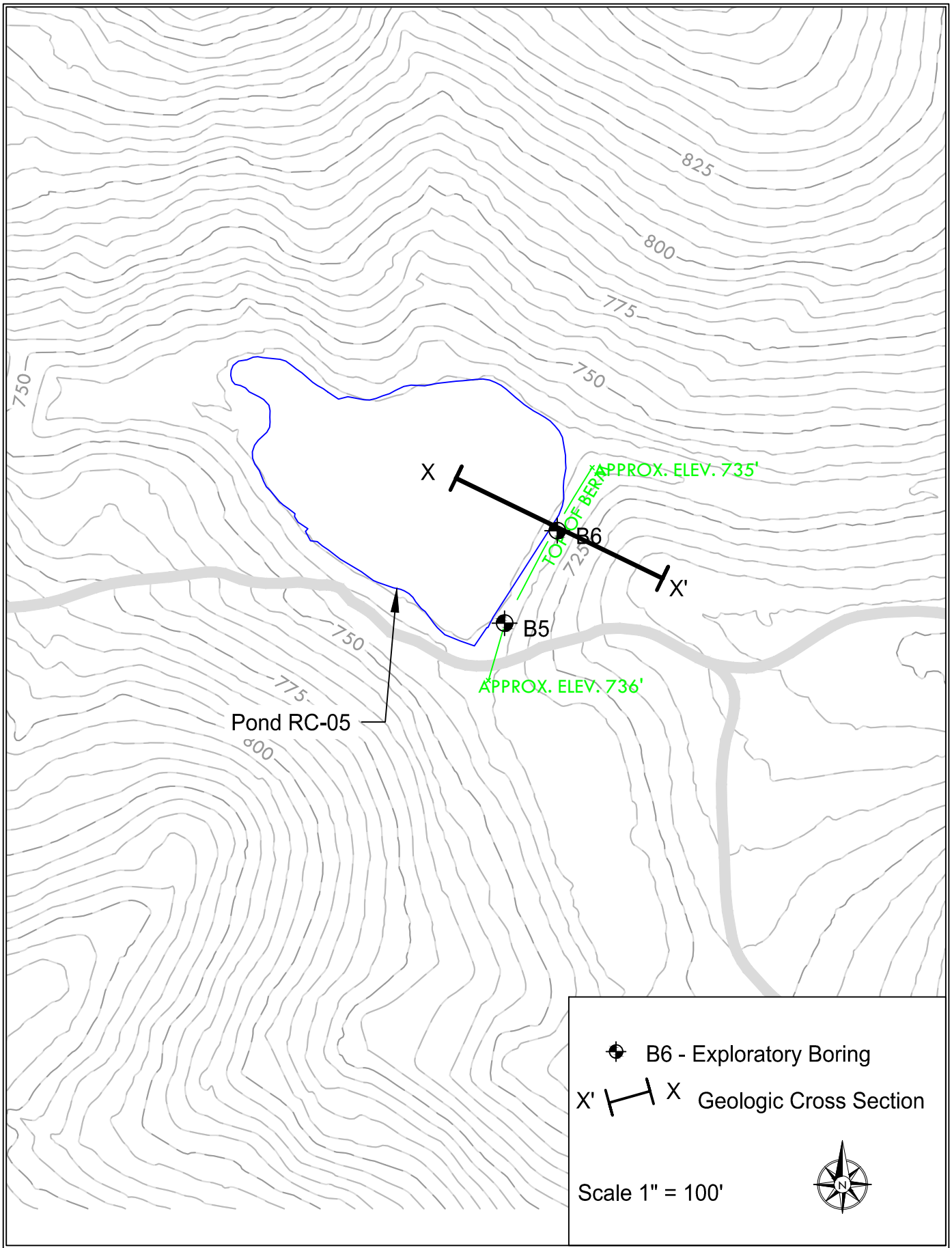
The soils encountered in the borings were continuously logged in the field by a representative of Butano Geotechnical Engineering, Inc. Bulk and relatively undisturbed soil samples for identification and laboratory testing were obtained in the field. These soils were classified based on field observations and laboratory tests. The classifications are accordance with the Unified Soil Classification System (USCS: Figure B-3). Cross-sections of the fill embankments and underlying native soil/rock are shown on Figures B-12 through B-15 and are based on the provided topographic data and our borings.



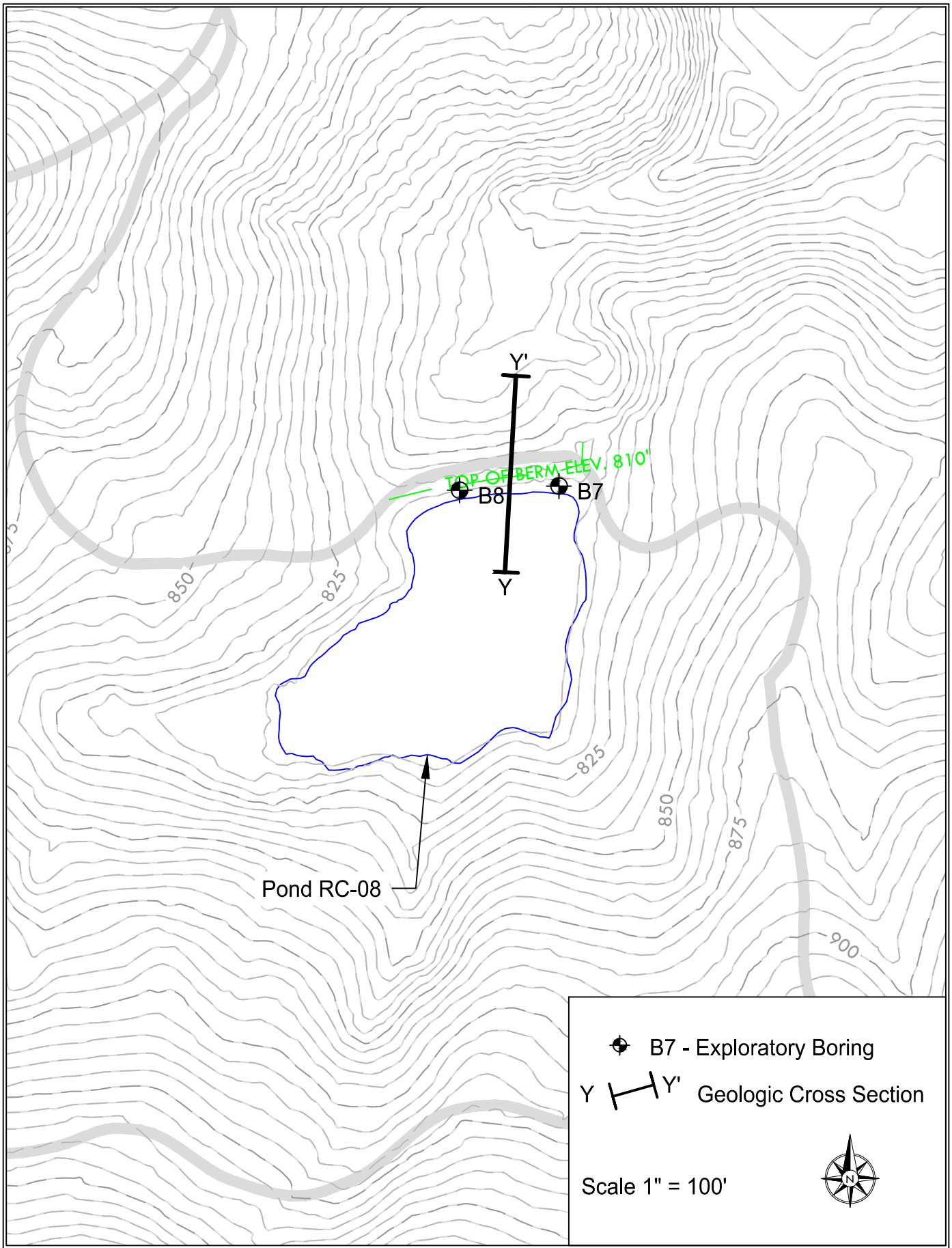
BUTANO	***SITE LOCATION PLAN***	*FIGURE*
GEOTECHNICAL ENGINEERING, INC.	RCOSP - Pond RC-01, 05, 08, 10	*B-1*



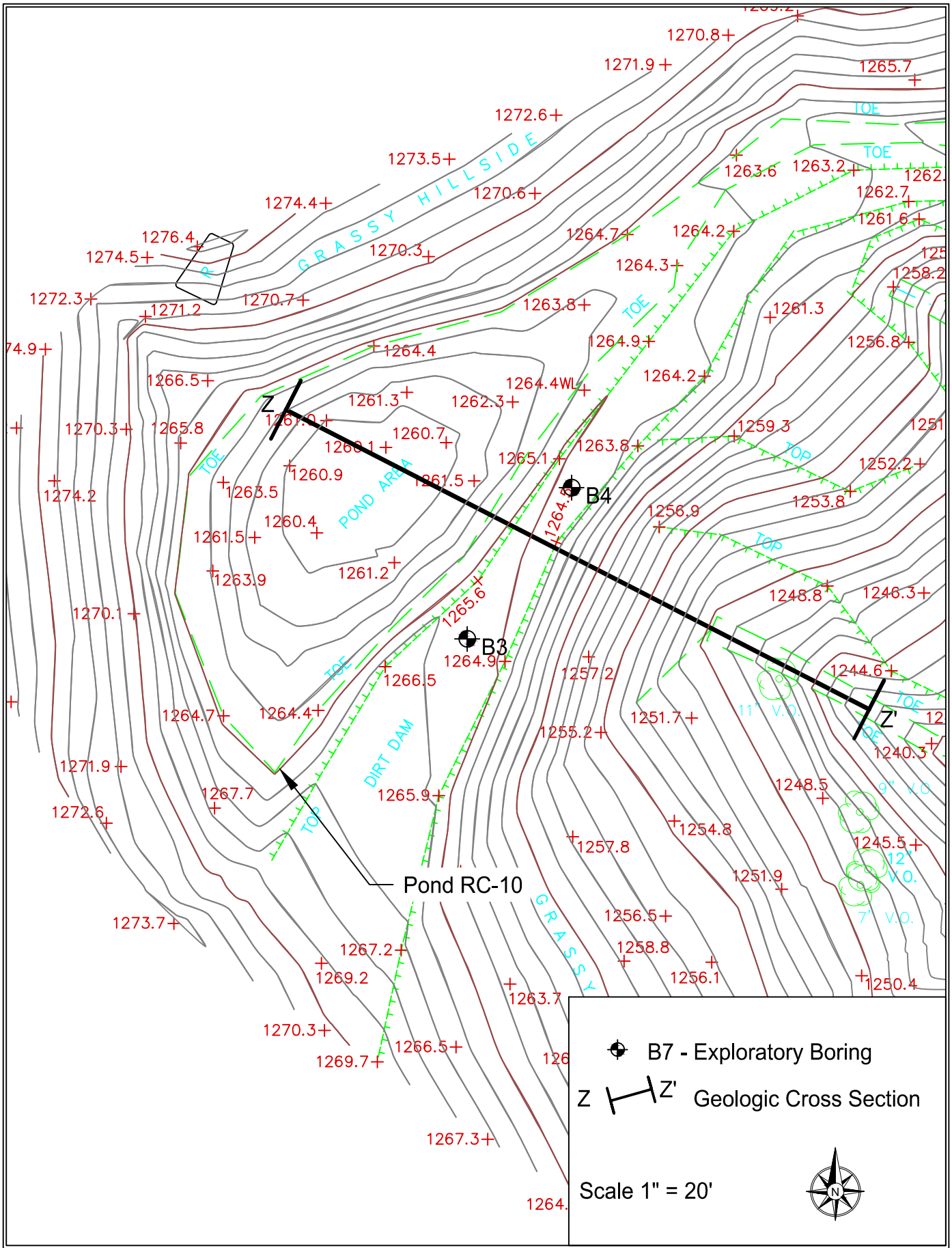
BUTANO GEOTECHNICAL ENGINEERING, INC.	**BORING SITE PLAN** RCOSP - Pond RC-01	FIGURE B-2A



BUTANO GEOTECHNICAL ENGINEERING, INC.	**BORING SITE PLAN** RCOSP - Pond RC-05	FIGURE B-2b



BUTANO GEOTECHNICAL ENGINEERING, INC.	**BORING SITE PLAN** RCOSP - Pond RC-08	FIGURE B-2C



BUTANO	**BORING SITE PLAN**	*FIGURE*
GEOTECHNICAL ENGINEERING, INC.	RCOSP - Pond RC-10	*B-2D*

KEY TO LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS More than half of the material is larger than the No. 200 sieve	GRAVELS More than half of the coarse fraction is larger than the No. 4 sieve	CLEAN GRAVELS (Less than 5% fines)	GW	Well graded gravels, gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines
	SANDS More than half of the coarse fraction is smaller than the No. 4 sieve	CLEAN SANDS (Less than 5% fines)	SW	Well graded sands, gravelly sands, little or no fines
			SP	Poorly graded sands, gravelly sands, little or no fines
		SAND WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines
			SC	Clayey sands, sand-clay mixtures, plastic fines
FINE GRAINED SOILS More than half of the material is smaller than the No. 200 sieve	SILTS AND CLAYS Liquid limit less than 50		ML	Inorganic silts and very fine sands, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50		MH	Inorganic silts, micaceous or diatomacaceous fine sandy or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils

GRAIN SIZE LIMITS

SILT AND CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		
No. 200	No. 40	No. 10	No. 4	3/4 in.	3 in.	12 in.	

US STANDARD SIEVE SIZE

RELATIVE DENSITY	
SAND AND GRAVEL	BLOWS/FT*
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

CONSISTENCY	
SILT AND CLAY	BLOWS/FT*
VERY SOFT	0 - 2
SOFT	2 - 4
FIRM	4 - 8
STIFF	8 - 16
VERY STIFF	16 - 32
HARD	OVER 32

MOISTURE CONDITION	
CLAY	DRY
	MOIST
	SATURATED
SAND	DRY
	DAMP
	WET
	SATURATED

* Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1 3/8 inch I.D.) split spoon (ASTM D-1586).

LOG OF EXPLORATORY BORING

Project No.:	19-169-SCL	Boring:	B1
Project:	Rancho Canada	Location:	Pond 1
		Elevation:	
Date:	June 13, 2019	Method of Drilling:	6 inch hollow stem track mounted drill
Logged By:	GB		

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Static Water Table

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	SC (FILL)			Reddish brown clayey SAND with gravel to 1/2" dia., loose, moist (fill)	18	8	105.1	12.9					
					6	5		13.0					
5				loose (fill)	9	8		14.2		✓			
10				medium dense (fill) ▽	10	10		18.0					
15	CL			Brown and grayish blue sandy lean CLAYy, stiff, moist (Alluvium)	9	10		22.3					
	BR			Gray graywacke SANDSTONE, dense, highly fractured									
20					58	80		12.4					
				Boring terminated at a depth of 21 1/2 feet. Groundwater measured at a depth of 11 feet on 6-18-2019.									
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.:	19-169-SCL	Boring:	B2
Project:	Rancho Canada	Location:	Pond 1
		Elevation:	
Date:	June 13, 2019	Method of Drilling:	6 inch hollow stem track mounted drill
Logged By:	GB		

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Static Water Table

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	SC (FILL)			Orange brown clayey SAND with gravel to 1/2" dia., medium dense, slightly moist (fill)	12	11		10.7					
5				loose (fill)	7	6		14.2		✓			
10				soft, saturated (fill)	3	3		23.1		✓			
15	CL			Grayish blue sandy lean CLAY with gravel, stiff, saturated (Alluvium)	13	12	112.5	17.9			3060		
20				stiff	7	8	17.6						
25	BR			Gray clayey gravel with SAND, medium dense (intensely weathered rock) hard drilling at 27 feet	10	12	12.7						
30				Gray graywacke SANSTONE, dense, highly fractured	38	55	11.6						
				Boring terminated at a depth of 31 1/2 feet. Groundwater measured at a depth of 8 feet on 6-18-2019.									
35													

BUTANO GEOTECHNICAL ENGINEERING, INC.

FIGURE B-5

LOG OF EXPLORATORY BORING

Project No.: 19-169-SCL
Project: Rancho Canada
Date: June 13, 2019
Logged By: GB

Boring: B3
Location: Pond 10
Elevation:
Method of Drilling: 6 inch hollow stem track mounted drill

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Static Water Table

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	CL (FILL)			Brown sandy lean CLAY with trace gravel, stiff, slightly moist (fill)	14	10	102.2	10.6					
				stiff									
5					6	5		10.8					
				brown lean CLAY, stiff, moist (fill)									
					7	5	109.2	16.7			3520		
10	CH			Gray fat CLAY, very stiff, moist (intensely weathered rock- regolith)	26	22		12.1			3985		
15	BR			Gray/white SERPENTINE, medium dense, highly weathered, seams of fat clay within coarse grained sandstone	21	27		15.0					
20				Boring terminated at a depth of 16 1/2 feet. No groundwater encountered or detected after drilling									
25													
30													
35													

BUTANO GEOTECHNICAL ENGINEERING, INC.

FIGURE B-6

LOG OF EXPLORATORY BORING

Project No.:	19-169-SCL	Boring:	B4
Project:	Rancho Canada	Location:	Pond 10
		Elevation:	
Date:	June 13, 2019	Method of Drilling:	6 inch hollow stem track mounted drill
Logged By:	GB		

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Static Water Table

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	CL (FILL)			Brown sandy lean CLAY, stiff, slightly moist (fill)	9	7	94.7	9.8				34	13
5				stiff, trace gravel (fill)	6	5		10.8					
					12	9	118.3	4.7			5700		
10	CH			Gray fat CLAY, very stiff, moist (intensely weathered rock- regolith)	12	10	123.2	6.8			4010		
15	BR			Gray/white SERPENTINE, medium dense, highly weathered, seams of fat clay within coarse grained sandstone	22	28		8.7					
20				Boring terminated at a depth of 16 1/2 feet. No groundwater encountered or detected after drilling									
25													
30													
35													

BUTANO GEOTECHNICAL ENGINEERING, INC.

FIGURE B-7

LOG OF EXPLORATORY BORING

Project No.: 19-169-SCL
Project: Rancho Canada
Date: June 26, 2019
Logged By: GB

Boring: B5
Location: Pond 5
Elevation:
Method of Drilling: 6 inch hollow stem track mounted drill

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Static Water Table

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	SM (FILL)			Brown silty SAND with gravel and trace clay, loose, damp, angular gravel to 2" dia. (fill)	10	4	110.3	11.5					
					5	4		11.1					
5					5	4		13.3					
	CH (FILL)			(encountered large root at 6 1/2 feet) Gray/brown sandy lean CLAY, firm, moist (fill)									
10					11	6	116.4	8.0		✓	4010	41	21
15	SC			Gray clayey SAND with gravel, loose, moist, gravel to 1 1/2" dia. (alluvium)	13	7	108.0	18.9					
	BR			Gray graywacke SANDSTONE, dense, highly fractured									
20					42	58		10.5					
25				▽	46	66		14.3					
				Boring terminated at a depth of 26 1/2 feet. Groundwater measured at a depth of 26 feet on 6-26-2019.									
30													
35													

BUTANO GEOTECHNICAL ENGINEERING, INC.

FIGURE B-8

LOG OF EXPLORATORY BORING

Project No.:	19-169-SCL	Boring:	B6
Project:	Rancho Canada	Location:	Pond 5
		Elevation:	
Date:	June 26, 2019	Method of Drilling:	6 inch hollow stem track mounted drill
Logged By:	GB		

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Static Water Table

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	SM (FILL)			Brown silty SAND with gravel and trace clay, loose, damp, angular gravel to 2" dia. (fill)	8	7		13.8					
5	CL (FILL)			Brown sandy lean CLAY with gravel, firm, slightly moist (fill)	7	6		7.4		✓			
	SC (FILL)			Gray/brown clayey SAND, loose, moist									
10					10	5	113.9	15.9			2920		
15					10	6		8.0				33	15.7
	BR			Gray sandy fat CLAY, firm, moist (SERPENTINE)									
20					5	6		18.2					
25				very stiff	11	14		17.0					
30				Gray clayey SAND, dense (serpentine)	35	51		17.0					
				Boring terminated at a depth of 31 1/2 feet. No groundwater encountered during drilling.									
35													

LOG OF EXPLORATORY BORING

Project No.:	19-169-SCL	Boring:	B7
Project:	Rancho Canada	Location:	Pond 8
		Elevation:	
Date:	June 26, 2019	Method of Drilling:	6 inch hollow stem track mounted drill
Logged By:	GB		

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Static Water Table

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	SM (FILL)			Brown clayey SAND with gravel, loose, moist, gravel to 3/4" diameter (fill)	10	4	112.6	13.1					
				loose (fill)	3	3		12.5		✓			
5					9	4	113.6	14.6					
	CL (FILL)			Gray lean CLAY, stiff, moist (fill)									
10				▽	17	14		13.8			1920	33	15.7
15	SC			Gray lean CLAY, stiff, saturated (intensely weathered rock- regolith)	9	10		15.8					
20					12	12	121.3	15.1			1700		
	BR			Gray clayey SAND with gravel, very dense, highly fractured (SERPENTINE)									
25					53	76		9.4					
				Boring terminated at a depth of 26 1/2 feet. Groundwater measured at a depth of 12 feet on 6-26-2019.									
30													
35													

BUTANO GEOTECHNICAL ENGINEERING, INC.

FIGURE B-10

LOG OF EXPLORATORY BORING

Project No.:	19-169-SCL	Boring:	B8
Project:	Rancho Canada	Location:	Pond 8
		Elevation:	
Date:	June 26, 2019	Method of Drilling:	6 inch hollow stem track mounted drill
Logged By:	GB		

2" Ring Sample | 2.5" Ring Sample | Bulk Sample | Terzaghi Split Spoon Sample | Static Water Table

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	SM (FILL)			Brown clayey SAND with gravel, loose, moist, gravel to 1/2" diameter (fill)	8	4	108.9	12.0			1710		
				loose (fill)	3	3		13.4					
5					9	4	109.9	15.6			1820		
	CL (FILL)			Gray lean CLAY, stiff, moist (fill)									
10					6	6		14.6					
15					10	9	118.8	15.5					
20	BR			Gray sandy lean CLAY with gravel, firm (SERPENTINE)	6	7		16.1					
25				clayey SAND with gravel, medium dense	14	18		12.1					
30				medium dense	39	23	135.4	8.0					
				Boring terminated at a depth of 31 1/2 feet. Groundwater measured at a depth of 12 feet on 6-26-2019.									
35													

BUTANO GEOTECHNICAL ENGINEERING, INC.

FIGURE B-11

GEOTECHNICAL ENGINEERING, INC.

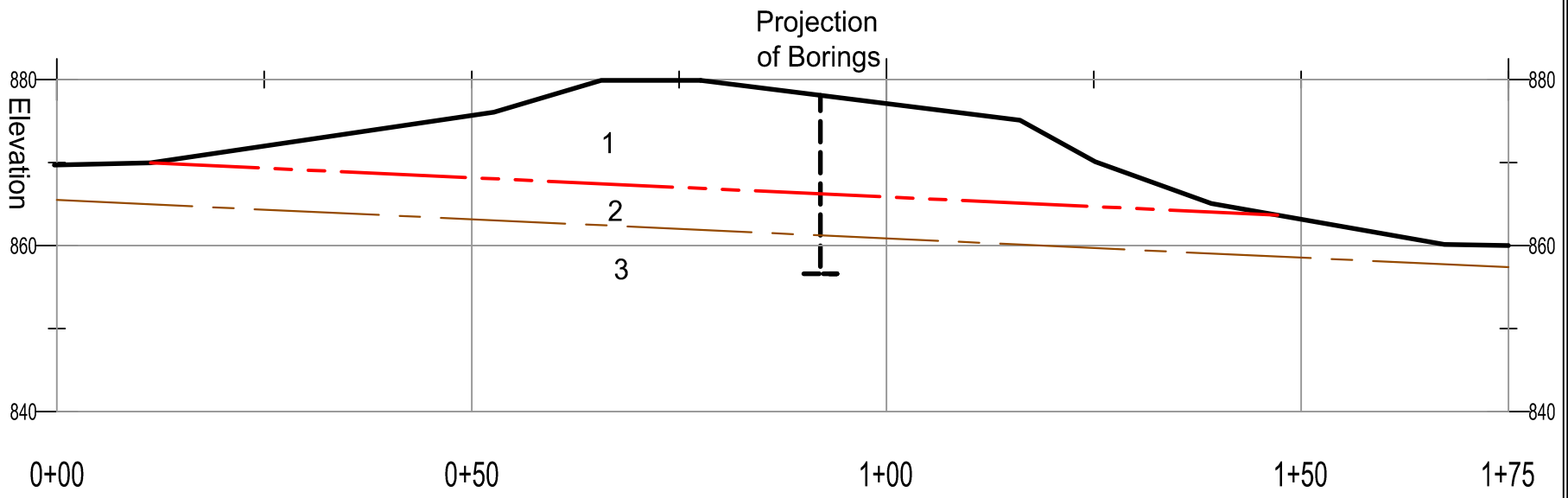
BUTANO

RCOSP - Pond RC-01

CROSS SECTION W-W"

FIGURE

B-12

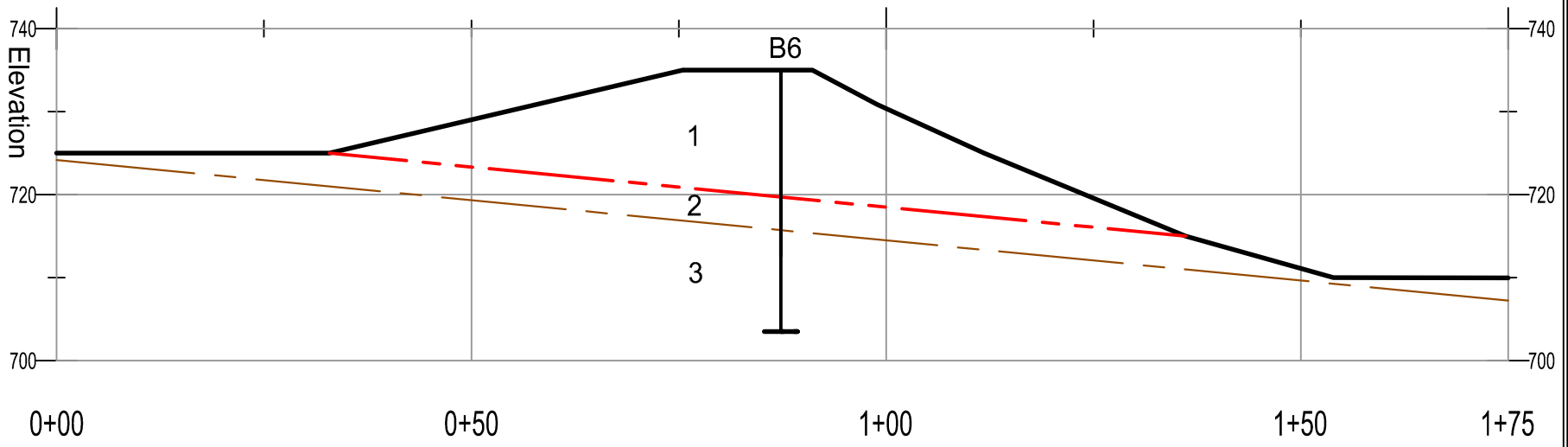


Legend

Scale 1" = 20'

1. Af (Embankment Fill) - Clayey sand and sandy lean clay with gravel, loose
2. Alluvium (Qa) - Sandy lean clay, stiff
3. Graywacke (fs) - Graywacke sandstone, dense, fractured

Exploratory Boring



Legend

Scale 1" = 20'

1. Af (Embankment Fill) - Silty sand (loose), clayey sand and sandy lean clay (stiff)
2. Alluvium (Qa) - Clayey sand with gravel, loose
3. Serpentine (Sp) - Serpentine, medium dense/stiff and Graywacke (fs) - Graywacke sandstone, very dense

Exploratory Boring

GEOTECHNICAL ENGINEERING, INC.

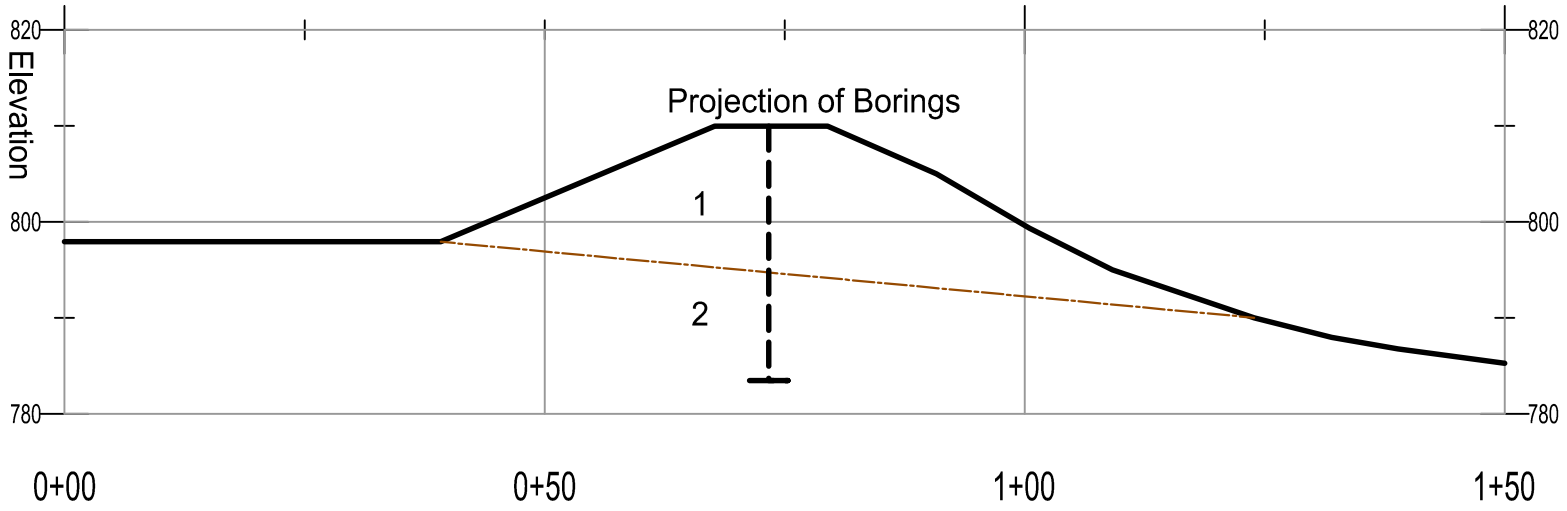
BUTANO

RCOSP - Pond RC-05

CROSS SECTION X-X'

FIGURE

B-13



Legend

Scale 1" = 20'

1. Af (Embankment Fill) - Clayey sand with gravel (loose), and lean clay (stiff)
2. Serpentine (fs) - Serpentine, medium dense/stiff, weathered into lean clay in upper 8 feet

Exploratory Boring

GEOTECHNICAL ENGINEERING, INC.

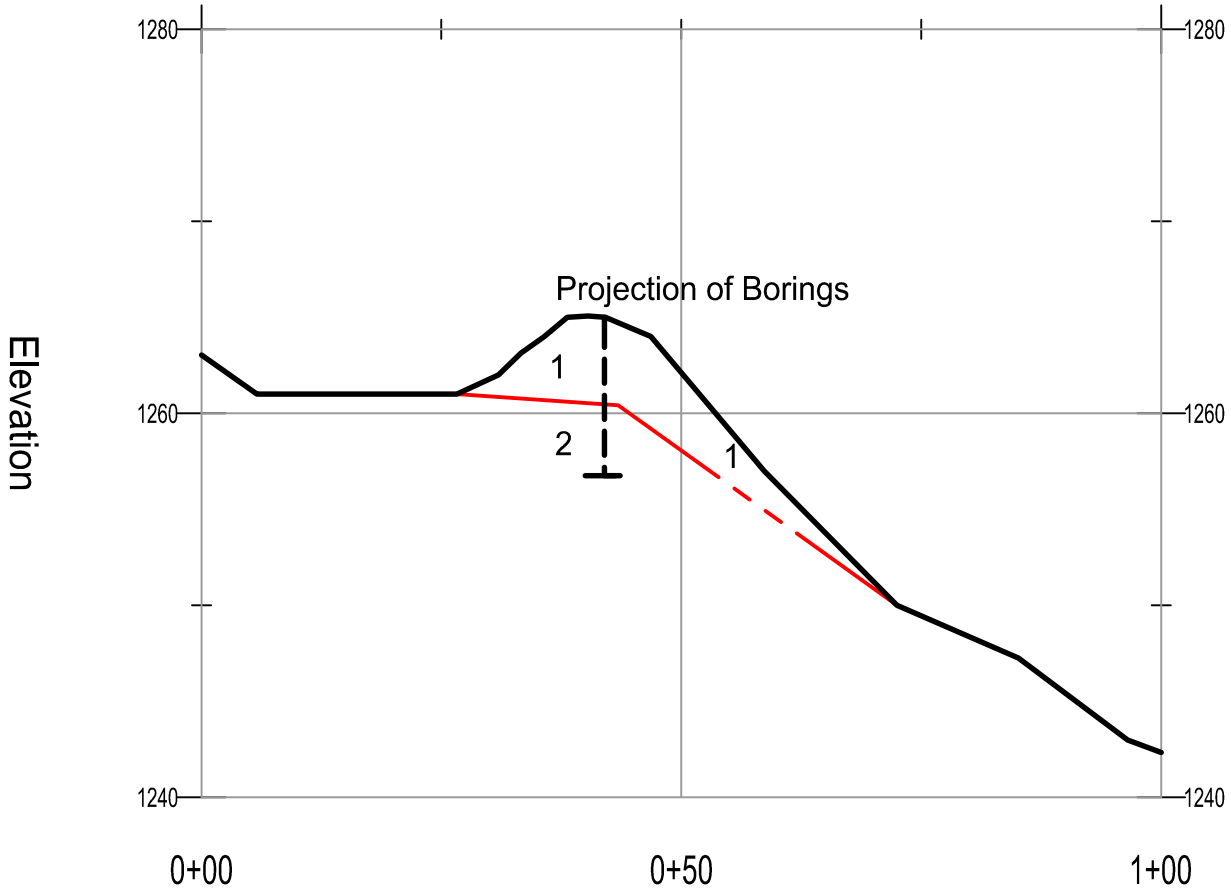
BUTANO

RCOSP - Pond RC-08

CROSS SECTION Y-Y'

FIGURE

B-14



Legend

Scale 1" = 20'

1. Af (Embankment Fill) - Sandy lean clay, stiff
2. Serpentine (fs) - Serpentine, medium dense, upper 3 to 4 feet has weathered into clay

Exploratory Boring

BUTANO	***CROSS SECTION Z-Z'***	*FIGURE*
GEOTECHNICAL ENGINEERING, INC.	RCOSP - Pond RC-10	*B-15*

APPENDIX C

LABORATORY TESTING PROGRAM

LABORATORY TESTING PROCEDURES

Classification

Soils were classified according to the Unified Soil Classification System in accordance with ASTM D 2487 and D 2488. Moisture content and density determinations were made for representative samples in accordance with ASTM D 2216. Results of moisture density determinations, together with classifications, are shown on the Boring Logs, Figures B-4 through B-11.

Unconfined Compression

Ten unconfined compression tests were performed in accordance with ASTM D 2166. The results are shown on the Boring Logs.

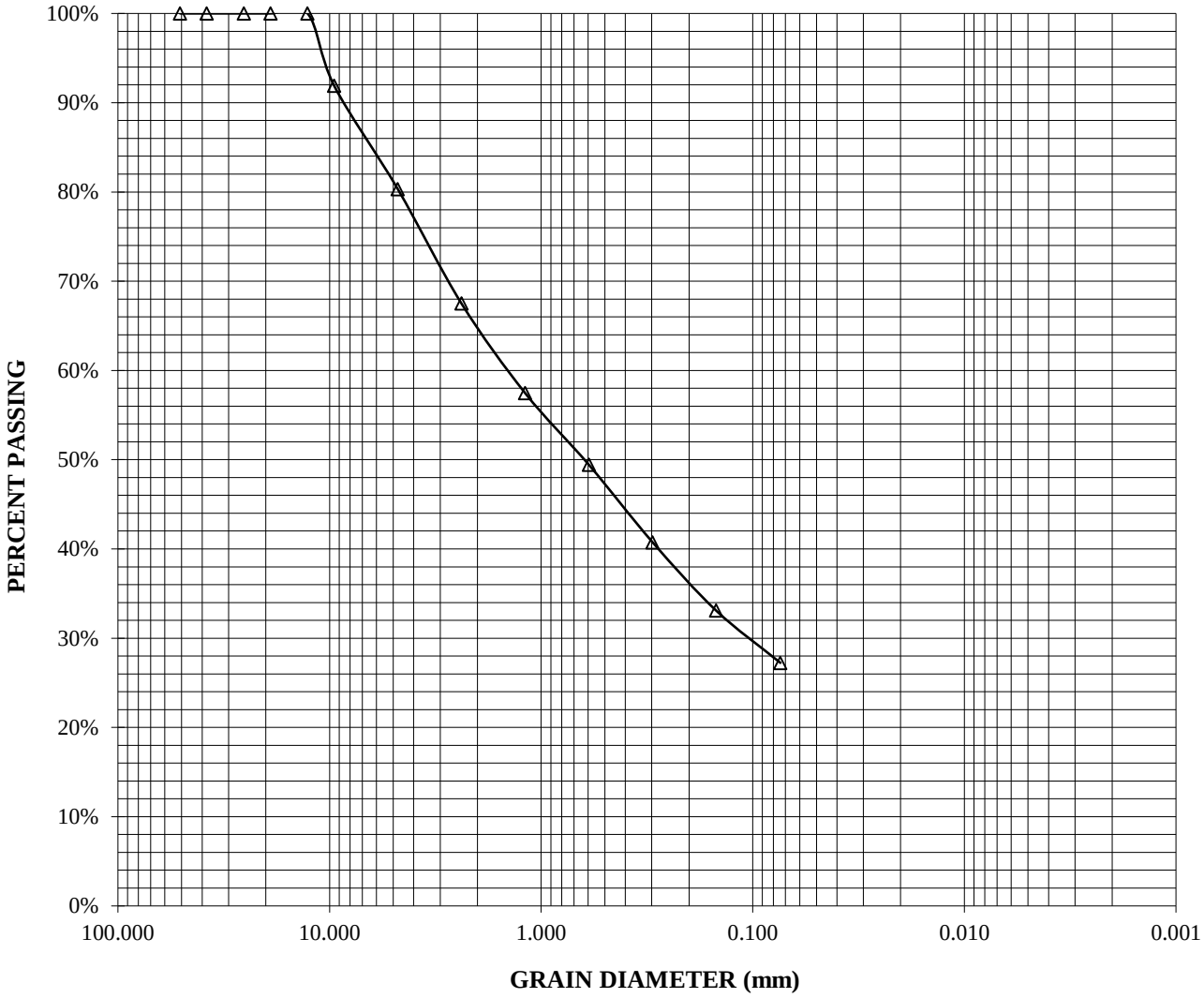
Particle Size Analysis

Five sieves were performed on representative samples in accordance with ASTM C 117 and C 136. The grain size distribution from the results of the particle size analyses are shown on Figures C-1 through C-5.

Atterberg Limits

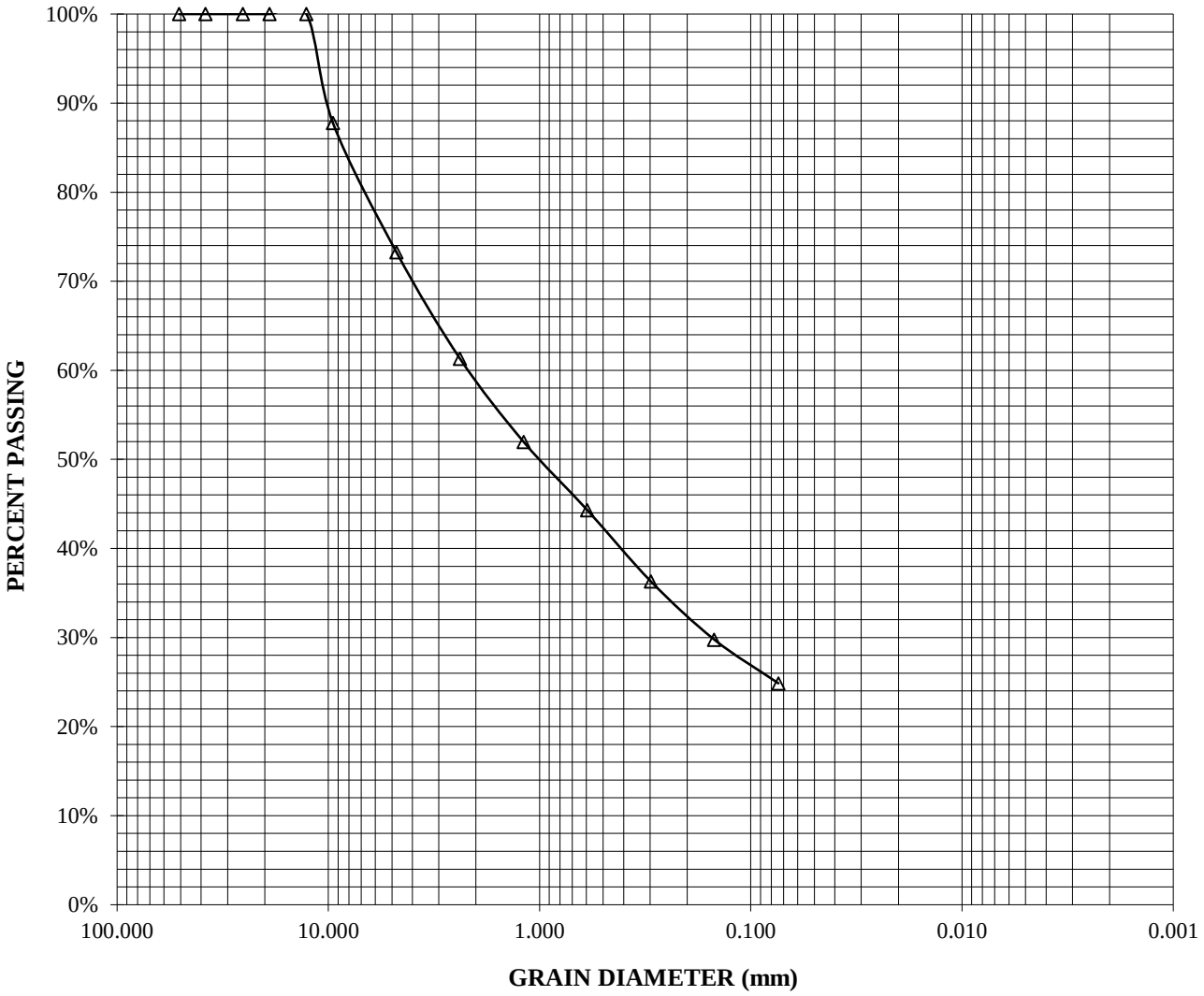
Four Atterberg limits tests were performed in accordance with ASTM D-4318. The results are shown on the Boring Logs.

BORING:	B1-3	PERCENT	PERCENT
DEPTH (ft):	5.0	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SC	80.3%	27.2%



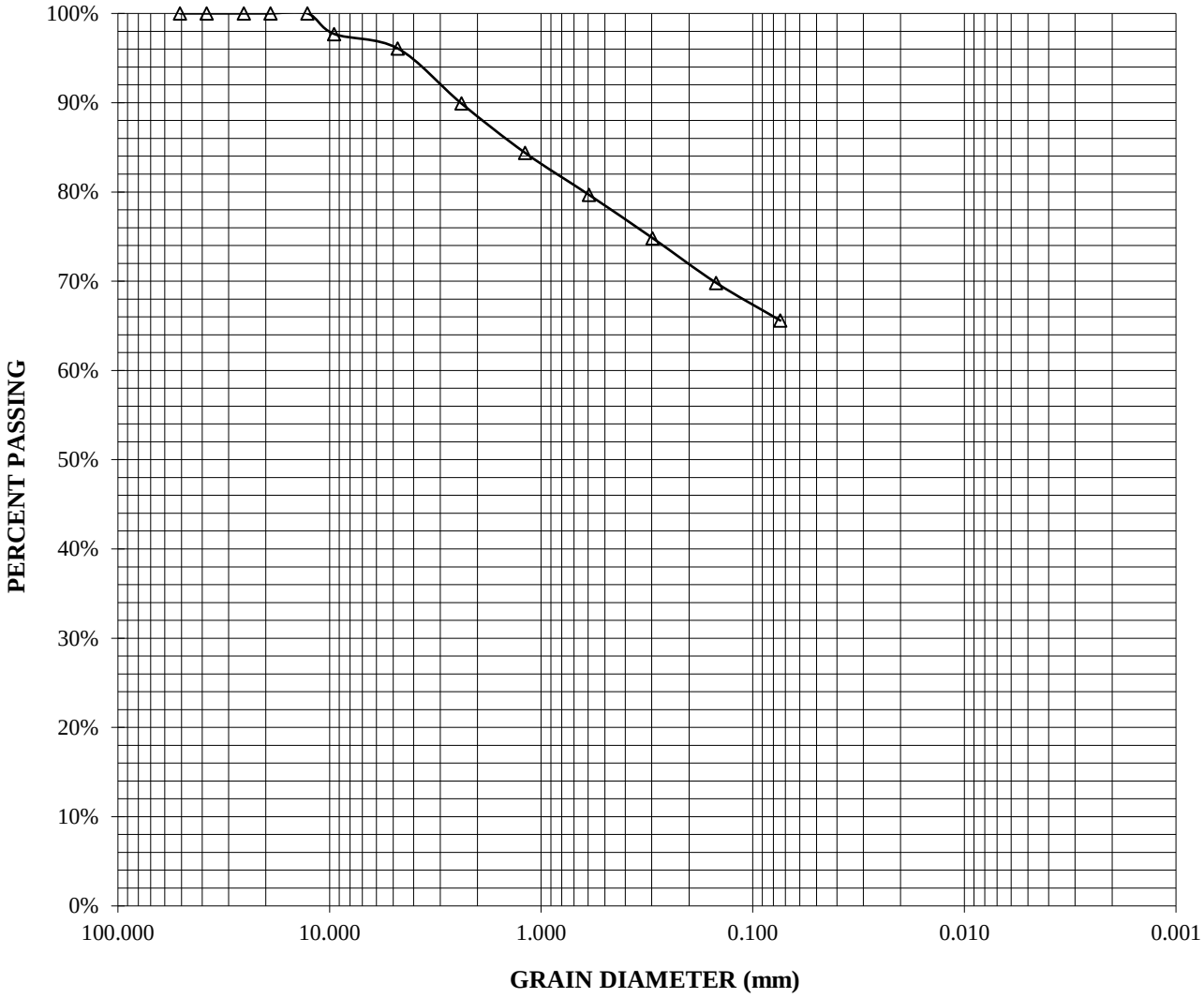
BUTANO	**GRAIN SIZE DISTRIBUTION**	FIGURE
GEOTECHNICAL ENGINEERING, INC.	RCOSP Ponds	C-1

BORING:	B2-2	PERCENT	PERCENT
DEPTH (ft):	5.0	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SC	73.3%	24.9%



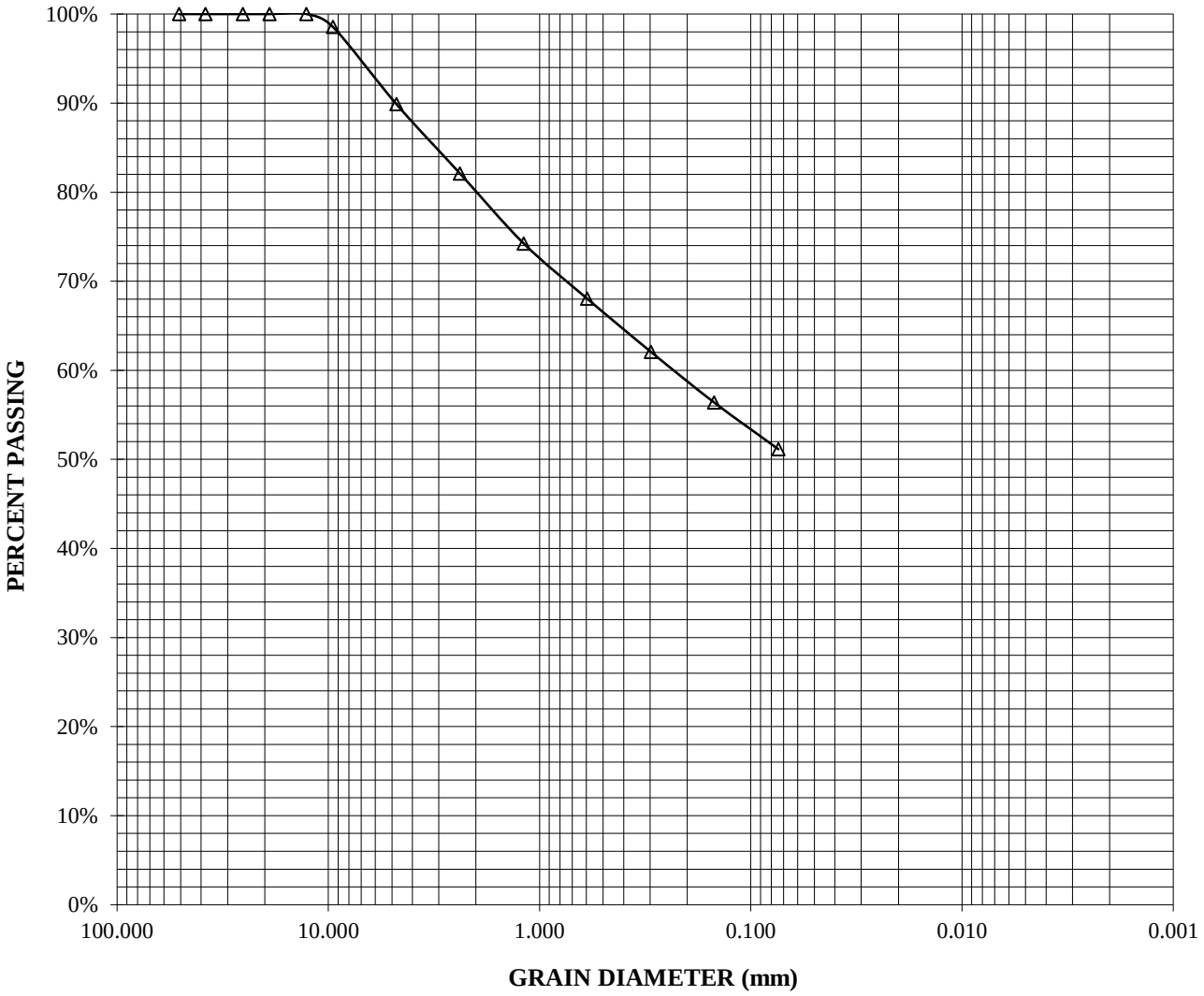
BUTANO	**GRAIN SIZE DISTRIBUTION**	FIGURE
GEOTECHNICAL ENGINEERING, INC.	RCOSP Ponds	C-2

BORING:	B5-4	PERCENT	PERCENT
DEPTH (ft):	10	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	CL	96.1%	65.6%



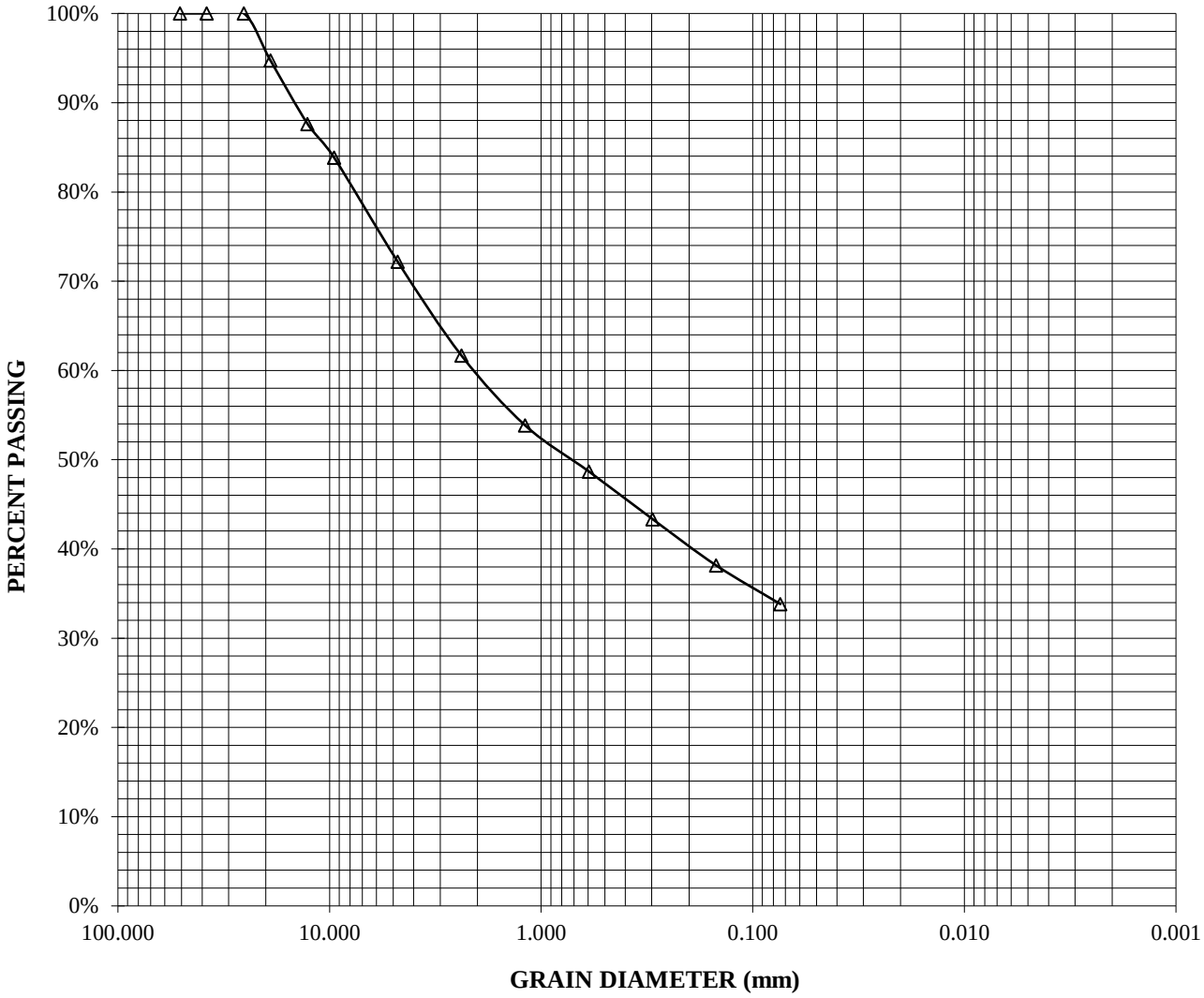
BUTANO	**GRAIN SIZE DISTRIBUTION**	FIGURE
GEOTECHNICAL ENGINEERING, INC.	RCOSP Ponds	C-3

BORING:	B6-2	PERCENT	PERCENT
DEPTH (ft):	5	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	CL	89.9%	51.1%



BUTANO	**GRAIN SIZE DISTRIBUTION**	FIGURE
GEOTECHNICAL ENGINEERING, INC.	RCOSP Ponds	C-4

BORING:	B7-2	PERCENT	PERCENT
DEPTH (ft):	3.5	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	SC	72.2%	33.8%



BUTANO	**GRAIN SIZE DISTRIBUTION**	FIGURE
GEOTECHNICAL ENGINEERING, INC.	RCOSP Ponds	C-5

APPENDIX D

SLOPE STABILITY PROGRAM

METHODOLOGY

Slope stability calculations were performed on the cross-sections and slopes discussed under the Slope Stability section of this report and are considered representative of the ranges of conditions at the site.

The stability of the slope was analyzed using the computer program ReSSA 3.0 by ADAMA Engineering, Inc., 2016. This program utilizes a limiting equilibrium method for determining the Factor of Safety against sliding on an assumed failure surface. The cross-section analyzed and the result of the analysis is presented in the attached summary.

Material properties chosen for these analyses are based on field and laboratory tests and our experience.

The slope was analyzed under wet static and seismic conditions for a full pond.

It must be cautioned that slope stability analysis is an inexact science; and that the mathematical models of the slopes and soils contain many simplifying assumptions, not the least of which is homogeneity. Slope stability analyses and the generated factors of safety should be used as indicating trend lines. A slope with a safety factor less than one will not necessarily fail, but the probability of slope movement will be greater than a slope with a higher safety factor. Conversely, a slope with a safety factor greater than one may fail, but the probability of stability is higher than a slope with a lower safety factor.

RCOSP - Pond RC-01

Report created by ReSSA(3.0): Update #4.21: Copyright (c) 2001-2016, ADAMA Engineering, Inc.

PROJECT IDENTIFICATION

Title:	RCOSP - Pond RC-01
Project Number:	19-169-SCL -
Client:	RCOSP
Designer:	Philip Edwards

Description:
RC-01 Static

Company's information:

Name:	Butano Geotechnical Engineering Inc
Street:	231 Green Valley Road Suite E Freedom, CA 95019
Telephone #:	831.724.2612
Fax #:	
E-Mail:	

Original file path and name: C:\Users\B ..... Open Space\Engineering\19-169-SCL RC-01 Static.MSE
Original date and time of creating this file: Thu Nov 22 09:52:46 2018

PROGRAM MODE: Analysis of a General Slope using NO reinforcement material.

INPUT DATA (EXCLUDING REINFORCEMENT LAYOUT)

SOIL DATA

========== Soil Layer #: ==========	Unit weight, γ [lb/ft ^{3}]	Internal angle of friction, ϕ [deg.]	Cohesion, c [lb/ft ^{2}]
1	120.0	30.0	100.0
2	130.0	0.0	1500.0
3	135.0	40.0	1000.0

REINFORCEMENT

Analysis of slope WITHOUT reinforcement.

WATER

Unit weight of water = 62.45 [lb/ft ^{3}]
Water pressure is defined by phreatic surface in Effective Stress Analysis.

SEISMICITY

Not Applicable

DRAWING OF SPECIFIED GEOMETRY - GENERAL - Quick Input

-- Problem geometry is defined along sections selected by user at x,y coordinates.
-- X1,Y1 represents the coordinates of soil surface. X2,Y2 represent the coordinates of the end of soil layer 1 and start of soil layer 2, and so on.
-- Xw,Yw represents the coordinates of phreatic surface.

GEOMETRY

Soil profile contains 3 layers (see details in next page)

WATER GEOMETRY

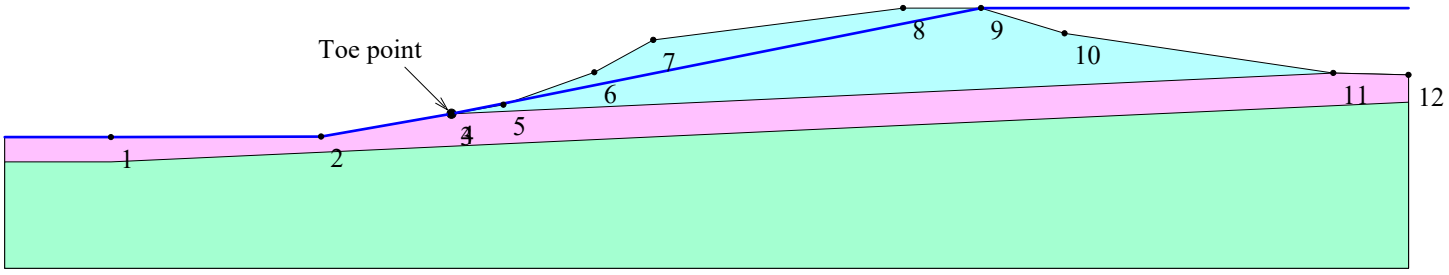
Phreatic line was specified.

UNIFORM SURCHARGE

Surcharge load, Q1.....None
Surcharge load, Q2.....None
Surcharge load, Q3.....None

STRIP LOAD

.....None.....



SCALE:

0246[ft]

TABULATED DETAILS OF GEMERAL SPECIFIED GEOMETRY

Soil profile contains 3 layers. Coordinates in [ft.]
Water was described by phreatic line.

	#	Xi	Yi
Top of Layer 1	1	0.00	0.00
	2	32.40	0.10
	3	52.50	3.60
	4	60.50	5.00
	5	74.50	10.00
	6	83.60	15.00
	7	122.10	19.90
	8	134.10	19.90
	9	147.00	16.00
	10	188.40	9.90
	11	200.00	9.60
Top of Layer 2	12	0.00	0.00
	13	32.40	0.10
	14	52.50	3.60
	15	188.40	9.90
	16	200.00	9.60
Top of Layer 3	17	0.00	-3.80
	18	200.00	5.40
Top of Phreatic Line	20	0.00	0.00
	21	32.40	0.10
	22	52.40	3.60
	23	134.10	19.90

TABULATED DETAILS OF SPECIFIED GEOMETRY

Soil profile contains 3 layers. Coordinates in [ft.]
Water was described by phreatic line. Y values are tabulated in the right most column.

#	X	Y1	Y2	Y3	Yw (phreatic)
1	0.00	0.00	0.00	-3.80	0.00
2	32.40	0.10	0.10	-2.31	0.10
3	52.40	3.58	3.58	-1.39	3.60
4	52.50	3.60	3.60	-1.38	3.62
5	60.50	5.00	3.97	-1.02	5.22
6	74.50	10.00	4.62	-0.37	8.01
7	83.60	15.00	5.04	0.05	9.82
8	122.10	19.90	6.83	1.82	17.51
9	134.10	19.90	7.38	2.37	19.90
10	147.00	16.00	7.98	2.96	19.90
11	188.40	9.90	9.90	4.87	19.90
12	200.00	9.60	9.60	5.40	19.90

RESULTS OF ROTATIONAL STABILITY ANALYSIS

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each entry point (considering all specified exit points)

Entry Point #	Entry Point (X, Y) [ft]		Exit Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
1	80.00	13.02	63.16	5.99	68.92	15.87	11.44	2.63	
. 2	97.00	16.71	63.10	5.99	72.32	35.81	31.21	2.20 .	OK
3	114.00	18.87	55.24	4.09	59.10	112.96	108.94	2.57	
4	131.00	19.90	54.56	4.10	58.35	178.65	174.58	2.79	
5	148.00	15.85	54.57	4.08	47.79	434.48	430.46	3.45	
6	165.00	13.35	54.90	4.08	40.89	829.41	825.44	4.29	
7	182.00	10.84	55.24	4.09	-65.43	3461.31	3459.32	5.43	
8	199.00	9.63	-0.86	0.61	93.29	133.23	162.64	9.00	
9	216.00	9.60	-0.79	0.53	101.52	150.52	181.55	10.09	
10	233.00	9.60	-0.71	0.47	109.74	168.98	201.48	11.24	
11	250.00	9.60	-0.65	0.40	117.94	188.74	222.56	12.44	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-entry' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

****

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each exit point (considering all specified entry points).

Exit Point #	Exit Point (X, Y) [ft]		Entry Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
1	-0.27	0.19	131.00	19.90	55.07	78.64	96.01	5.93	
2	7.66	0.19	131.00	19.90	58.86	75.57	91.13	5.73	
3	15.60	0.18	131.00	19.90	62.67	72.23	86.06	5.58	
4	23.48	0.20	131.00	19.90	66.13	70.69	82.39	5.48	
5	31.20	0.32	114.00	18.87	62.32	55.51	63.36	5.43	
6	39.09	1.55	114.00	18.87	66.39	54.12	59.24	5.49	
7	46.60	2.63	131.00	19.90	1.83	436.27	435.95	5.21	
8	54.95	4.11	97.00	16.71	58.66	68.22	64.21	2.33	
. 9	63.10	5.99	97.00	16.71	72.32	35.81	31.21	2.20 .	OK
10	71.08	8.80	97.00	16.71	79.33	28.18	21.07	2.84	
11	78.75	12.61	131.00	19.90	99.91	51.81	44.55	4.98	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-exit' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

CRITICAL RESULTS OF ROTATIONAL AND TRANSLATIONAL STABILITY ANALYSES

Rotational (Circular Arc; Bishop) Stability Analysis

Minimum Factor of Safety = 2.20
Critical Circle: Xc = 72.32[ft], Yc = 35.81[ft], R = 31.21[ft]. (Number of slices used = 52)

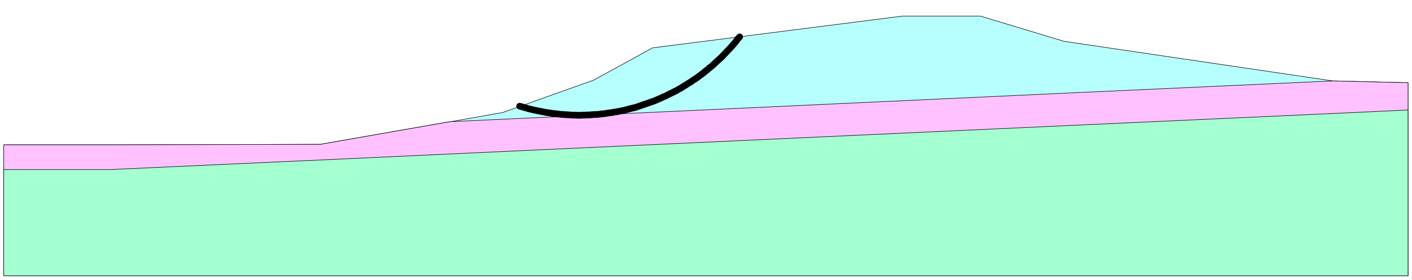
Translational (2-Part Wedge; Spencer), Direct Sliding, Stability Analysis

N O T C O N D U C T E D

Three-Part Wedge Stability Analysis

N O T C O N D U C T E D

REINFORCEMENT LAYOUT: DRAWING



SCALE:

0246[ft]

RCOSP - Pond RC-01

Report created by ReSSA(3.0): Update #4.21: Copyright (c) 2001-2016, ADAMA Engineering, Inc.

PROJECT IDENTIFICATION

Title:	RCOSP - Pond RC-01
Project Number:	19-169-SCL -
Client:	RCOSP
Designer:	Philip Edwards

Description:
RC-01 Seismic

Company's information:

Name:	Butano Geotechnical Engineering Inc
Street:	231 Green Valley Road Suite E
	Freedom, CA 95019
Telephone #:	831.724.2612
Fax #:	
E-Mail:	

Original file path and name: C:\Users\B ..... pen Space\Engineering\19-169-SCL RC-01 Seismic.MSE
Original date and time of creating this file: Thu Nov 22 09:52:46 2018

PROGRAM MODE: Analysis of a General Slope using NO reinforcement material.

INPUT DATA (EXCLUDING REINFORCEMENT LAYOUT)

SOIL DATA

========== Soil Layer #: ==========	Unit weight, γ [lb/ft ^{3}]	Internal angle of friction, ϕ [deg.]	Cohesion, c [lb/ft ^{2}]
1	120.0	30.0	100.0
2	130.0	0.0	1500.0
3	135.0	40.0	1000.0

REINFORCEMENT

Analysis of slope WITHOUT reinforcement.

WATER

Unit weight of water = 62.45 [lb/ft ^{3}]
Water pressure is defined by phreatic surface in Effective Stress Analysis.

SEISMICITY

Horizontal peak ground acceleration coefficient, Ao = 1.075
Design horizontal seismic coefficient, kh = Am = 0.25 x Ao = 0.269 & design vertical seismic coefficient, kv (down) = 0.000 x kh = 0.000

DRAWING OF SPECIFIED GEOMETRY - GENERAL - Quick Input

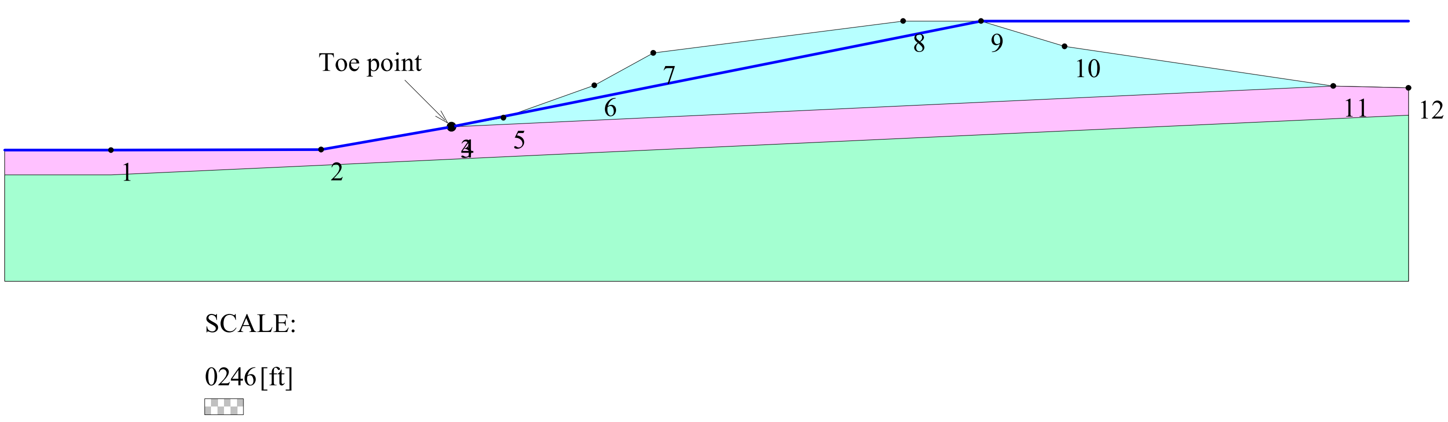
-- Problem geometry is defined along sections selected by user at x,y coordinates.
-- X1,Y1 represents the coordinates of soil surface. X2,Y2 represent the coordinates of the end of soil layer 1 and start of soil layer 2, and so on.
-- Xw,Yw represents the coordinates of phreatic surface.

GEOMETRY
Soil profile contains 3 layers (see details in next page)

WATER GEOMETRY
Phreatic line was specified.

UNIFORM SURCHARGE
Surcharge load, Q1.................................... None
Surcharge load, Q2.................................... None
Surcharge load, Q3.................................... None

STRIP LOAD
............................None..................................



TABULATED DETAILS OF GEMERAL SPECIFIED GEOMETRY

Soil profile contains 3 layers. Coordinates in [ft.]
Water was described by phreatic line.

	#	Xi	Yi
Top of Layer 1	1	0.00	0.00
	2	32.40	0.10
	3	52.50	3.60
	4	60.50	5.00
	5	74.50	10.00
	6	83.60	15.00
	7	122.10	19.90
	8	134.10	19.90
	9	147.00	16.00
	10	188.40	9.90
	11	200.00	9.60
Top of Layer 2	12	0.00	0.00
	13	32.40	0.10
	14	52.50	3.60
	15	188.40	9.90
	16	200.00	9.60
Top of Layer 3	17	0.00	-3.80
	18	200.00	5.40
Top of Phreatic Line	20	0.00	0.00
	21	32.40	0.10
	22	52.40	3.60
	23	134.10	19.90

TABULATED DETAILS OF SPECIFIED GEOMETRY

Soil profile contains 3 layers. Coordinates in [ft.]
Water was described by phreatic line. Y values are tabulated in the right most column.

#	X	Y1	Y2	Y3	Yw (phreatic)
1	0.00	0.00	0.00	-3.80	0.00
2	32.40	0.10	0.10	-2.31	0.10
3	52.40	3.58	3.58	-1.39	3.60
4	52.50	3.60	3.60	-1.38	3.62
5	60.50	5.00	3.97	-1.02	5.22
6	74.50	10.00	4.62	-0.37	8.01
7	83.60	15.00	5.04	0.05	9.82
8	122.10	19.90	6.83	1.82	17.51
9	134.10	19.90	7.38	2.37	19.90
10	147.00	16.00	7.98	2.96	19.90
11	188.40	9.90	9.90	4.87	19.90
12	200.00	9.60	9.60	5.40	19.90

RESULTS OF ROTATIONAL STABILITY ANALYSIS

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each entry point (considering all specified exit points)

Entry Point #	Entry Point (X, Y) [ft]		Exit Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs		STATUS
1	134.00	19.90	66.34	7.32	85.21	94.08	88.79	1.20		
. 2	145.60	16.42	52.64	3.73	37.39	462.29	458.81	1.18	.	OK
3	157.20	14.50	52.98	3.74	26.67	769.13	765.84	1.19		
4	168.80	12.79	53.32	3.75	6.61	1343.64	1340.70	1.21		
5	180.40	11.08	52.39	3.70	-584.23	12170.37	12183.31	1.26		
6	192.00	9.81	66.63	7.23	-285.88	20209.56	20205.41	1.89		
7	188.10	9.94	79.43	13.10	398.97	9144.43	9136.92	1.87		
8	186.89	10.12	79.42	13.10	337.09	7372.36	7363.77	1.87		
9	186.13	10.23	79.41	13.10	308.52	6554.23	6545.14	1.87		
10	185.67	10.30	79.41	13.10	293.53	6124.86	6115.50	1.87		
11	185.39	10.34	79.40	13.10	285.39	5891.89	5882.40	1.87		

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-entry' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

****

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each exit point (considering all specified entry points).

Exit Point #	Exit Point (X, Y) [ft]		Entry Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs		STATUS
1	-0.19	0.12	145.60	16.42	62.82	96.73	115.34	2.36		
2	13.29	0.08	145.60	16.42	69.38	89.71	105.74	2.37		
3	26.64	0.12	145.60	16.42	75.24	87.65	100.12	2.39		
4	39.74	1.40	157.20	14.50	-931.80	9247.93	9297.43	2.42		
. 5	52.64	3.73	145.60	16.42	37.39	462.29	458.81	1.18	.	OK
6	66.34	7.32	134.00	19.90	85.21	94.08	88.79	1.20		
7	79.61	13.31	145.60	16.42	109.70	76.54	70.03	1.53		
8	93.05	16.49	145.60	16.42	119.38	61.17	51.86	1.78		
9	106.27	18.17	180.40	11.08	155.08	137.46	128.89	2.17		
10	119.72	19.90	180.40	11.08	160.94	90.30	81.58	2.63		
11	133.20	20.13	180.40	11.08	165.86	62.84	53.77	2.88		

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-exit' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

CRITICAL RESULTS OF ROTATIONAL AND TRANSLATIONAL STABILITY ANALYSES

Rotational (Circular Arc; Bishop) Stability Analysis

Minimum Factor of Safety = 1.18
Critical Circle: Xc = 37.39[ft], Yc = 462.29[ft], R = 458.81[ft]. (Number of slices used = 52)

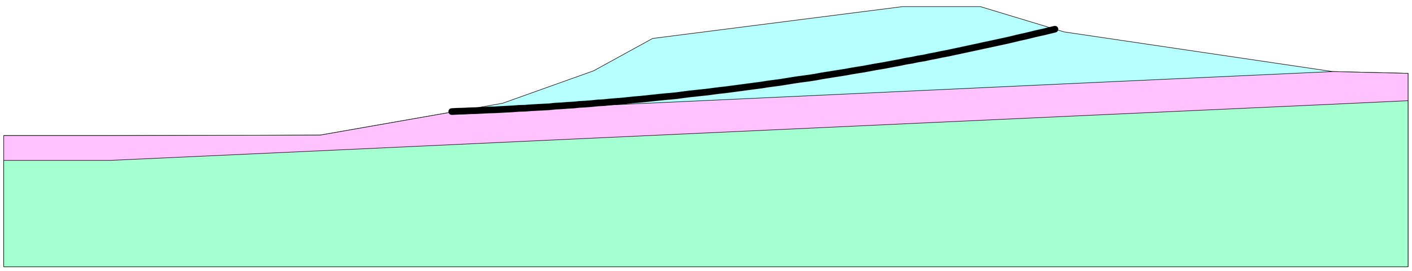
Translational (2-Part Wedge; Spencer), Direct Sliding, Stability Analysis

N O T C O N D U C T E D

Three-Part Wedge Stability Analysis

N O T C O N D U C T E D

REINFORCEMENT LAYOUT: DRAWING



SCALE:

0246[ft]

RCOSP - Pond RC-05

PROJECT IDENTIFICATION

Title:	RCOSP - Pond RC-05
Project Number:	19-169-SCL -
Client:	RCOSP
Designer:	Philip Edwards

Description:
RC-05 Static

Company's information:

Name:	Butano Geotechnical Engineering Inc
Street:	231 Green Valley Road Suite E Freedom, CA 95019
Telephone #:	831.724.2612
Fax #:	
E-Mail:	

Original file path and name: C:\Users\B ..... Open Space\Engineering\19-169-SCL RC-05 Static.MSE
Original date and time of creating this file: Thu Nov 22 09:52:46 2018

PROGRAM MODE: Analysis of a General Slope using NO reinforcement material.

INPUT DATA (EXCLUDING REINFORCEMENT LAYOUT)

SOIL DATA

========== Soil Layer #: ==========	Unit weight, γ [lb/ft ^{3}]	Internal angle of friction, ϕ [deg.]	Cohesion, c [lb/ft ^{2}]
1	120.0	30.0	50.0
2	120.0	10.0	700.0
3	125.0	32.0	200.0
4	135.0	25.0	1000.0

REINFORCEMENT

Analysis of slope WITHOUT reinforcement.

WATER

Unit weight of water = 62.45 [lb/ft ^{3}]
Water pressure is defined by phreatic surface in Effective Stress Analysis.

SEISMICITY

Not Applicable

DRAWING OF SPECIFIED GEOMETRY - GENERAL - Quick Input

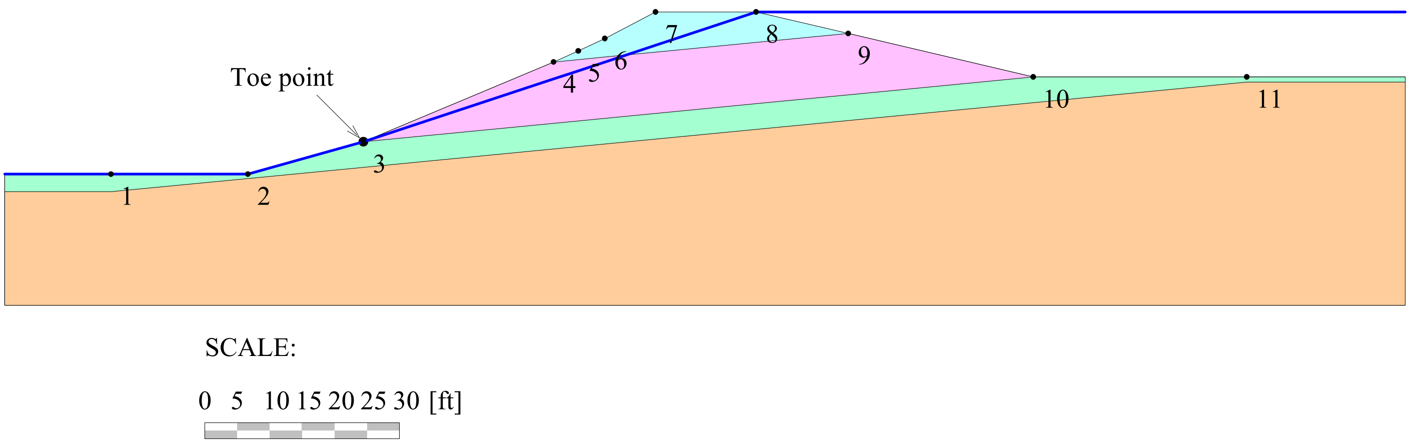
-- Problem geometry is defined along sections selected by user at x,y coordinates.
-- X1,Y1 represents the coordinates of soil surface. X2,Y2 represent the coordinates of the end of soil layer 1 and start of soil layer 2, and so on.
-- Xw,Yw represents the coordinates of phreatic surface.

GEOMETRY
Soil profile contains 4 layers (see details in next page)

WATER GEOMETRY
Phreatic line was specified.

UNIFORM SURCHARGE
Surcharge load, Q1....................................None
Surcharge load, Q2....................................None
Surcharge load, Q3....................................None

STRIP LOAD
...........................None..................................



TABULATED DETAILS OF GEMERAL SPECIFIED GEOMETRY

Soil profile contains 4 layers. Coordinates in [ft.]
Water was described by phreatic line.

	#	Xi	Yi
Top of Layer 1	1	0.00	0.00
	2	21.10	0.00
	3	38.90	5.00
	4	68.20	17.30
	5	72.00	19.00
	6	76.10	20.90
	7	83.90	25.00
	8	99.40	25.00
	9	113.60	21.70
	10	142.10	15.00
	11	175.00	15.00
Top of Layer 2	12	0.00	0.00
	13	21.10	0.00
	14	38.90	5.00
	15	68.20	17.30
	16	113.60	21.70
	17	142.10	15.00
	18	175.00	15.00
Top of Layer 3	19	0.00	0.00
	20	21.10	0.00
	21	38.90	5.00
	22	142.10	15.00
	23	175.00	15.00
Top of Layer 4	24	0.00	-2.70
	25	175.00	14.20
Top of Phreatic Line	27	0.00	0.00
	28	21.10	0.00
	29	38.90	5.00
	30	99.40	25.00

TABULATED DETAILS OF SPECIFIED GEOMETRY

Soil profile contains 4 layers. Coordinates in [ft.]
Water was described by phreatic line. Y values are tabulated in the right most column.

#	X	Y1	Y2	Y3	Y4	(phreatic) Yw
1	0.00	0.00	0.00	0.00	-2.70	0.00
2	21.10	0.00	0.00	0.00	-0.66	0.00
3	38.90	5.00	5.00	5.00	1.06	5.00
4	68.20	17.30	17.30	7.84	3.89	14.69
5	72.00	19.00	17.67	8.21	4.25	15.94
6	76.10	20.90	18.07	8.60	4.65	17.30
7	83.90	25.00	18.82	9.36	5.40	19.88
8	99.40	25.00	20.32	10.86	6.90	25.00
9	113.60	21.70	21.70	12.24	8.27	25.00
10	142.10	15.00	15.00	15.00	11.02	25.00
11	175.00	15.00	15.00	15.00	14.20	25.00

RESULTS OF ROTATIONAL STABILITY ANALYSIS

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each entry point (considering all specified exit points)

Entry Point #	Entry Point (X, Y) [ft]		Exit Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
1	83.90	25.00	74.67	20.26	76.50	28.05	8.01	2.29	
. 2	95.51	25.00	33.08	3.42	45.74	67.91	65.71	2.04 .	OK
3	107.12	23.21	32.70	3.47	46.83	100.38	97.94	2.21	
4	118.73	20.49	33.00	3.42	46.74	158.17	155.37	2.69	
5	130.34	17.76	24.32	1.06	18.20	384.64	383.63	3.05	
6	141.95	15.03	23.79	1.03	0.34	704.32	703.68	3.20	
7	153.56	15.00	24.36	1.04	-36.14	1165.77	1166.30	3.52	
8	165.17	15.00	23.52	0.97	-143.56	2410.21	2415.03	3.84	
9	176.78	15.00	23.98	1.00	-220.66	3512.76	3520.27	4.09	
10	188.39	15.00	-0.09	0.06	84.78	125.70	151.62	5.29	
11	200.00	15.00	-0.03	0.02	90.15	138.82	165.52	5.67	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-entry' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

****

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each exit point (considering all specified entry points).

Exit Point #	Exit Point (X, Y) [ft]		Entry Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
1	-1.03	0.06	107.12	23.21	10.92	208.43	208.72	2.73	
2	8.01	0.01	107.12	23.21	15.05	193.28	193.40	2.55	
3	16.13	0.02	95.51	25.00	20.91	123.44	123.51	2.46	
4	24.59	1.09	95.51	25.00	31.63	97.34	96.51	2.19	
. 5	33.08	3.42	95.51	25.00	45.74	67.91	65.71	2.04 .	OK
6	41.17	6.22	95.51	25.00	57.36	47.40	44.24	2.15	
7	49.51	9.75	95.51	25.00	65.87	37.41	32.14	2.61	
8	58.06	13.10	95.51	25.00	72.88	31.32	23.49	3.35	
9	66.38	16.54	95.51	25.00	-29.32	400.46	395.67	4.26	
10	74.67	20.26	83.90	25.00	76.50	28.05	8.01	2.29	
11	82.99	24.53	83.90	25.01	83.32	25.01	0.58	8.95	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-exit' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

CRITICAL RESULTS OF ROTATIONAL AND TRANSLATIONAL STABILITY ANALYSES

Rotational (Circular Arc; Bishop) Stability Analysis

Minimum Factor of Safety = 2.04

Critical Circle: Xc = 45.74[ft], Yc = 67.91[ft], R = 65.71[ft]. (Number of slices used = 54)

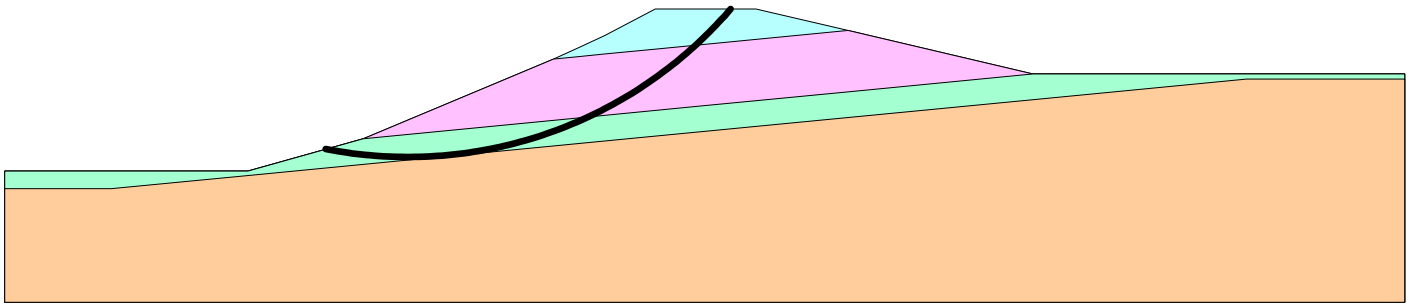
Translational (2-Part Wedge; Spencer), Direct Sliding, Stability Analysis

N O T C O N D U C T E D

Three-Part Wedge Stability Analysis

N O T C O N D U C T E D

REINFORCEMENT LAYOUT: DRAWING



SCALE:

0 5 10 15 20 25 30 [ft]

RCOSP - Pond RC-05

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PROJECT IDENTIFICATION

Title:	RCOSP - Pond RC-05
Project Number:	19-169-SCL -
Client:	RCOSP
Designer:	Philip Edwards

Description:
RC-05 Seismic

Company's information:

Name:	Butano Geotechnical Engineering Inc
Street:	231 Green Valley Road Suite E Freedom, CA 95019
Telephone #:	831.724.2612
Fax #:	
E-Mail:	

Original file path and name: C:\Users\B ..... pen Space\Engineering\19-169-SCL RC-05 Seismic.MSE
Original date and time of creating this file: Thu Nov 22 09:52:46 2018

PROGRAM MODE: Analysis of a General Slope using NO reinforcement material.

INPUT DATA (EXCLUDING REINFORCEMENT LAYOUT)

SOIL DATA

=========== Soil Layer #: ===========	Unit weight, γ [lb/ft ³]	Internal angle of friction, ϕ [deg.]	Cohesion, c [lb/ft ²]
1	120.0	30.0	50.0
2	120.0	10.0	700.0
3	125.0	32.0	200.0
4	135.0	25.0	1000.0

REINFORCEMENT

Analysis of slope WITHOUT reinforcement.

WATER

Unit weight of water = 62.45 [lb/ft ³]
Water pressure is defined by phreatic surface in Effective Stress Analysis.

SEISMICITY

Horizontal peak ground acceleration coefficient, Ao = 1.075
Design horizontal seismic coefficient, kh = Am = 0.25 x Ao = 0.269 & design vertical seismic coefficient, kv (down) = 0.000 x kh = 0.000

DRAWING OF SPECIFIED GEOMETRY - GENERAL - Quick Input

-- Problem geometry is defined along sections selected by user at x,y coordinates.
-- X1,Y1 represents the coordinates of soil surface. X2,Y2 represent the coordinates of the end of soil layer 1 and start of soil layer 2, and so on.
-- Xw,Yw represents the coordinates of phreatic surface.

GEOMETRY

Soil profile contains 4 layers (see details in next page)

WATER GEOMETRY

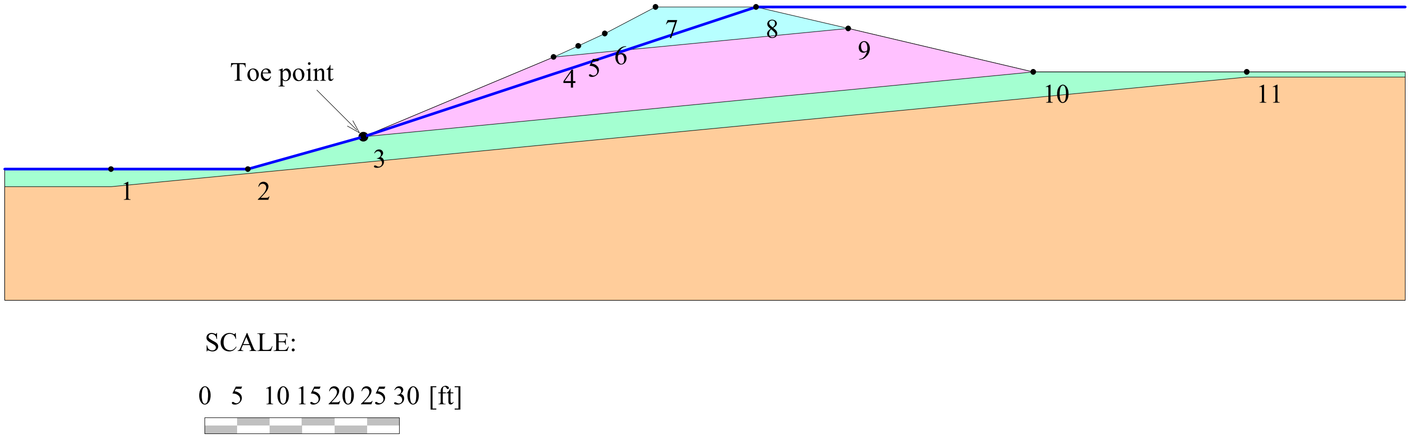
Phreatic line was specified.

UNIFORM SURCHARGE

Surcharge load, Q1.................................... None
Surcharge load, Q2.................................... None
Surcharge load, Q3.................................... None

STRIP LOAD

............................None..................................



TABULATED DETAILS OF GEMERAL SPECIFIED GEOMETRY

Soil profile contains 4 layers. Coordinates in [ft.]
Water was described by phreatic line.

	#	Xi	Yi
Top of Layer 1	1	0.00	0.00
	2	21.10	0.00
	3	38.90	5.00
	4	68.20	17.30
	5	72.00	19.00
	6	76.10	20.90
	7	83.90	25.00
	8	99.40	25.00
	9	113.60	21.70
	10	142.10	15.00
	11	175.00	15.00
Top of Layer 2	12	0.00	0.00
	13	21.10	0.00
	14	38.90	5.00
	15	68.20	17.30
	16	113.60	21.70
	17	142.10	15.00
	18	175.00	15.00
Top of Layer 3	19	0.00	0.00
	20	21.10	0.00
	21	38.90	5.00
	22	142.10	15.00
	23	175.00	15.00
Top of Layer 4	24	0.00	-2.70
	25	175.00	14.20
Top of Phreatic Line	27	0.00	0.00
	28	21.10	0.00
	29	38.90	5.00
	30	99.40	25.00

TABULATED DETAILS OF SPECIFIED GEOMETRY

Soil profile contains 4 layers. Coordinates in [ft.]
Water was described by phreatic line. Y values are tabulated in the right most column.

#	X	Y1	Y2	Y3	Y4	Yw (phreatic)
1	0.00	0.00	0.00	0.00	-2.70	0.00
2	21.10	0.00	0.00	0.00	-0.66	0.00
3	38.90	5.00	5.00	5.00	1.06	5.00
4	68.20	17.30	17.30	7.84	3.89	14.69
5	72.00	19.00	17.67	8.21	4.25	15.94
6	76.10	20.90	18.07	8.60	4.65	17.30
7	83.90	25.00	18.82	9.36	5.40	19.88
8	99.40	25.00	20.32	10.86	6.90	25.00
9	113.60	21.70	21.70	12.24	8.27	25.00
10	142.10	15.00	15.00	15.00	11.02	25.00
11	175.00	15.00	15.00	15.00	14.20	25.00

RESULTS OF ROTATIONAL STABILITY ANALYSIS

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each entry point (considering all specified exit points)

Entry Point #	Entry Point (X, Y) [ft]		Exit Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
1	83.90	25.00	32.68	3.54	44.77	46.56	44.68	1.35	
2	95.51	25.00	33.08	3.42	45.74	67.91	65.71	1.16	
. 3	107.12	23.21	32.70	3.47	46.83	100.38	97.94	1.15 .	OK
4	118.73	20.49	33.00	3.42	46.74	158.17	155.37	1.23	
5	130.34	17.76	32.33	3.45	46.19	251.21	248.15	1.24	
6	141.95	15.03	23.79	1.03	0.34	704.32	703.68	1.15	
7	153.56	15.00	24.36	1.04	-36.14	1165.77	1166.30	1.20	
8	165.17	15.00	23.52	0.97	-143.56	2410.21	2415.03	1.26	
9	176.78	15.00	23.98	1.00	-220.66	3512.76	3520.27	1.29	
10	188.39	15.00	-0.14	0.09	84.44	130.03	155.04	1.64	
11	200.00	15.00	-0.03	0.02	90.15	138.82	165.52	1.65	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-entry' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

****

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each exit point (considering all specified entry points).

Exit Point #	Exit Point (X, Y) [ft]		Entry Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
1	-1.03	0.06	107.12	23.21	10.92	208.43	208.72	1.42	
2	8.01	0.01	107.12	23.21	15.05	193.28	193.40	1.33	
3	16.13	0.02	95.51	25.00	20.91	123.44	123.51	1.39	
4	23.79	1.03	141.95	15.03	0.34	704.32	703.68	1.15	
. 5	32.70	3.47	107.12	23.21	46.83	100.38	97.94	1.15 .	OK
6	41.17	6.22	95.51	25.00	57.36	47.40	44.24	1.23	
7	49.30	9.83	107.12	23.21	70.45	50.10	45.48	1.46	
8	58.01	13.09	141.95	15.03	96.87	148.25	140.64	1.73	
9	66.21	16.63	141.95	15.03	105.97	105.41	97.28	2.06	
10	74.67	20.26	83.90	25.00	76.40	28.25	8.18	1.42	
11	82.98	24.54	107.12	23.21	96.26	45.75	25.02	2.63	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-exit' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

CRITICAL RESULTS OF ROTATIONAL AND TRANSLATIONAL STABILITY ANALYSES

Rotational (Circular Arc; Bishop) Stability Analysis

Minimum Factor of Safety = 1.15
Critical Circle: Xc = 46.83[ft], Yc = 100.38[ft], R = 97.94[ft]. (Number of slices used = 55)

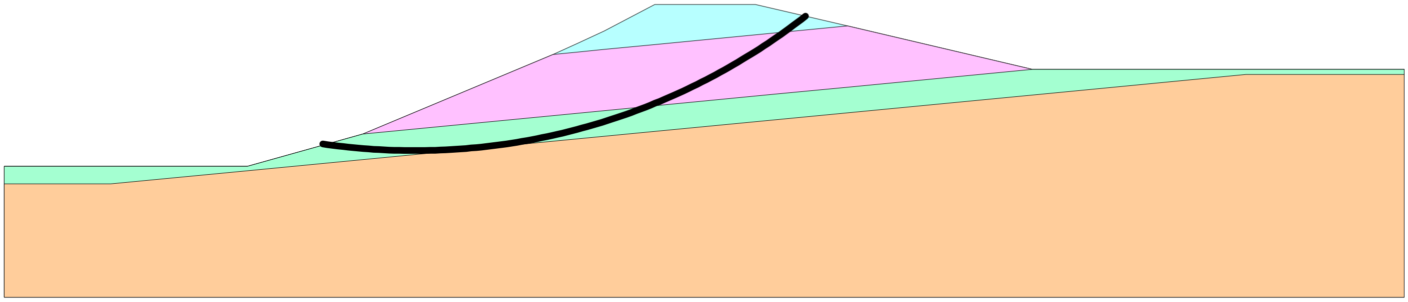
Translational (2-Part Wedge; Spencer), Direct Sliding, Stability Analysis

N O T C O N D U C T E D

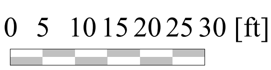
Three-Part Wedge Stability Analysis

N O T C O N D U C T E D

REINFORCEMENT LAYOUT: DRAWING



SCALE:



RCOSP - Pond RC-08

PROJECT IDENTIFICATION

Title: RCOSP - Pond RC-08
Project Number: 19-169-SCL -
Client: RCOSP
Designer: Philip Edwards

Description:
RC-08 Static

Company's information:

Name: Butano Geotechnical Engineering Inc
Street: 231 Green Valley Road Suite E
Freedom, CA 95019
Telephone #: 831.724.2612
Fax #:
E-Mail:

Original file path and name: C:\Users\B ..... Open Space\Engineering\19-169-SCL RC-08 Static.MSE
Original date and time of creating this file: Thu Nov 22 09:52:46 2018

PROGRAM MODE: Analysis of a General Slope using NO reinforcement material.

INPUT DATA (EXCLUDING REINFORCEMENT LAYOUT)

SOIL DATA

=========== Soil Layer #: ===========	Unit weight, γ [lb/ft ³]	Internal angle of friction, ϕ [deg.]	Cohesion, c [lb/ft ²]
.1..	120.0	20.0	750.0
.2..	125.0	0.0	1000.0
.3..	130.0	0.0	1200.0
.4..	135.0	40.0	1500.0

REINFORCEMENT

Analysis of slope WITHOUT reinforcement.

WATER

Unit weight of water = 62.45 [lb/ft ³]
Water pressure is defined by phreatic surface in Effective Stress Analysis.

SEISMICITY

Not Applicable

DRAWING OF SPECIFIED GEOMETRY - GENERAL - Quick Input

-- Problem geometry is defined along sections selected by user at x,y coordinates.
-- X1,Y1 represents the coordinates of soil surface. X2,Y2 represent the coordinates of the end of soil layer 1 and start of soil layer 2, and so on.
-- Xw,Yw represents the coordinates of phreatic surface.

GEOMETRY

Soil profile contains 4 layers (see details in next page)

WATER GEOMETRY

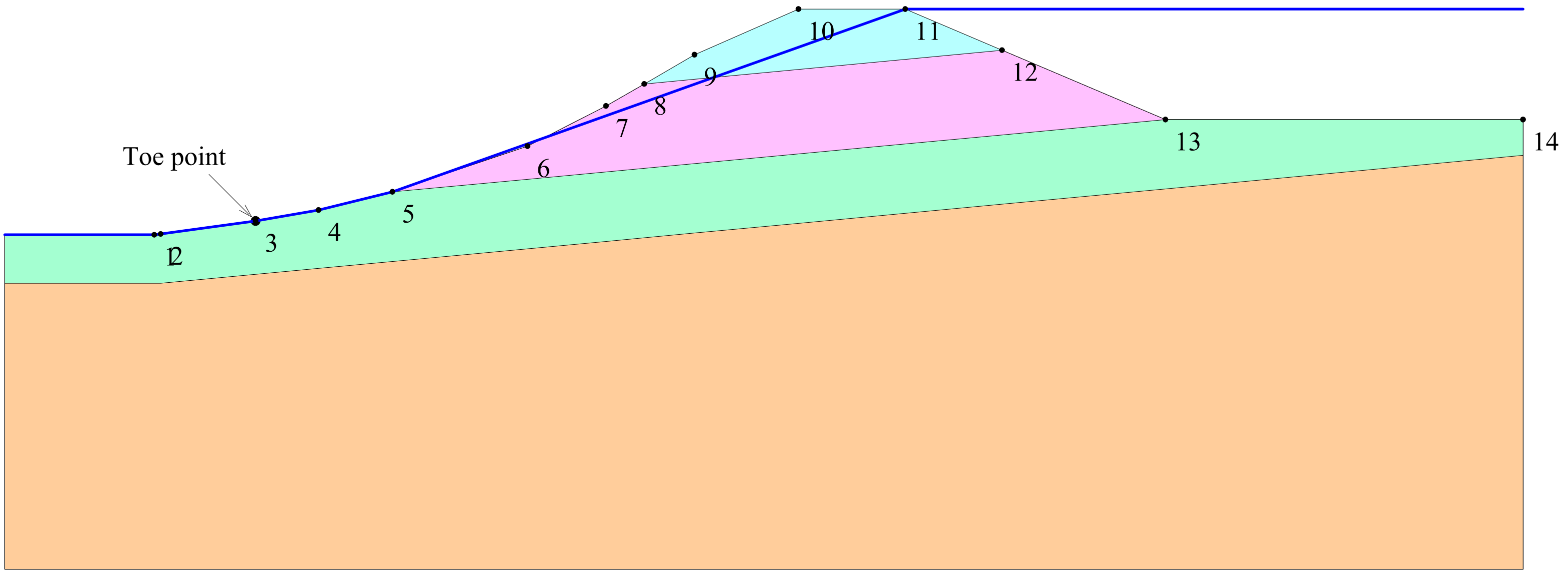
Phreatic line was specified.

UNIFORM SURCHARGE

Surcharge load, Q1.................................... None
Surcharge load, Q2.................................... None
Surcharge load, Q3.................................... None

STRIP LOAD

............................None..................................



SCALE:

0 2 4 6 [ft]

TABULATED DETAILS OF GEMERAL SPECIFIED GEOMETRY

Soil profile contains 4 layers. Coordinates in [ft.]
Water was described by phreatic line.

	#	Xi	Yi
Top of Layer 1	1	0.00	0.00
	2	11.10	1.50
	3	18.00	2.70
	4	26.10	4.70
	5	40.90	9.70
	6	49.50	14.10
	7	53.70	16.50
	8	59.20	19.70
	9	70.60	24.70
	10	82.30	24.70
	11	92.90	20.20
	12	110.80	12.60
	13	150.00	12.60
Top of Layer 2	14	0.00	0.00
	15	11.10	1.50
	16	18.00	2.70
	17	26.10	4.70
	18	40.90	9.70
	19	49.50	14.10
	20	53.70	16.50
	21	92.90	20.20
	22	110.80	12.60
	23	150.00	12.60
Top of Layer 3	24	0.00	0.00
	25	11.10	1.50
	26	18.00	2.70
	27	26.10	4.70
	28	110.80	12.60
	29	150.00	12.60
Top of Layer 4	30	0.70	-5.30
	31	150.00	8.70
Top of Phreatic Line	33	0.00	0.00
	34	11.10	1.50
	35	18.00	2.70
	36	26.10	4.70
	37	82.30	24.70

TABULATED DETAILS OF SPECIFIED GEOMETRY

Soil profile contains 4 layers. Coordinates in [ft.]
Water was described by phreatic line. Y values are tabulated in the right most column.

#	X	Y1	Y2	Y3	Y4	(phreatic) Yw
1	0.00	0.00	0.00	0.00	-5.30	0.00
2	0.70	0.09	0.09	0.09	-5.30	0.09
3	11.10	1.50	1.50	1.50	-4.32	1.50
4	18.00	2.70	2.70	2.70	-3.68	2.70
5	26.10	4.70	4.70	4.70	-2.92	4.70
6	40.90	9.70	9.70	6.08	-1.53	9.97
7	49.50	14.10	14.10	6.88	-0.72	13.03
8	53.70	16.50	16.50	7.27	-0.33	14.52
9	59.20	19.70	17.02	7.79	0.19	16.48
10	70.60	24.70	18.10	8.85	1.25	20.54
11	82.30	24.70	19.20	9.94	2.35	24.70
12	92.90	20.20	20.20	10.93	3.35	24.70
13	110.80	12.60	12.60	12.60	5.02	24.70
14	150.00	12.60	12.60	12.60	8.70	24.70

RESULTS OF ROTATIONAL STABILITY ANALYSIS

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each entry point (considering all specified exit points)

Entry Point #	Entry Point (X, Y) [ft]		Exit Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
1	56.43	18.09	21.86	3.82	35.96	18.66	20.48	5.62	
2	68.01	23.56	21.52	4.02	38.64	28.36	29.76	3.88	
3	79.59	24.70	21.83	3.78	41.35	40.08	41.21	3.16	
. 4	91.16	20.94	21.39	3.94	44.71	59.90	60.63	3.09 .	OK
5	102.74	16.02	14.69	2.33	41.85	117.64	118.47	3.57	
6	114.32	12.60	14.80	2.28	45.35	192.58	192.74	4.49	
7	125.89	12.60	14.91	2.25	46.85	259.96	259.68	5.33	
8	137.47	12.60	8.35	1.14	37.05	410.85	410.72	6.09	
9	149.05	12.60	1.30	0.23	23.40	624.58	624.75	6.87	
10	160.62	12.60	0.04	0.24	16.25	839.35	839.26	7.70	
11	172.20	12.60	1.60	0.22	1.60	1181.51	1181.29	8.61	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-entry' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

****

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each exit point (considering all specified entry points).

Exit Point #	Exit Point (X, Y) [ft]		Entry Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
1	-12.66	0.15	91.16	20.94	16.58	123.79	127.05	4.05	
2	-5.80	0.13	91.16	20.94	19.75	117.38	120.00	3.82	
3	1.53	0.23	91.16	20.94	25.16	102.28	104.75	3.50	
4	7.91	1.27	91.16	20.94	31.51	87.39	89.30	3.30	
5	14.59	2.41	91.16	20.94	38.11	72.72	74.13	3.14	
. 6	21.39	3.94	91.16	20.94	44.71	59.90	60.63	3.09 .	OK
7	28.26	5.90	91.16	20.94	51.41	48.14	48.17	3.19	
8	35.46	8.02	79.59	24.70	52.32	30.10	27.79	3.50	
9	42.24	10.55	79.59	24.70	54.57	34.36	26.81	3.72	
10	49.05	14.06	79.59	24.70	60.70	29.77	19.56	4.84	
11	55.98	17.86	79.59	24.70	65.23	30.08	15.33	7.63	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-exit' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

CRITICAL RESULTS OF ROTATIONAL AND TRANSLATIONAL STABILITY ANALYSES

Rotational (Circular Arc; Bishop) Stability Analysis

Minimum Factor of Safety = 3.09

Critical Circle: Xc = 44.71[ft], Yc = 59.90[ft], R = 60.63[ft]. (Number of slices used = 55)

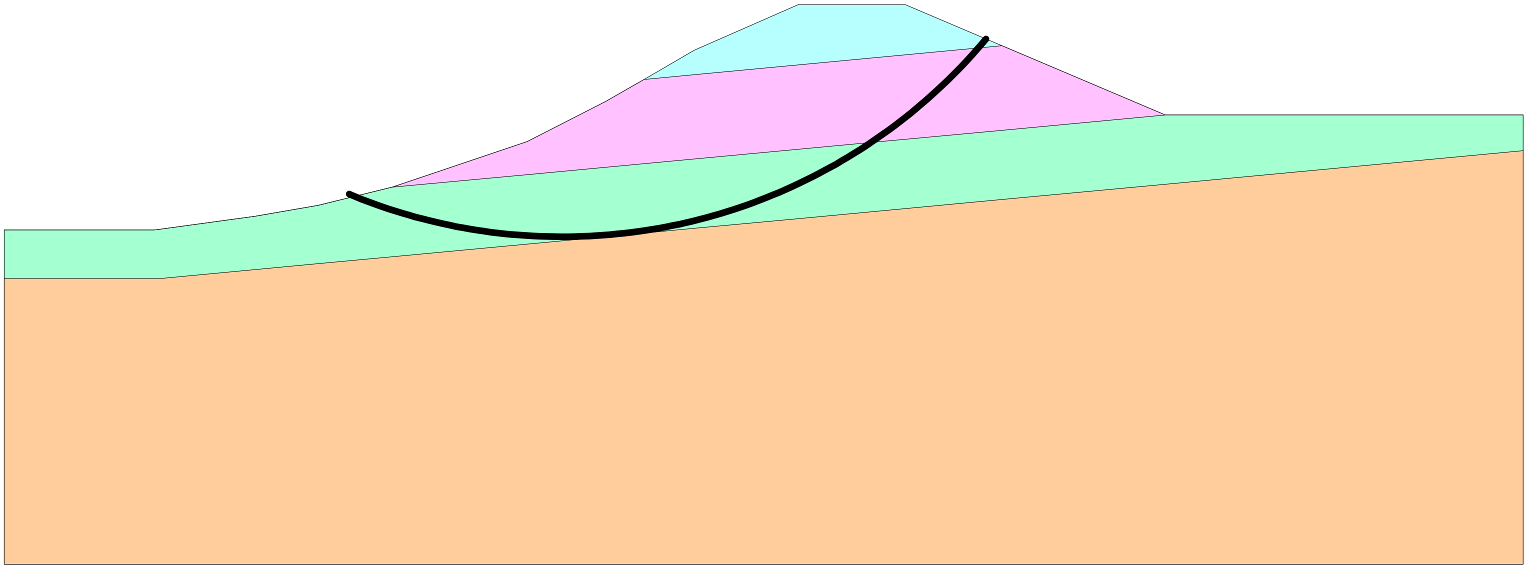
Translational (2-Part Wedge; Spencer), Direct Sliding, Stability Analysis

N O T C O N D U C T E D

Three-Part Wedge Stability Analysis

N O T C O N D U C T E D

REINFORCEMENT LAYOUT: DRAWING



SCALE:

0 2 4 6[ft]

RCOSP - Pond RC-08

PROJECT IDENTIFICATION

Title:	RCOSP - Pond RC-08
Project Number:	19-169-SCL -
Client:	RCOSP
Designer:	Philip Edwards

Description:
RC-08 Seismic

Company's information:

Name:	Butano Geotechnical Engineering Inc
Street:	231 Green Valley Road Suite E
	Freedom, CA 95019
Telephone #:	831.724.2612
Fax #:	
E-Mail:	

Original file path and name: C:\Users\B ..... pen Space\Engineering\19-169-SCL RC-08 Seismic.MSE
Original date and time of creating this file: Thu Nov 22 09:52:46 2018

PROGRAM MODE: Analysis of a General Slope using NO reinforcement material.

INPUT DATA (EXCLUDING REINFORCEMENT LAYOUT)

SOIL DATA

========== Soil Layer #: ==========	Unit weight, γ [lb/ft ^{3}]	Internal angle of friction, ϕ [deg.]	Cohesion, c [lb/ft ^{2}]
1	120.0	20.0	750.0
2	125.0	0.0	1000.0
3	130.0	0.0	1200.0
4	135.0	40.0	1500.0

REINFORCEMENT

Analysis of slope WITHOUT reinforcement.

WATER

Unit weight of water = 62.45 [lb/ft ^{3}]
Water pressure is defined by phreatic surface in Effective Stress Analysis.

SEISMICITY

Horizontal peak ground acceleration coefficient, Ao = 1.075
Design horizontal seismic coefficient, kh = Am = 0.25 x Ao = 0.269 & design vertical seismic coefficient, kv (down) = 0.000 x kh = 0.000

DRAWING OF SPECIFIED GEOMETRY - GENERAL - Quick Input

-- Problem geometry is defined along sections selected by user at x,y coordinates.
-- X1,Y1 represents the coordinates of soil surface. X2,Y2 represent the coordinates of the end of soil layer 1 and start of soil layer 2, and so on.
-- Xw,Yw represents the coordinates of phreatic surface.

GEOMETRY

Soil profile contains 4 layers (see details in next page)

WATER GEOMETRY

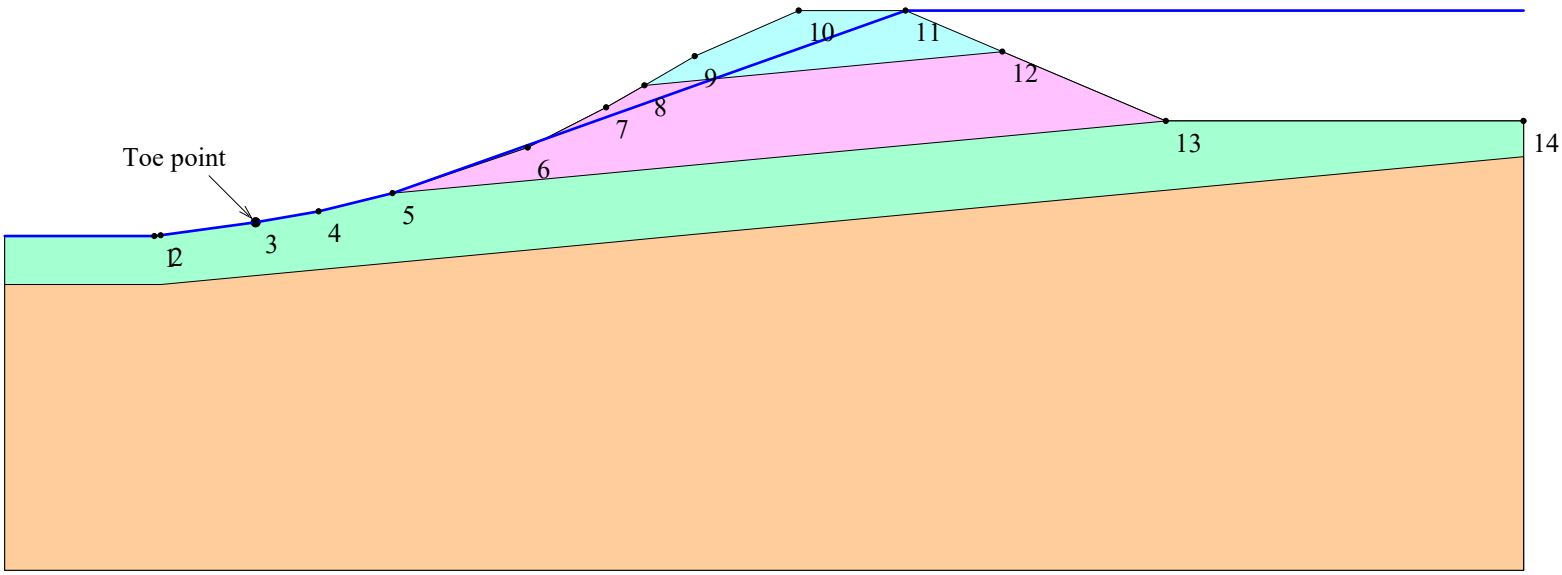
Phreatic line was specified.

UNIFORM SURCHARGE

Surcharge load, Q1.....None
Surcharge load, Q2.....None
Surcharge load, Q3.....None

STRIP LOAD

.....None.....



SCALE:

0 2 4 6 [ft]

TABULATED DETAILS OF GEMERAL SPECIFIED GEOMETRY

Soil profile contains 4 layers. Coordinates in [ft.]
Water was described by phreatic line.

	#	Xi	Yi
Top of Layer 1	1	0.00	0.00
	2	11.10	1.50
	3	18.00	2.70
	4	26.10	4.70
	5	40.90	9.70
	6	49.50	14.10
	7	53.70	16.50
	8	59.20	19.70
	9	70.60	24.70
	10	82.30	24.70
	11	92.90	20.20
	12	110.80	12.60
	13	150.00	12.60
Top of Layer 2	14	0.00	0.00
	15	11.10	1.50
	16	18.00	2.70
	17	26.10	4.70
	18	40.90	9.70
	19	49.50	14.10
	20	53.70	16.50
	21	92.90	20.20
	22	110.80	12.60
	23	150.00	12.60
Top of Layer 3	24	0.00	0.00
	25	11.10	1.50
	26	18.00	2.70
	27	26.10	4.70
	28	110.80	12.60
	29	150.00	12.60
Top of Layer 4	30	0.70	-5.30
	31	150.00	8.70
Top of Phreatic Line	33	0.00	0.00
	34	11.10	1.50
	35	18.00	2.70
	36	26.10	4.70
	37	82.30	24.70

TABULATED DETAILS OF SPECIFIED GEOMETRY

Soil profile contains 4 layers. Coordinates in [ft.]
Water was described by phreatic line. Y values are tabulated in the right most column.

#	X	Y1	Y2	Y3	Y4	(phreatic) Yw
1	0.00	0.00	0.00	0.00	-5.30	0.00
2	0.70	0.09	0.09	0.09	-5.30	0.09
3	11.10	1.50	1.50	1.50	-4.32	1.50
4	18.00	2.70	2.70	2.70	-3.68	2.70
5	26.10	4.70	4.70	4.70	-2.92	4.70
6	40.90	9.70	9.70	6.08	-1.53	9.97
7	49.50	14.10	14.10	6.88	-0.72	13.03
8	53.70	16.50	16.50	7.27	-0.33	14.52
9	59.20	19.70	17.02	7.79	0.19	16.48
10	70.60	24.70	18.10	8.85	1.25	20.54
11	82.30	24.70	19.20	9.94	2.35	24.70
12	92.90	20.20	20.20	10.93	3.35	24.70
13	110.80	12.60	12.60	12.60	5.02	24.70
14	150.00	12.60	12.60	12.60	8.70	24.70

RESULTS OF ROTATIONAL STABILITY ANALYSIS

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.)
The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each entry point (considering all specified exit points)

Entry Point #	Entry Point (X, Y) [ft]		Exit Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
1	56.43	18.09	15.14	2.25	30.27	24.55	26.95	3.31	
2	68.01	23.56	21.52	4.02	38.64	28.36	29.76	2.41	
3	79.59	24.70	21.83	3.78	41.35	40.08	41.21	1.92	
4	91.16	20.94	21.39	3.94	44.71	59.90	60.63	1.70	
. 5	102.74	16.02	21.58	3.81	48.95	97.68	97.78	1.68 .	OK
6	114.32	12.60	14.80	2.28	45.35	192.58	192.74	1.79	
7	125.89	12.60	14.91	2.25	46.85	259.96	259.68	1.95	
8	137.47	12.60	15.03	2.23	46.44	359.30	358.45	2.13	
9	149.05	12.60	15.14	2.22	47.11	458.57	457.47	2.27	
10	160.62	12.60	0.04	0.24	16.25	839.35	839.26	2.49	
11	172.20	12.60	1.60	0.22	1.60	1181.51	1181.29	2.67	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-entry' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

****

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.)
The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each exit point (considering all specified entry points).

Exit Point #	Exit Point (X, Y) [ft]		Entry Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
1	-12.17	0.03	102.74	16.02	19.08	196.25	198.70	2.00	
2	-5.61	0.06	102.74	16.02	23.27	179.77	182.01	1.89	
3	0.98	0.32	102.74	16.02	27.68	164.85	166.68	1.81	
4	8.01	1.21	102.74	16.02	35.08	138.40	139.84	1.73	
5	14.69	2.33	102.74	16.02	41.85	117.64	118.47	1.68	
. 6	21.58	3.81	102.74	16.02	48.95	97.68	97.78	1.68 .	OK
7	28.09	5.89	102.74	16.02	56.38	77.47	76.97	1.71	
8	35.53	7.95	102.74	16.02	63.35	60.10	59.11	1.82	
9	42.40	10.47	91.16	20.94	57.76	57.73	49.70	2.04	
10	49.05	14.05	91.16	20.94	66.49	39.58	30.92	2.43	
11	55.68	18.06	102.74	16.02	80.78	53.23	43.20	3.48	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-exit' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

CRITICAL RESULTS OF ROTATIONAL AND TRANSLATIONAL STABILITY ANALYSES

Rotational (Circular Arc; Bishop) Stability Analysis

Minimum Factor of Safety = 1.68

Critical Circle: Xc = 48.95[ft], Yc = 97.68[ft], R = 97.78[ft]. (Number of slices used = 54)

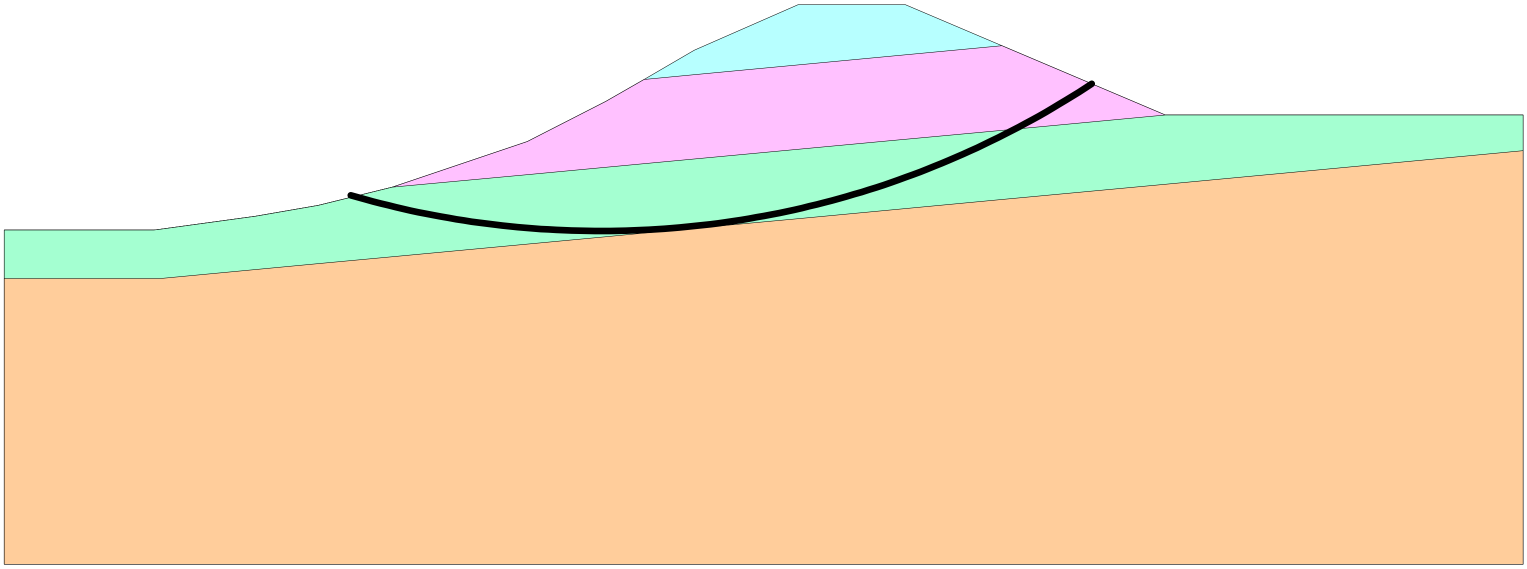
Translational (2-Part Wedge; Spencer), Direct Sliding, Stability Analysis

N O T C O N D U C T E D

Three-Part Wedge Stability Analysis

N O T C O N D U C T E D

REINFORCEMENT LAYOUT: DRAWING



SCALE:

0 2 4 6[ft]

RCOSP - Pond RC-10

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PROJECT IDENTIFICATION

Title: RCOSP - Pond RC-10
Project Number: 19-169-SCL -
Client: RCOSP
Designer: Philip Edwards

Description:
RC-10 Static

Company's information:

Name: Butano Geotechnical Engineering Inc
Street: 231 Green Valley Road Suite E
Freedom, CA 95019
Telephone #: 831.724.2612
Fax #:
E-Mail:

Original file path and name: C:\Users\B ..... Open Space\Engineering\19-169-SCL RC-10 Static.MSE
Original date and time of creating this file: Thu Nov 22 09:52:46 2018

PROGRAM MODE: Analysis of a General Slope using NO reinforcement material.

INPUT DATA (EXCLUDING REINFORCEMENT LAYOUT)

SOIL DATA

========== Soil Layer #: ==========	Unit weight, γ [lb/ft ^{3}]	Internal angle of friction, ϕ [deg.]	Cohesion, c [lb/ft ^{2}]
1	120.0	0.0	800.0
2	130.0	0.0	2000.0
3	130.0	40.0	1000.0

REINFORCEMENT

Analysis of slope WITHOUT reinforcement.

WATER

Unit weight of water = 62.45 [lb/ft ^{3}]
Water pressure is defined by phreatic surface in Effective Stress Analysis.

SEISMICITY

Not Applicable

DRAWING OF SPECIFIED GEOMETRY - GENERAL - Quick Input

-- Problem geometry is defined along sections selected by user at x,y coordinates.
-- X1,Y1 represents the coordinates of soil surface. X2,Y2 represent the coordinates of the end of soil layer 1 and start of soil layer 2, and so on.
-- Xw,Yw represents the coordinates of phreatic surface.

GEOMETRY

Soil profile contains 3 layers (see details in next page)

WATER GEOMETRY

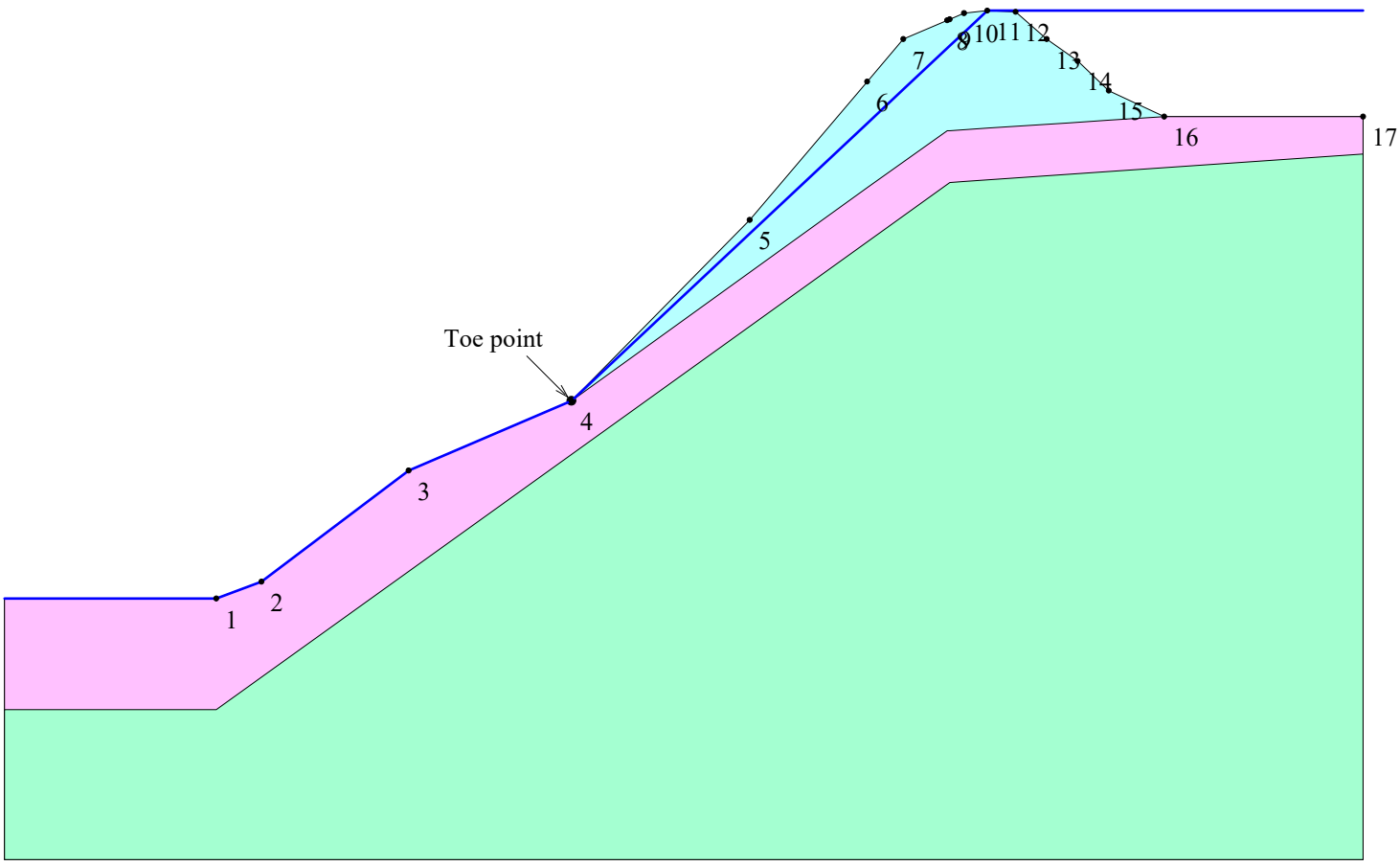
Phreatic line was specified.

UNIFORM SURCHARGE

Surcharge load, Q1.....None
Surcharge load, Q2.....None
Surcharge load, Q3.....None

STRIP LOAD

.....None.....



SCALE:

0 5 10 15 20 25 30 [ft]

TABULATED DETAILS OF GEMERAL SPECIFIED GEOMETRY

Soil profile contains 3 layers. Coordinates in [ft.]
Water was described by phreatic line.

	#	Xi	Yi
Top of Layer 1	1	0.00	0.00
	2	3.50	1.30
	3	14.90	9.90
	4	27.50	15.30
	5	41.30	29.30
	6	53.20	43.30
	7	57.90	45.30
	8	59.70	45.50
	9	61.90	45.40
	10	64.30	43.30
	11	66.70	41.60
	12	69.10	39.30
	13	73.40	37.30
	14	88.80	37.30
Top of Layer 2	15	0.00	0.00
	16	3.50	1.30
	17	14.90	9.90
	18	27.50	15.30
	19	50.40	31.80
	20	56.60	36.20
	21	73.40	37.30
	22	88.80	37.30
Top of Layer 3	23	0.00	-8.60
	24	56.80	32.20
	25	88.80	34.40
Top of Phreatic Line	27	0.00	0.00
	28	3.50	1.30
	29	14.90	9.90
	30	27.50	15.30
	31	59.70	45.50

TABULATED DETAILS OF SPECIFIED GEOMETRY

Soil profile contains 3 layers. Coordinates in [ft.]
Water was described by phreatic line. Y values are tabulated in the right most column.

#	X	Y1	Y2	Y3	Yw (phreatic)
1	0.00	0.00	0.00	-8.60	0.00
2	3.50	1.30	1.30	-6.09	1.30
3	14.90	9.90	9.90	2.10	9.90
4	27.50	15.30	15.30	11.15	15.30
5	41.30	29.30	25.24	21.07	28.24
6	50.40	40.01	31.80	27.60	36.78
7	53.20	43.30	33.79	29.61	39.40
8	56.60	44.75	36.20	32.06	42.59
9	56.80	44.83	36.21	32.20	42.78
10	57.90	45.30	36.29	32.28	43.81
11	59.70	45.50	36.40	32.40	45.50
12	61.90	45.40	36.55	32.55	45.50
13	64.30	43.30	36.70	32.72	45.50
14	66.70	41.60	36.86	32.88	45.50
15	69.10	39.30	37.02	33.05	45.50
16	73.40	37.30	37.30	33.34	45.50
17	88.80	37.30	37.30	34.40	45.50

RESULTS OF ROTATIONAL STABILITY ANALYSIS

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each entry point (considering all specified exit points)

Entry Point #	Entry Point (X, Y) [ft]		Exit Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
1	51.90	41.78	4.40	1.98	11.43	41.84	40.47	3.54	
2	54.71	43.94	4.39	1.98	11.84	44.20	42.87	3.26	
3	57.52	45.14	4.02	2.05	12.91	45.77	44.61	3.04	
4	60.33	45.47	4.15	2.04	15.30	45.68	45.04	2.81	
5	63.14	44.31	37.01	24.96	17.49	78.62	57.11	2.59	
6	65.95	42.13	4.15	2.04	15.87	51.65	50.98	2.54	
7	68.76	39.62	4.08	2.05	15.91	56.14	55.37	2.44	
8	71.57	38.15	4.07	2.04	15.89	61.09	60.22	2.40	
. 9	74.38	37.30	4.18	2.02	16.61	64.78	63.98	2.38 .	OK
10	77.19	37.30	4.31	2.00	17.26	68.14	67.40	2.38	
11	80.00	37.30	4.35	1.99	17.02	73.54	72.66	2.40	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-entry' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

****

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each exit point (considering all specified entry points).

Exit Point #	Exit Point (X, Y) [ft]		Entry Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
. 1	4.18	2.02	74.38	37.30	16.61	64.78	63.98	2.38 .	On extreme X-exit
2	8.46	5.64	74.38	37.30	22.06	61.78	57.77	2.50	
3	13.13	9.17	74.38	37.30	27.19	59.30	52.06	2.65	
4	18.35	11.40	71.57	38.15	29.42	55.68	45.65	2.72	
5	22.55	13.48	71.57	38.15	30.89	57.93	45.23	2.77	
6	27.64	15.51	68.76	39.62	31.89	55.38	40.09	2.80	
7	32.28	20.19	63.14	44.31	-20.27	119.22	112.11	2.75	
8	37.01	24.96	63.14	44.31	17.49	78.62	57.11	2.59	
9	41.67	29.75	63.14	44.31	37.59	58.87	29.41	2.67	
10	46.20	35.25	65.95	42.13	49.19	58.45	23.39	3.65	
11	50.95	40.73	63.14	44.31	54.73	50.42	10.40	8.80	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-exit' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

CRITICAL RESULTS OF ROTATIONAL AND TRANSLATIONAL STABILITY ANALYSES

Rotational (Circular Arc; Bishop) Stability Analysis

Minimum Factor of Safety = 2.38

Critical Circle: Xc = 16.61[ft], Yc = 64.78[ft], R = 63.98[ft]. (Number of slices used = 60)

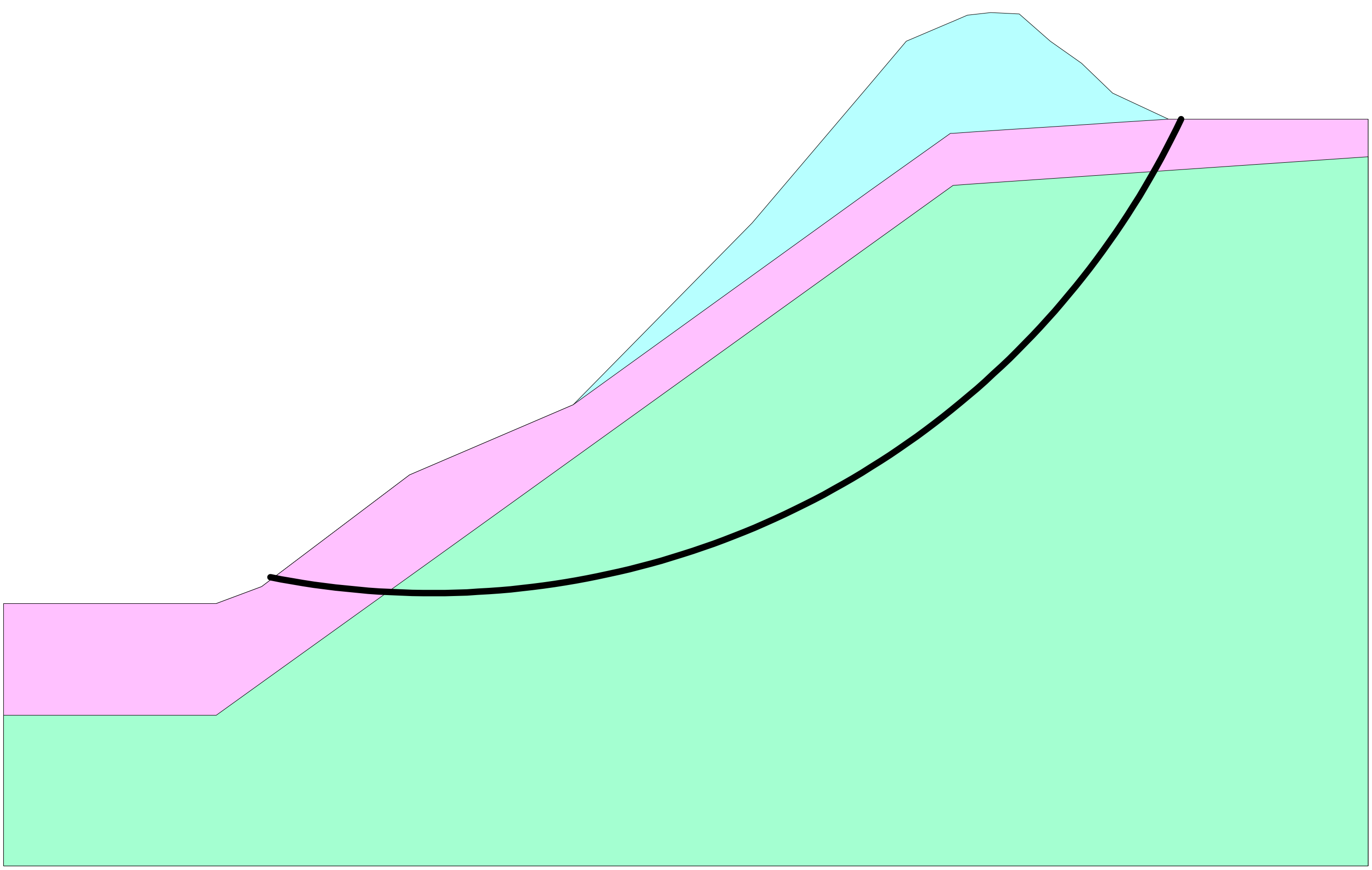
Translational (2-Part Wedge; Spencer), Direct Sliding, Stability Analysis

N O T C O N D U C T E D

Three-Part Wedge Stability Analysis

N O T C O N D U C T E D

REINFORCEMENT LAYOUT: DRAWING



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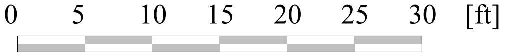

RCOSP - Pond RC-10

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PROJECT IDENTIFICATION

Title:	RCOSP - Pond RC-10
Project Number:	19-169-SCL -
Client:	RCOSP
Designer:	Philip Edwards

Description:
RC-10 Seismic

Company's information:

Name:	Butano Geotechnical Engineering Inc
Street:	231 Green Valley Road Suite E Freedom, CA 95019
Telephone #:	831.724.2612
Fax #:	
E-Mail:	

Original file path and name: C:\Users\B ..... pen Space\Engineering\19-169-SCL RC-10 Seismic.MSE
Original date and time of creating this file: Thu Nov 22 09:52:46 2018

PROGRAM MODE: Analysis of a General Slope using NO reinforcement material.

INPUT DATA (EXCLUDING REINFORCEMENT LAYOUT)

SOIL DATA

========== Soil Layer #: ==========	Unit weight, γ [lb/ft ^{3}]	Internal angle of friction, ϕ [deg.]	Cohesion, c [lb/ft ^{2}]
1	120.0	0.0	800.0
2	130.0	0.0	2000.0
3	130.0	40.0	1000.0

REINFORCEMENT

Analysis of slope WITHOUT reinforcement.

WATER

Unit weight of water = 62.45 [lb/ft ^{3}]
Water pressure is defined by phreatic surface in Effective Stress Analysis.

SEISMICITY

Horizontal peak ground acceleration coefficient, Ao = 1.075
Design horizontal seismic coefficient, kh = Am = 0.25 x Ao = 0.269 & design vertical seismic coefficient, kv (down) = 0.000 x kh = 0.000

DRAWING OF SPECIFIED GEOMETRY - GENERAL - Quick Input

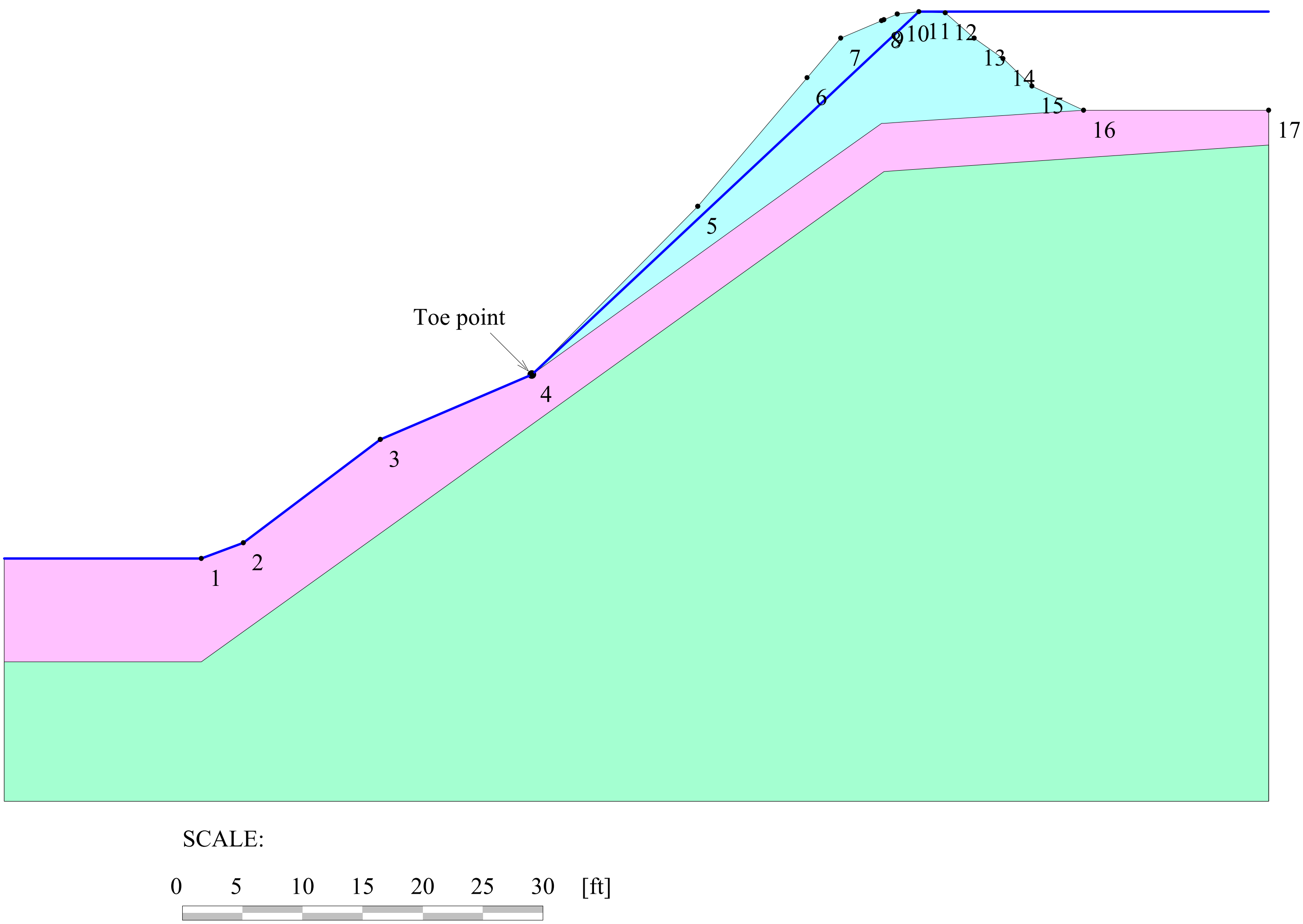
-- Problem geometry is defined along sections selected by user at x,y coordinates.
-- X1,Y1 represents the coordinates of soil surface. X2,Y2 represent the coordinates of the end of soil layer 1 and start of soil layer 2, and so on.
-- Xw,Yw represents the coordinates of phreatic surface.

GEOMETRY
Soil profile contains 3 layers (see details in next page)

WATER GEOMETRY
Phreatic line was specified.

UNIFORM SURCHARGE
Surcharge load, Q1.................................... None
Surcharge load, Q2.................................... None
Surcharge load, Q3.................................... None

STRIP LOAD
............................None..................................



TABULATED DETAILS OF GEMERAL SPECIFIED GEOMETRY

Soil profile contains 3 layers. Coordinates in [ft.]
Water was described by phreatic line.

	#	Xi	Yi
Top of Layer 1	1	0.00	0.00
	2	3.50	1.30
	3	14.90	9.90
	4	27.50	15.30
	5	41.30	29.30
	6	53.20	43.30
	7	57.90	45.30
	8	59.70	45.50
	9	61.90	45.40
	10	64.30	43.30
	11	66.70	41.60
	12	69.10	39.30
	13	73.40	37.30
	14	88.80	37.30
Top of Layer 2	15	0.00	0.00
	16	3.50	1.30
	17	14.90	9.90
	18	27.50	15.30
	19	50.40	31.80
	20	56.60	36.20
	21	73.40	37.30
	22	88.80	37.30
Top of Layer 3	23	0.00	-8.60
	24	56.80	32.20
	25	88.80	34.40
Top of Phreatic Line	27	0.00	0.00
	28	3.50	1.30
	29	14.90	9.90
	30	27.50	15.30
	31	59.70	45.50

TABULATED DETAILS OF SPECIFIED GEOMETRY

Soil profile contains 3 layers. Coordinates in [ft.]
Water was described by phreatic line. Y values are tabulated in the right most column.

#	X	Y1	Y2	Y3	(phreatic) Yw
1	0.00	0.00	0.00	-8.60	0.00
2	3.50	1.30	1.30	-6.09	1.30
3	14.90	9.90	9.90	2.10	9.90
4	27.50	15.30	15.30	11.15	15.30
5	41.30	29.30	25.24	21.07	28.24
6	50.40	40.01	31.80	27.60	36.78
7	53.20	43.30	33.79	29.61	39.40
8	56.60	44.75	36.20	32.06	42.59
9	56.80	44.83	36.21	32.20	42.78
10	57.90	45.30	36.29	32.28	43.81
11	59.70	45.50	36.40	32.40	45.50
12	61.90	45.40	36.55	32.55	45.50
13	64.30	43.30	36.70	32.72	45.50
14	66.70	41.60	36.86	32.88	45.50
15	69.10	39.30	37.02	33.05	45.50
16	73.40	37.30	37.30	33.34	45.50
17	88.80	37.30	37.30	34.40	45.50

RESULTS OF ROTATIONAL STABILITY ANALYSIS

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each entry point (considering all specified exit points)

Entry Point #	Entry Point (X, Y) [ft]		Exit Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
1	51.90	41.78	4.40	1.98	11.43	41.84	40.47	2.55	
2	54.71	43.94	4.39	1.98	11.84	44.20	42.87	2.36	
3	57.52	45.14	4.02	2.05	12.91	45.77	44.61	2.19	
4	60.33	45.47	4.15	2.04	15.30	45.68	45.04	2.02	
5	63.14	44.31	4.32	2.00	16.49	47.12	46.73	1.91	
6	65.95	42.13	4.15	2.04	15.87	51.65	50.98	1.80	
7	68.76	39.62	3.98	2.06	15.17	57.40	56.46	1.70	
8	71.57	38.15	3.96	2.06	15.09	62.59	61.54	1.64	
9	74.38	37.30	4.08	2.04	15.77	66.44	65.46	1.60	
10	77.19	37.30	4.11	2.03	15.46	71.84	70.73	1.58	
11	80.00	37.30	4.25	2.00	16.06	75.59	74.53	1.57	. On extreme X-entry

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-entry' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

****

Results in the tables below represent critical circles identified between specified points on entry and exit. (Theta-exit set to 50.00 deg.) The most critical circle is obtained from a search considering all the combinations of input entry and exit points.

Critical circles for each exit point (considering all specified entry points).

Exit Point #	Exit Point (X, Y) [ft]		Entry Point (X, Y) [ft]		Critical Circle (Xc, Yc, R) [ft]			Fs	STATUS
. 1	4.25	2.00	80.00	37.30	16.06	75.59	74.53	1.57	. On extreme X-exit
2	8.60	5.59	80.00	37.30	21.94	71.77	67.52	1.66	
3	13.13	9.14	80.00	37.30	26.74	70.28	62.64	1.77	
4	17.87	11.49	80.00	37.30	29.84	70.36	60.07	1.83	
5	22.75	13.43	80.00	37.30	31.44	73.17	60.37	1.87	
6	27.36	15.53	77.19	37.30	31.75	73.39	58.03	1.90	
7	32.28	20.19	63.14	44.31	-20.27	119.22	112.11	2.09	
8	36.95	24.92	65.95	42.13	-131.20	341.33	358.32	1.91	
9	41.66	29.74	65.95	42.13	14.86	112.30	86.80	1.87	
10	46.14	35.23	68.76	39.62	45.20	100.42	65.20	2.19	
11	50.94	40.73	65.95	42.13	57.05	56.47	16.88	4.59	

Note: In the 'Status' column, OK means the critical circle was identified within the specified search domain. 'On extreme X-exit' means that the critical result is on the edge of the search domain; a lower Fs may result if the search domain is expanded.

CRITICAL RESULTS OF ROTATIONAL AND TRANSLATIONAL STABILITY ANALYSES

Rotational (Circular Arc; Bishop) Stability Analysis

Minimum Factor of Safety = 1.57
Critical Circle: Xc = 16.06[ft], Yc = 75.59[ft], R = 74.53[ft]. (Number of slices used = 58)

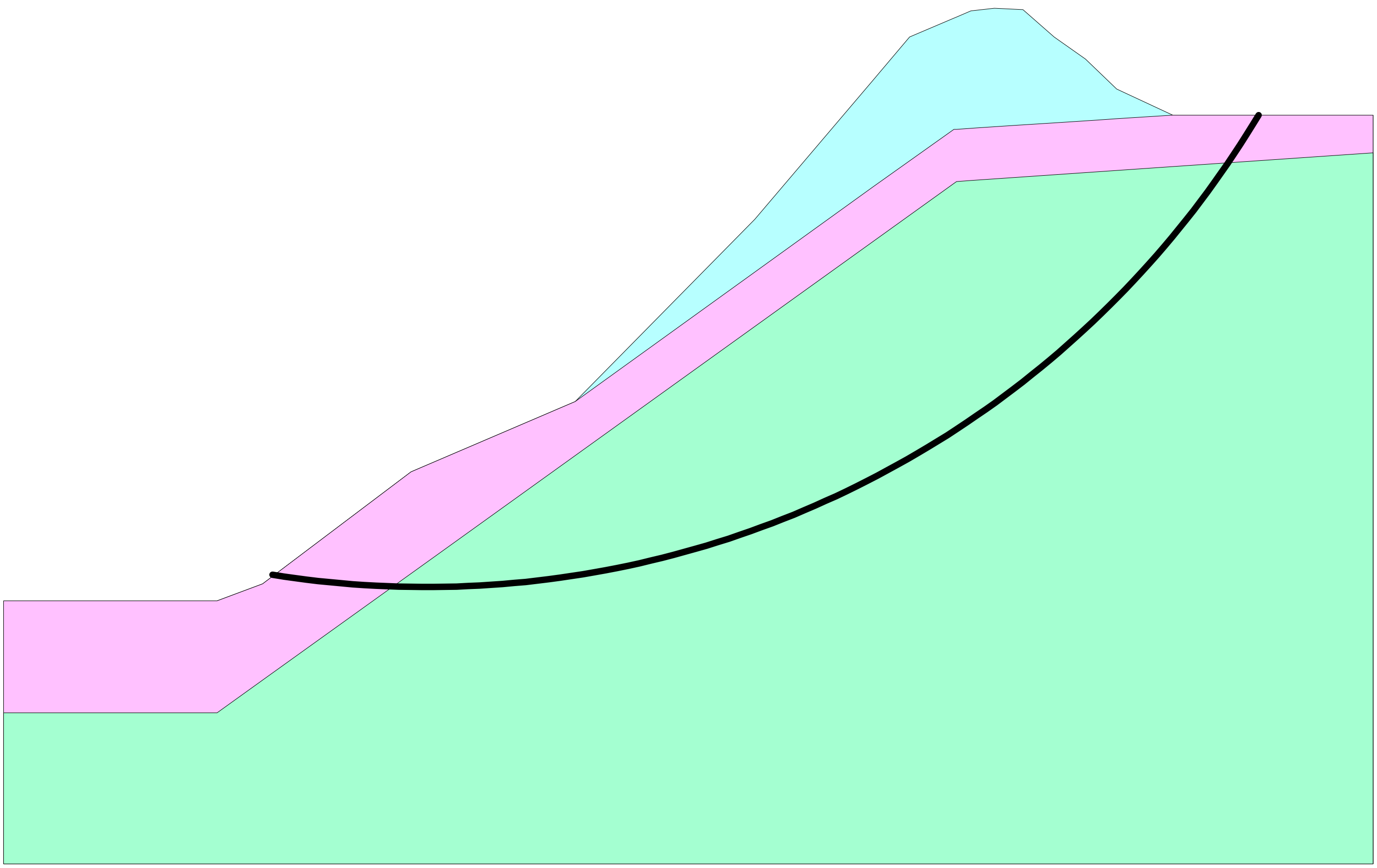
Translational (2-Part Wedge; Spencer), Direct Sliding, Stability Analysis

N O T C O N D U C T E D

Three-Part Wedge Stability Analysis

N O T C O N D U C T E D

REINFORCEMENT LAYOUT: DRAWING



SCALE:

0 5 10 15 20 25 30 [ft]

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

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April 12, 2022

Santa Clara Valley Open Space Authority
Attn: Galli Basson
33 Las Colinas Ln.
San Jose, CA 95119
(408) 224-7476
gbasson@openspaceauthority.org

Subject: **Basis of Design for 95% Design Plans**
Habitat Enhancement and Pond Restoration
Rancho Canada Del Oro Open Space

Dear Ms. Basson,

Sherwood Design Engineers Inc. (SDE) is pleased to present to you this Basis of Design letter to accompany the 95% Permit Plans Submittal for the Rancho Canada Del Oro Open Space Habitat Enhancement and Pond Restoration.

1. PROJECT DESCRIPTION

Rancho Canada Del Oro Open Space is located in the foothills of the Santa Cruz Mountains in South Santa Clara County and managed by the Santa Clara Open Space Authority (OSA). The proposed project is intended to enhance habitats for the California Red Legged Frog (CRLF), California Tiger Salamander, and Western Pond Turtle; and reduce erosion of the berms and outflow areas. SDE has proposed the following recommendations for the following three ponds:

- Pond RC-01: Improve Pond RC-01 by constructing a clay liner intended to reduce/limit seepage and increase the lifespan of the earthen dam and pond. Use of a portable pump to drain the pond during construction and to manage bullfrog and non-native fish populations.
- Pond RC-07: A full repair/restoration of Pond RC-07 and the hillside below it are beyond the scope of this project. SDE recommends implementing measures to prolong the life of Pond RC-07. This includes excavating the pond bottom away from the embankment and installing a new overflow pipe that will discharge at the base of the hillside. The overflow pipe discharge will include a "tee" fitting and rock energy dissipater to reduce the energy of the water discharging from the pipe.
- Pond RC-10: Pond RC-10 has moderate downslope stability and erosion concerns that are likely the result of seepage through the bottom of the pond. Measures intended to prolong the life of Pond RC-10 include excavating the pond bottom away from the embankment and installing a new overflow pipe that will discharge at the base of the hillside. The overflow pipe discharge will include a "tee" fitting and rock energy dissipater to reduce the energy of the water discharging from the pipe.

2. SITE INVESTIGATION AND SUBMITTALS TO DATE

To date there have been the following site visits and submittals shown in Table 1.

Table 1. Site Visits and Submittal History

Date	Entity	Purpose
March 7, 2019	Cross Land Survey Inc.	Survey RC-07 and RC-10
September 19, 2019	SDE and SCVOSA	Preliminary assessment of RC-07 and RC-10 and limited survey of RC-01 to determine approximate depth and volume of pond.
October 24, 2019	SDE	15% Concept plans of ponds RC-01, RC-07 and RC-10 and estimate of probable cost submitted to SCVOSA to support grant application.
March 6, 2020	SDE	60% Design Development Plans
March 10, 2020	SDE	60% Engineer's Estimate of Probable Cost, Basis of Design and Water Balances
June 13 and 26, 2020	Butano Geotechnical Engineering	Field exploration and borings at various pond location (final Report dated January 31, 2020)
January 3, 2022	SDE	Site Visit to Assess current Pond Conditions
January 10-11, 2022	Shedden Engineering & Surveying, Inc.	Survey RC-01

3. PROPOSED IMPROVEMENTS

RC-01

Based on survey completed by Shedden Engineering & Surveying, Inc. and a hydraulic analysis of the pond, SDE recommends a using a portable pump to drain pond RC-01. The pump will allow for the pond level to be managed and drained during the dry season to control bullfrog populations, providing a more suitable habitat for CRLF. The pump will discharge water onto competent bedrock within the existing earthen overflow spillway.

Based on site visit observations on January 3, 2022, it is recommended to leave the existing earthen overflow spillway and outlet drainage channel as-is. Adjacent to the outlet, a landslide scarp was observed subsequent to the heavy December rainfall. The landslide is mapped on Sheet C3.0 of the Civil Drawings. Repairing the landslide is outside of the scope of this project, however continued flow through the earthen overflow channel will continue to scour the toe of the slide and when coupled with heavy rain, may destabilize the slide. Continued monitoring is recommended to observe any movement in the toe of the slide and to determine if maintenance activity (clearing the earthen overflow spillway) is required. In the event the toe of slope slips out within the channel, it is recommended to evaluate the condition of the channel and the slide and determine the best approach to restore the channel to the original geometry.

During the construction of the clay liner on Pond RC-01, the entire pond will need to be drained using a pump system. Draining the pond will allow for construction, and it will eliminate any bull frog tadpoles in the pond at the time of construction. To ensure that the pond can refill to its original volume after being drained and to account for the hydraulic cycle of pond RC-01, SDE completed a Water Balance Technical Memo which is attached to this letter for your reference. Overall, SDE found that after being drained in August or September, the pond RC-01 can return

to its original volume by October, during an average rainfall year. The pond may return to its maximum capacity later in the rainy season due to rainfall variability.

SDE recommends installing a bentonite clay liner on the surface of the embankment face to limit seepage through the earthen dam. Additionally, a bentonite clay cut off wall will be installed along the toe of the slope to further limit seepage through the embankment.

At the request of the OSA, the project will include two (2) floating turtle ramps and resource protecting fencing around portions of the pond. The floating ramp will provide basking locations for western pond turtles and the resource protection fencing will prevent cattle from eroding the embankment and damaging the bentonite clay liner.

Figure 1. Pond RC-01 – Looking Down on pond from Assess Road, Landslide Head Scarp Observed Jan 2022 after Heavy December Rainfall

RC-07

Pond RC-07 has significant downslope stability concerns, potentially resulting from seepage through the earthen embankment. Additionally overtopping and head-cutting of the embankment have left a very thin and narrow section of the embankment that poses an immediate risk of failure. Improvements to this pond are only intended as a stop-gap measure to prolong the short-term life of this pond. Over time this pond will likely experience continued degradation resulting from the unstable hillside located below the pond. The stabilization of the hillside and full restoration of the pond are beyond the scope of this project.

Based on survey completed by Cross Land Survey Inc. and a hydraulic analysis of the pond, SDE proposes grading to widen the berm, deepening the existing pond, plugging the existing outlet pipe, and installing a vertical standpipe outfall with a rim elevation set 2 feet below the existing overflow at the time of construction. Together, these measures will prolong the life of the pond and allow for a ponding duration that will provide habitat for the CRLF, during an average rainfall year.

The proposed width of the top of the berm will be a minimum of 6 feet. The top elevation of the berm will not be modified as a result of thickening the berm. SDE also recommends excavating the interior of the pond to a base elevation of 1415'. The maximum fill and cut slopes within the pond are not to exceed a 2H:1V slope. Overall, the combination of fill and pond excavation will reduce the current pond's volume by approximately 8%.

To determine the effect of the reduced volume and to account for the hydrologic cycle of pond RC-07, SDE completed a Water Balance Technical Memo which is attached to this letter for your reference. Overall, the water balance shows that the reduced volume will not greatly affect the hydraulic period of the pond. The water balance demonstrates the proposed pond geometry will retain water for an additional month when compared to the existing conditions.

SDE recommends removing and replacing the resource protection fencing in order protect the pond's earthen embankment from cattle.

Figure 2. Pond RC-07 – (L-R) Looking down from the road (pump visible), Slumping Hillside below Embankment, Erosion and Scour around outlet pipe

Pond RC-10

Pond RC-10 has moderate downslope stability and erosion concerns that are likely the result of seepage through the bottom of the pond, overtopping, and erosive forces withing the existing spillway. Additionally, the pond was constructed on a steep hillside resulting in a steep hydraulic gradient (according to the Geotechnical Report). Over time this pond will likely experience continued degradation resulting from the unstable hillside located below the pond. The stabilization of the hillside and full restoration of the pond are beyond the scope of this project. Based on the survey completed by Cross Land Survey Inc., a hydraulic analysis of pond 10, and review by Butano Geotechnical Engineers, SDE recommends excavating the pond interior to an elevation of 1259' and installing a vertical standpipe outfall with a rim elevation of 1263.35'. The proposed piped overflow will convey water discharging the pond to a rock energy dissipator down the slope from the pond.

The combination of setting the outfall pipe rim elevation to 1 foot below the existing overflow and excavating the pond results in a 30% reduction of pond storage volume. Setting the outfall pipe rim elevation 1' below the existing overflow is recommended to extend the lifespan of the pond's earthen embankment.

To determine the effect of the decreased volume and to account for the hydrologic cycle of pond RC-10, SDE completed a Water Balance Technical Memo which is attached to this letter for your reference. Overall, the proposed improvements have little effect to the pond's hydraulic period.

At the request of the OSA, the project will include one (1) floating turtle ramps and resource protecting fencing around portions of the pond. The floating ramp will provide basking locations for western pond turtles and the resource protection fencing will prevent cattle from eroding the embankment.

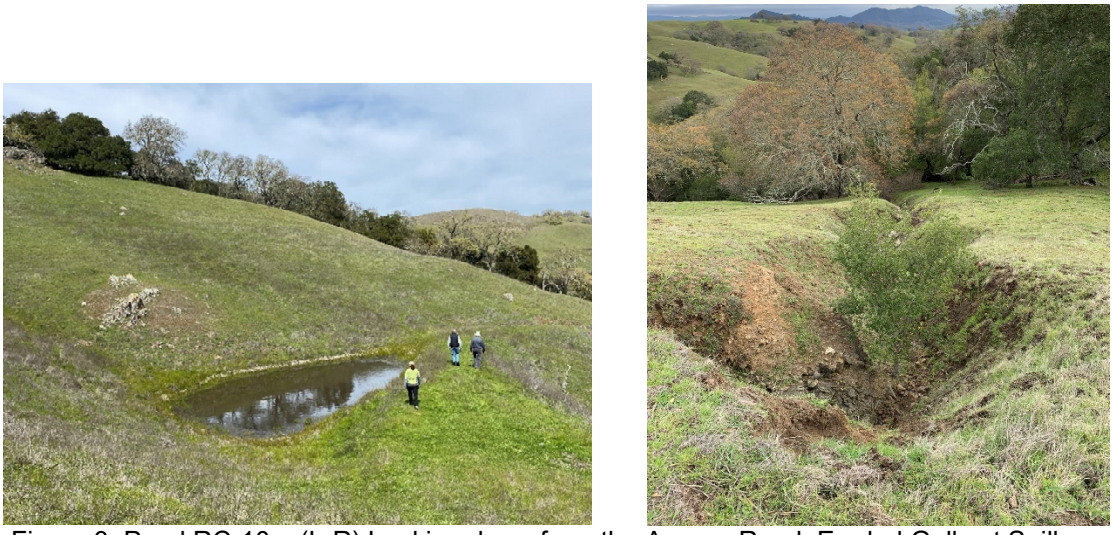

Figure 3. Pond RC-10 – (L-R) Looking down from the Access Road, Eroded Gully at Spillway

4. COST ESTIMATE

SDE prepared an updated cost analysis based on the 95% DD's accompanying this Basis of Design which reflects a total project construction cost of $430,000. See attached.

5. NEXT STEPS

Next steps include:

- Initiate permitting process with Rincon.
- Receive feedback from SCVOSA and Rincon on 95% design documents (95% DD's, Construction Cost Estimate, Water Balance, and Basis of Design).

Thank you for the opportunity to provide these services on this project. If you have and questions or need any additional information, please contact Robyn Cooper at (831) 426-9054.

Sincerely,

Robyn Cooper, MS, PE
Principal Engineer

Andy Greenberg
Project Manager

Carter Hayes
Design Engineer

Attachment:

Water Balance Analysis of Pond RC-01, RC-07, and RC-10
Engineer's Opinion of Probable Cost

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TECHNICAL MEMORANDUM

To: Galli Basson, Resource Management Specialist, Santa Clara Valley Open Space Authority

From: Robyn Cooper and Carter Hayes

Date: April 12, 2022

Subject: **Water Balance Analysis of Ponds RC-01, RC-07 and RC-10**

Dear Ms. Basson,

Sherwood Design Engineers (SDE) is pleased to present to you this Water Balance Analysis of Ponds RC-01, RC-07, and RC-10. Data from the water balance was used to evaluate existing and proposed conditions and to inform design decisions.

Introduction

Rancho Canada Del Oro Open Space is located in the foothills of the Santa Cruz Mountains in South Santa Clara County and managed by the Santa Clara Open Space Authority (OSA). The proposed project is intended to enhance habitats for the California Red Legged Frog (CRLF), California Tiger Salamander, and Western Pond Turtle; and reduce erosion of the berms and outflow areas. The area of focus is three manmade ponds located within the open space.

Pond RC-01 is located within a natural drainage channel and has a watershed area of approximately 0.5 square miles. The watershed slopes range from 6-50% and has a vegetated cover that includes approximately 35% oak woodland and 65% grassland. An earthen embankment was constructed within the drainage an impounds water upstream of it. Pond RC-01 has a man-made earthen overflow spillway that releases flow when the water level in the pond reaches the invert elevation of the spillway. The spillway is excavated down to bedrock in several areas with two small near vertical (waterfall) sections. The exterior face of the earthen embankment has visible seepage and the area downslope of the earthen embankment remains wet almost year round. Saturation of and seepage through the embankment are cause for concern. Additionally, Pond RC-01 has a significant bull frog and non-native fish population that threaten the egg masses, larva (tadpole), and young CRLF that also inhabit the pond.

Ponds RC-07 is located high in the watershed and was also cut into a natural drainage and has a watershed area of approximately 4.4 acres. The watershed is composed of grassy hills, with slopes ranging from 6-45%, and interspersed with oak trees. The material excavated to create the pond appears to have been placed within the downstream drainage to create the earthen embankment and subsequent impoundment, which is typical of older stock ponds. Pond RC-07 has significant downslope stability concerns, potentially resulting from seepage through the earthen embankment and bottom of the pond. Additionally, overtopping and head-cutting of the embankment have left a very thin and narrow section of the embankment that poses an immediate risk of failure. The OSA is

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currently using a pump to control water level and prevent further downcutting and erosion of the nick point. Significant erosion at the discharge location of the existing overflow pipe has created significant gullies further destabilizing the hillside below. Improvements to this pond are only intended as a stop-gap measure to prolong the short-term life of this pond. Over time, this pond will likely experience continued degradation resulting from the unstable hillside located below the pond. The stabilization of the hillside and full restoration of the pond are beyond the scope of this project.

Ponds RC-10 is also located high in the watershed and was also cut into a natural drainage and has a watershed area of approximately 3.0 acres. The watershed is composed of grassy hills, with slopes ranging from 6-45%, and interspersed with oak trees. The material excavated to create the pond appears to have been placed within the downstream drainage to create the earthen embankment and subsequent impoundment, similar to the other two ponds. Pond RC-10 has a man-made earthen overflow spillway that releases flow when the water level in the pond reaches the invert elevation of the spillway. The spillway is excavated in erosive soils and overtime has scoured the bottom of the channel creating sizable gullies downslope of the pond creating additional instability of the hillside below the pond. Pond RC-10 has moderate downslope stability and erosion concerns that are likely the result of seepage through the bottom of the pond, overtopping, and erosive forces withing the existing spillway. Additionally, the pond was constructed on a steep hillside resulting in a steep hydraulic gradient (according to the Geotechnical Report). Over time this pond will likely experience continued degradation resulting from the unstable hillside located below the pond. The stabilization of the hillside and full restoration of the pond are beyond the scope of this project.

Water Balance Analysis

SDE performed a water balance analysis for each pond to estimate the volume of water in the ponds on a monthly basis during an average rainfall year. The water balance calculations evaluated inflows to the pond (runoff or overland flow) and discharges from the pond (infiltration, evaporation, and pumping).

Monthly average rainfall from the NOAA Station in Morgan Hill (#045853) was used to determine average rainfall conditions. Historic data for this analysis spans from 1948-2016. Precipitation fluctuation resulting from climate change have not been evaluated as part of this project, but may have impacts on the results presented below.

SDE used a runoff coefficient of 0.42 for pastures in hilly terrain with clay and silt loam, which assumes that 42% of the runoff generated at the site would reach the pond. The other 58% would be lost to interception by foliage and infiltration into the soils.

Monthly infiltration, water lost through the pond bottom, was calculated. The infiltration was determined based on the soil series and permeability values reported by the NRCS Web Soil Survey. The soil in the area of the pond is classified as vallecitos rocky loam. SDE used an average infiltration rate of 0.2 in/hr for ponds RC-07 and RC-10, and 0.1 in/hr for pond RC-01 for use within the water balance calculations. A smaller infiltration value was used for Pond RC-01 because clay was encountered during the geotechnical exploration within the pond vicinity.

Monthly evaporation data was compiled from the data obtained from the CA Department of Water Resources Bulletin 73-19. The evaporation data, given in inches per month, was applied to the surface area of each pond to quantify the volume of water loss.

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Water balance calculations were performed to estimate the volume of water in the ponds. The net volume of water remaining in the pond (cumulative actual volume) is determined by subtracting the outflow from the inflows to the pond on a monthly basis. Each month has an incremental volume that is either a positive number (inflow>outflow) or a negative number (outflow>inflow). When the cumulative volume of water is greater than the effective volume of the pond, the additional water will be discharged via the new improved spillway. A summary water balance calculations are presented in Table 1, 2, 3, and 4.

Pond RC-01

The goal for pond RC-01 is to add pond level controls to enhance red-legged frog and western pond turtle habitat, control bullfrog populations and remove non-native fish that currently inhabit the pond.

Pond RC-01 has become habitat for invasive bullfrog species, which will be managed by periodically draining the pond, through the addition of a new pumping system. Additionally, Pond RC-01 has seepage through the face of the embankment, affecting the ponding duration required for target species and compromising the integrity of the earthen dam. This will be addressed through the addition of a new clay liner and clay cut off wall along the inboard toe of the earthen dam that will reduce and minimize seepage. The existing earthen spillway will be monitored for debris and sediment accumulation and will cleaned out for periodically. Additional observation should include the new landslide on the hillside above the spillway.

SDE completed a water balance for Pond RC-01 to demonstrate a typical hydrologic period for the existing pond as shown in Table 1.

Table 1. Pond RC-01 Water Balance

Month	Incremental Volume of Water to Pond	Volume of Water in the Pond (ft^3)	Outflow (ft^3)
January	2,119,583	399,818	2,119,583
February	2,072,857	399,818	2,072,857
March	1,389,889	399,818	1,389,889
April	622,156	399,818	622,156
May	73,707	399,818	73,707
June	(59,207)	340,611	-
July	(50,501)	290,111	-
August	(60,811)	229,299	-
September	(35,566)	193,733	-
October	376,885	399,818	170,800
November	1,028,452	399,818	1,028,452
December	1,614,705	399,818	1,614,705

The water balance calculations for RC-01 indicate that the existing pond typically retains water year-around. The pond will be completely full in May and will recede to approximately half its volume in the month of September with an associated lowest volume of 193,733 ft^3 in an average rainfall year.

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SDE completed an additional water balance to determine how long it would take the pond to refill to its original level after being drained completely. Results of the "fully drained" condition hydraulic analysis are provided in Table 2.

Table 2. Pond RC-01 Water Balance

Month	Incremental Volume of Water to Pond	Volume of Water in the Pond (ft3)	Outflow (CF)
January	2,119,583	399,818	2,119,583
February	2,072,857	399,818	2,072,857
March	1,389,889	399,818	1,389,889
April	622,156	399,818	622,156
May	73,707	399,818	73,707
June	(59,207)	370,215	-
July	(50,501)	351,670	-
August	*(351,670)	-	-
September	-	-	-
October	400,794	399,818	976
November	1,048,457	399,818	1,048,457
December	1,634,405	399,818	1,634,405

* Drain pond in either August or September

Based on the results above, SDE recommends that Pond RC-01 be drained in August-September, allowing the target species, the California red legged frog, to fully metamorphose and leave the pond, thus controlling only the bull frog and non-native fish populations. Per the water balance, in the month of October (on an average rainfall year) the pond receives an estimated 424,703 ft^3 of water volume through precipitation and overland flow, which fills the pond to its original maximum water level. The pond may return to its maximum capacity later in the rainy season due to rainfall variability.

Pond RC-07

The goal for Pond RC-07 is to provide temporary measures to stabilize a failure in the berm so the pond can continue to function as red-legged frog breeding habitat for as long as possible.

The existing pond has significant downslope stability concerns, potentially resulting from seepage through the earthen embankment. A nick point resulting from overtopping of the berm has replaced the pipe outfall for level control, by becoming lower in elevation than the invert of the existing outfall pipe. The nick point has resulted in a very thin and narrow section of embankment that poses an immediate risk of failure. The nick point has resulted in a reduction of the maximum pond volume from 7,866 ft^3 (when the level was controlled by the existing outfall pipe) to 6,258 ft^3. Additionally, if left untreated, the nick point is likely to continue to down cut and ultimately lead to the complete failure of the pond. Over time this pond will experience continued degradation given the instability of the slope below the pond and the significant eroded channels from the existing overflow pipe.

Currently the SCOSA is utilizing a pump to lower water levels in the pond during and immediately after storm events and an emergency measure to prevent the pond from filling to a level where water is being conveyed through the nick point. SDE proposes a temporary

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stabilization of the berm, through the deepening the existing pond, shifting the deepest portion of pond away from the nick point, plugging the existing outlet pipe, and installing a vertical standpipe outfall with a rim elevation set 2 feet below the repaired nick point elevation at the time of construction. The existing outlet shall be plugged to stop the gully below the pond to receive concentrated runoff from the pond which would lead to continued erosion. The maximum pond volume after these temporary measures have been completed will be approximately 5,812ft^3.

To insure the that proposed pond design will continue to provide habitat for the target species, SDE completed a water balance for the current conditions and after implementation of the temporary stabilization measures. Results to the hydrologic analysis for Pond RC-07 are shown Table 3.

Table 3. Pond RC-07 Water Balance – Existing Conditions and Post-Measures in Place

Month	Existing Pond Size		New Pond Size	
	Volume of Water in the Pond (ft3)	Outflow (ft3)	Volume of Water in the Pond (ft3)	Outflow (ft3)
January	6,258	29,871	5,812	30,520
February	6,258	29,312	5,812	29,909
March	6,258	18,970	5,812	19,665
April	6,258	7,567	5,812	8,281
May	5,552	-	5,812	82
June	2,862	-	3,928	-
July	203	-	2,125	-
August	-	-	186	-
September	-	-	-	-
October	3,904	-	4,622	-
November	6,258	11,357	5,812	13,163
December	6,258	22,385	5,812	23,031

The water balance calculations for Pond RC-07 indicates that the existing pond remains wet from October through April in an average rainfall year. The pond will be completely full in November and be completely dry in the month of May. Per the water balance calculations, the proposed pond retains water from October – May, therefore, slightly increasing the hydrologic period of the pond. The increased hydrologic period is the result of the proposed pond geometry being deeper, with smaller pond surface area. This new geometry leads to less losses of water through evaporation and infiltration. Our results indicate that although the proposed pond volume is 8% less, the ponding duration will extend into August during an average rainfall year.

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Pond RC-10

Pond-10 has moderate downslope stability and erosion concerns that are likely the result of seepage through the bottom of the pond, overtopping, and erosive forces within the existing spillway. Measures intended to prolong the life of this pond and are part of this project include excavating the pond bottom away from the embankment and installing a new overflow pipe that will discharge at the base of the hillside. The overflow pipe discharge will include a "tee" fitting and a rock energy dissipater to reduce the energy of the water discharging from the pipe.

The improvements result in a 30% reduction in the volume of Pond RC-10. To determine the impact of proposed improvements to the hydraulic period of the pond, SDE completed a water balance analysis for the current pond conditions and the post-improvements conditions. Results are provided in Table 4, below.

Table 4. Pond RC-10 Water Balance – Existing Conditions and Post-Improvements

	Existing Pond Size		New Pond Size	
Month	Volume of Water in the Pond (ft3)	Outflow (ft3)	Volume of Water in the Pond (ft3)	Outflow (ft3)
January	4,532	20,393	3,185	20,833
February	4,532	20,016	3,185	20,420
March	4,532	12,918	3,185	13,389
April	4,532	5,102	3,185	5,585
May	3,956	-	3,143	-
June	2,019	-	1,751	-
July	97	-	409	-
August	-	-	-	-
September	-	-	-	-
October	2,591	-	3,078	-
November	4,532	7,380	3,185	9,647
December	4,532	15,264	3,185	15,701

The water balance calculations for Pond RC-10 indicate that the existing pond remains wet from October through July in an average rainfall year. Per the water balance calculations, the proposed pond retains water for the same hydrologic period. The proposed pond geometry results in a deeper and smaller surface area which leads to less losses of water through evaporation and infiltration. Our results indicate that although the proposed pond is reduced by approximately 30% in volume, it will still provide a hydrologic period similar to the existing conditions.

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Conclusion

The proposed improvements at all three ponds will help stabilize the sites, while continuing to serve at critical habitat for threatened and endangered species.

Summary of results:

RC-01:

The proposed improvements will not affect the water balance of the pond, except when the pond is drained via a pumped system. Draining the pond will allow for better management for invasive fish and amphibian species.

RC-07:

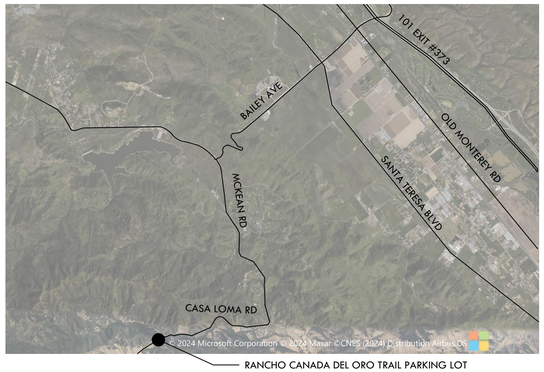
The proposed improvements at Pond RC-07 result in a 8% reduction of pond volume. The proposed pond has a on month longer hydrologic period than the existing pond. This is due the deepening and decrease in pond surface area. The reduced area of infiltration and evaporation leads to a slight increase in hydrologic period. Our data indicates that the proposed design will provide suitable habitat for the species of concern.

RC-10:

The proposed improvements and grading result in a 30% reduction in pond volume. Similar to Pond RC-07, the updated geometry deepened the pond and reduced the pond surface area. As a result, the proposed pond's hydrologic period matches the existing conditions. The results indicate that the proposed design at RC-10 will continue to provide suitable habitat for the target species.

RANCHO CANADA DEL ORO OPEN SPACE STOCK POND RESTORATION

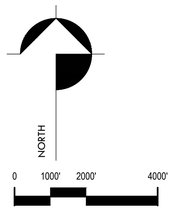
MORGAN HILL, SANTA CLARA COUNTY, CALIFORNIA

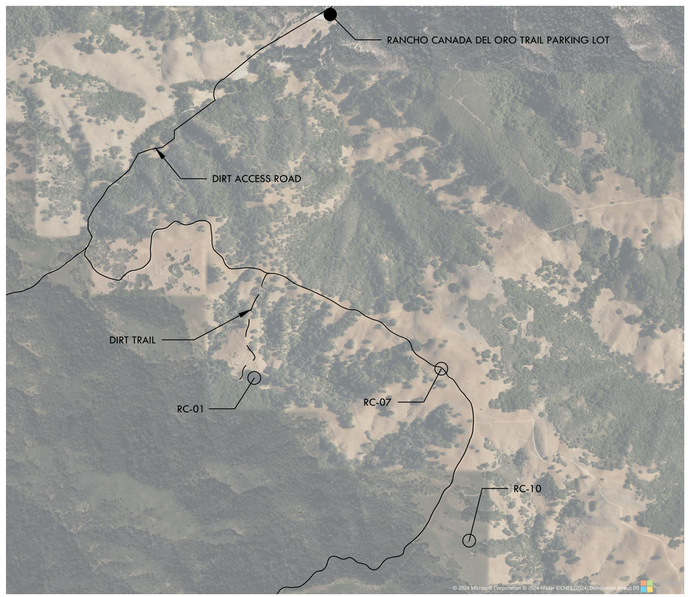


SITE VICINITY MAP

SOURCE: BING MAPS

SCALE: NTS

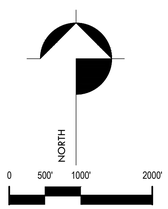




SITE LOCATION MAP

SOURCE: BING MAPS

SCALE 1"= 1000'



PROJECT DESCRIPTION

THE PROPOSED PROJECT IS INTENDED TO ENHANCE HABITAT FOR CALIFORNIA RED LEGGED FROGS, CALIFORNIA TIGER SALAMANDERS, AND WESTERN POND TURTLES BY IMPROVING PONDING DURATIONS OF THREE PONDS (RC-01, RC-07 AND RC-10). ALL PONDS ARE LOCATED HIGH IN THE WATERSHED AND WERE CUT INTO NATURAL DRAINAGES.

POND 01 HAS BECOME HABITAT FOR INVASIVE BULLFROG SPECIES, WHICH WILL BE MANAGED BY PERIODICALLY DRAINING THE POND, THROUGH THE ADDITION OF A NEW PUMPING SYSTEM. ADDITIONALLY POND 01 HAS SEEPAGE THROUGH THE FACE OF THE EMBANKMENT, AFFECTING THE PONDING DURATION REQUIRED FOR TARGET SPECIES. THIS WILL BE ADDRESSED THROUGH THE ADDITION OF A NEW CLAY LINER THAT WILL REDUCE AND MINIMIZE SEEPAGE. THE EXISTING EARTHEN SPILLWAY WILL BE CLEANED OUT FOR CONTINUED USE AND MONITORED BASED ON THE OBSERVATION OF A NEW LANDSLIDE ON THE HILLSIDE ABOVE THE SPILLWAY.

POND 07 HAS SIGNIFICANT DOWNSLOPE STABILITY CONCERNS, POTENTIALLY RESULTING FROM SEEPAGE THROUGH THE EARTHEN EMBANKMENT. ADDITIONALLY, OVERTOPPING AND HEADCUTTING OF THE EMBANKMENT HAVE LEFT A VERY THIN AND NARROW SECTION OF THE EMBANKMENT THAT POSES AN IMMEDIATE RISK OF FAILURE. IMPROVEMENTS TO THIS POND ARE ONLY INTENDED AS A STOP GAP MEASURE TO PROLONG THE SHORT TERM LIFE OF THE POND. OVER TIME THIS POND WILL EXPERIENCE CONTINUED DEGRADATION GIVEN THE INSTABILITY OF THE SLOPE BELOW THE POND AND THE SIGNIFICANT ERODED CHANNELS FROM THE EXISTING OVERFLOW PIPE. A FULL REPAIR/RESTORATION OF THE POND AND THE HILLSIDE BELOW IT ARE BEYOND THE SCOPE OF THIS PROJECT. MEASURES INTENDED TO PROLONG THE LIFE OF THIS POND AND ARE PART OF THIS PROJECT INCLUDE EXCAVATING THE POND BOTTOM AWAY FROM THE EMBANKMENT AND INSTALLING A NEW OVERFLOW PIPE THAT WILL DISCHARGE AT THE BASE OF THE HILLSIDE. THE OVERFLOW PIPE DISCHARGE WILL INCLUDE A "TEE" FITTING AND A ROCK ENERGY DISSIPATER TO REDUCE THE ENERGY OF THE WATER DISCHARGING FROM THE PIPE.

POND-10 HAS MODERATE DOWNSLOPE STABILITY AND EROSION CONCERNS THAT ARE LIKELY THE RESULT OF SEEPAGE THROUGH THE BOTTOM OF THE POND, OVERTOPPING, AND EROSIVE FORCES WITHIN THE EXISTING SPILLWAY. A FULL REPAIR/RESTORATION OF THE POND AND THE HILLSIDE BELOW IT ARE BEYOND THE SCOPE OF THIS PROJECT. MEASURES INTENDED TO PROLONG THE LIFE OF THIS POND AND ARE PART OF THIS PROJECT INCLUDE EXCAVATING THE POND BOTTOM AWAY FROM THE EMBANKMENT AND INSTALLING A NEW OVERFLOW PIPE THAT WILL DISCHARGE AT THE BASE OF THE HILLSIDE. THE OVERFLOW PIPE DISCHARGE WILL INCLUDE A "TEE" FITTING AND A ROCK ENERGY DISSIPATER TO REDUCE THE ENERGY OF THE WATER DISCHARGING FROM THE PIPE.

THE SPECIFIC GOALS OF THE PROJECT INCLUDE THE FOLLOWING:

- ENHANCE HABITAT FOR CALIFORNIA RED LEGGED FROGS (CRLF), CALIFORNIA TIGER SALAMANDER, WESTERN POND TURTLE, AND OTHER SPECIES IN PONDS RC-01, RC-07, AND RC-10;
- REDUCTION OF NON-NATIVE FISH AND BULLFROGS POPULATIONS AT POND RC-01
- IMPROVING/EXTENDING PONDING DURATION OF RC-07 TO MAINTAIN CRLF BREEDING HABITAT;
- WORK DONE ON POND RC-07 IS A TEMPORARY MEASURE FOR THE PURPOSE OF EXTENDING THE LIFE OF POND UNTIL CRLF CAN ESTABLISH BREEDING HABITAT IN SURROUNDING PONDS;

REFERENCE DOCUMENTS

1. BASIS OF DESIGN FOR 95% DESIGN PLANS: HABITAT ENHANCEMENT AND POND RESTORATION RANCHO CANADA DEL ORO OPEN SPACE, PREPARED BY SHERWOOD DESIGN ENGINEERS, DATED APRIL 12, 2022.
2. GEOTECHNICAL INVESTIGATION DESIGN PHASE FOR PONDS RC-01, 05, 08, AND 10, RANCHO CANADA DEL ORO OPEN SPACE PRESERVE, SANTA CLARA COUNTY, CALIFORNIA, PREPARED BY BUTANO GEOTECHNICAL ENGINEERING INC., DATED JANUARY 2020.
3. HABITAT MITIGATION AND MONITORING PLAN (HMMP) PREPARED BY RINCON CONSULTANTS, INC. DATED AUGUST 2022.

GENERAL NOTES

1. THESE DRAWINGS REPRESENT THE GENERAL DESIGN INTENT TO BE IMPLEMENTED ON THE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTRACTING THE PROJECT ENGINEER FOR ANY ADDITIONAL CLARIFICATION OR DETAIL NECESSARY TO ACCOMMODATE SITE CONDITIONS.
2. THE CONTRACTOR SHALL AGREE TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR SITE CONDITIONS DURING CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY.
3. ALL WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE LATEST SAFETY RULES AND REGULATIONS OF ALL AUTHORITIES AND AGENCIES HAVING JURISDICTION OVER THE WORK. THIS INCLUDES FOLLOWING ALL RELEVANT PERMIT REQUIREMENTS.
4. THE CONTRACTOR SHALL PROVIDE TREE PROTECTION AS SPECIFIED FOR ALL EXISTING TREES TO REMAIN.
5. THE CONTRACTOR SHALL CONFIRM CONSTRUCTION STAGING LOCATION AND COORDINATE WITH SCVOSA.

SURVEY NOTES

1. SITE VICINITY TOPOGRAPHIC CONTOURS ARE EXTRACTED FROM SANTA CLARA COUNTY 2006 LIDAR. THE CONTOURS ARE SHOWN IN INTERVALS OF 5 FEET.
2. TOPOGRAPHIC FIELD DATA WAS COLLECTED FOR PONDS RC-07 AND RC-10 BY CROSS LANDING SURVEYING INC. IN 2019. CONTOUR INTERVALS FOR THIS SURVEY ARE 1 FOOT.
3. TOPOGRAPHIC FIELD DATA FOR POND RC-01 WAS COLLECTED BY SHEDDEN ENGINEERING AND SURVEYING, INC. IN 2022. CONTOUR INTERVALS FOR THIS SURVEY ARE 1 FOOT.
4. SITE CONDITIONS MAY HAVE CHANGED FROM TIME OF SURVEY.

ABBREVIATIONS

(E)	EXISTING	HWL	HIGH WATER LINE
(N)	NEW	INV	INVERT
Ø	DIAMETER	LBS	POUNDS
APPROX.	APPROXIMATE	MAX	MAXIMUM
BG	BAR GUARD	MIN	MINIMUM
CIP	CAST-IN-PLACE	OC	ON CENTER
CLR	CLEARANCE	OD	ON DIAMETER
CMP	CORRUGATED METAL PIPE	PVC	POLYVINYL CHLORIDE
CRLF	CALIFORNIA RED LEGGED FROG	RC	RANCHO CANADA
CY	CUBIC YARDS	RD	ROAD
DIA	DIAMETER	RSP	RECTANGULAR STEEL PIPE
EG	EXISTING GRADE	SCVOSA	SANTA CLARA VALLEY OPEN SPACE AUTHORITY
ELEV	ELEVATION	STD	STANDARD
EQ	EQUAL	STL	STEEL
FG	FINAL GRADE	TYP	TYPICAL
FT	FEET	V	VERTICAL
H	HORIZONTAL		
HDPE	HIGH DENSITY POLYETHYLENE		
HMMP	HABITAT MITIGATION & MONITORING PLAN		

GRADING VOLUMES

POND	CUT (CY)	FILL (CY)	NET (CY)
POND RC-01	1100	1100	0
POND RC-07	220	12	208 (CUT)
POND RC-10	29	6	23 (CUT)
TOTAL			231 (CUT)

GRADING VOLUME NOTES

1. GRADING VOLUMES ARE PRELIMINARY.
2. GRADING VOLUMES DO NOT INCLUDE SHRINKAGE AND SWELL FACTORS.
3. SLOPES SHALL NOT BE STEEPER THAN 2:1 (H:V) UNLESS OTHERWISE SPECIFIED.
4. CONTRACTOR SHALL COORDINATE WITH SCVOSA AND GEOTECHNICAL ENGINEER OR PROJECT ENGINEER TO LOCATE LOCALIZED BORROW SITE TO REDUCE OR ELIMINATE IMPORT OF MATERIAL FOR PROJECT FILL.
5. SUITABLE SOILS MAY BE DISPOSED ON ROADWAYS AS INDICATED ON SHEET C2.0 AND WITH THE APPROVAL OF SCVOSA AND THE GEOTECHNICAL ENGINEER OR PROJECT ENGINEER. CONTRACTOR TO VERIFY LOCATION IN THE FIELD. NON-SUITABLE MATERIALS MUST BE HAULED OFFSITE FOR DISPOSAL.
6. GRADING VOLUMES INCLUDE TOPSOIL.
7. POND 1 GRADING VOLUME DOES NOT INCLUDE BENTONITE CLAY TO CONSTRUCT THE POND LINER. FOR POND LINER, REFER TO NOTES IN DETAIL 2, SHEET C7.0

AREA OF DISTURBANCE

POND	AREA OF DISTURBANCE (ACRES)
POND RC-01	0.82
POND RC-07	0.52
POND RC-10	0.41
TOTAL	1.75

AREA OF DISTURBANCE NOTES

1. FILL IS FROM SITE, AS SHOWN ON DRAWINGS. NO IMPORT REQUIRED.

OWNER

SANTA CLARA VALLEY OPEN SPACE AUTHORITY (SCVOSA)
RACHEL CLEMONS
RESOURCE MANAGEMENT SPECIALIST
33 LAS COLINAS LANE
SAN JOSE, CA 95119
(408) 224-7476

CIVIL ENGINEER

SHERWOOD DESIGN ENGINEERS
ROBYN COOPER
1525 SEABRIGHT AVE.
SANTA CRUZ, CA 95062
(831) 426-9054

GEOTECHNICAL ENGINEER

BUTANO GEOTECHNICAL ENGINEERING INC.
GREG BLOOM
231 GREEN VALLEY RD, SUITE E
FREEDOM, CA 95019
(831) 724-2612

LAND SURVEYOR

CROSS LANDING SURVEYING INC.
KRISTINA COMERER
2210 MT. PLEASANT RD.
SAN JOSE, CA 95148
(408) 274-7994

SHEDDEN ENGINEERING AND SURVEYING, INC.
BRIAN SHEDDEN
148 BELMONT STREET
SANTA CRUZ, CA 65060
(831) 325 - 2692

ENVIRONMENTAL CONSULTANT

RINCON CONSULTANTS, INC.
COLBY BOGGS
200 WASHINGTON ST, SUITE 207
SANTA CRUZ, CA 95060
(831) 333-0310

SHEET INDEX		
SHEET NUMBER	SHEET	TITLE
1	C1.0	COVER SHEET
2	C2.0	CONSTRUCTION ACCESS AND STAGING
3	C2.1	POND DEWATERING DETAIL
4	C3.0	POND RC-01 DRAINAGE AND GRADING
5	C4.0	POND RC-07 DRAINAGE AND GRADING
6	C5.0	POND RC-10 DRAINAGE AND GRADING
7	C6.0	EROSION CONTROL PLAN, DETAILS AND RESOURCE PROTECTION
8	C7.0	DETAILS I
9	C7.1	DETAILS II
10	C8.0	GENERAL AND MATERIAL SPECIFICATIONS
11	C9.0	CONSTRUCTION SPECIFICATIONS

SHERWOOD DESIGN ENGINEERS
1525 Seabright Avenue
Santa Cruz, CA 95062
www.sherwoodengineers.com

REGISTERED PROFESSIONAL ENGINEER
ROBYN L. COOPER
NO. 73041
EXP. 12/31/26
CIVIL
STATE OF CALIFORNIA

SCALE:
0 1"
Note: If this graphic scale does not equal 1", this sheet has been modified from its original size

NO	DATE	REVISION

PROJECT NO. 21848

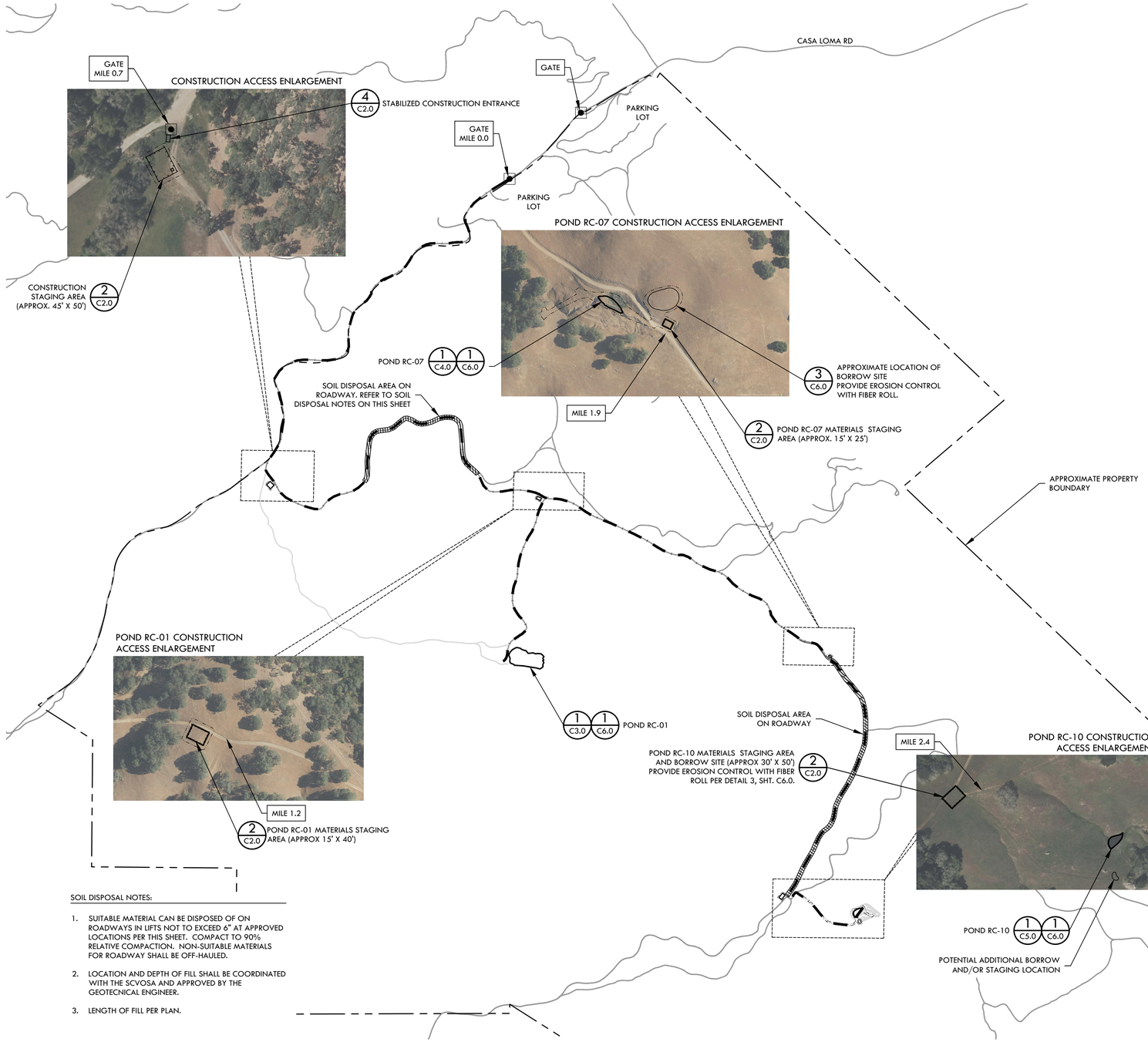
DATE 1/27/25
DRAWN CBH/PA/EM
DESIGNED CBH
CHECKED RC

100% CONSTRUCTION DOCUMENTS

SANTA CLARA VALLEY OPEN SPACE AUTHORITY
RANCHO CANADA DEL ORO OPEN SPACE
HABITAT ENHANCEMEMENT AND POND RESTORATION
CASA LOMA RD., MORGAN HILL, CA 95037

COVER SHEET

DRAWING NO.
C1.0

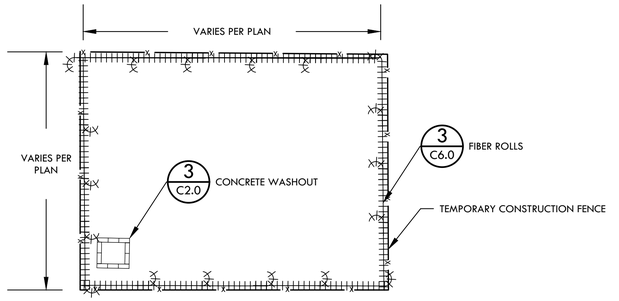


SOIL DISPOSAL NOTES:

1. SUITABLE MATERIAL CAN BE DISPOSED OF ON ROADWAYS IN LIFTS NOT TO EXCEED 6" AT APPROVED LOCATIONS PER THIS SHEET. COMPACT TO 90% RELATIVE COMPACTION. NON-SUITABLE MATERIALS FOR ROADWAY SHALL BE OFF-HAULED.
2. LOCATION AND DEPTH OF FILL SHALL BE COORDINATED WITH THE SCVOSA AND APPROVED BY THE GEOTECNICAL ENGINEER.
3. LENGTH OF FILL PER PLAN.

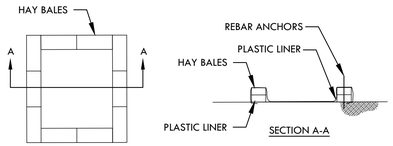
1 EXISTING SITE AND CONSTRUCTION ACCESS

SCALE: 1" = 500'



2 CONSTRUCTION STAGING AREA

SCALE: NTS

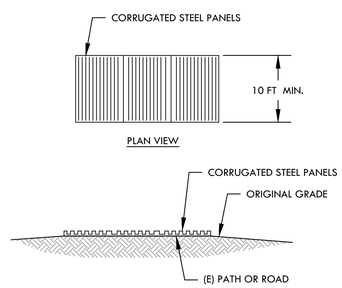


NOTES:

1. PLASTIC LINER SHALL BE WRAPPED AROUND AND TUCKED UNDER HAY BALES.
2. CONCRETE WASHOUT SHALL BE INSTALLED IN A LOCATION APPROVED BY THE PROJECT ENGINEER.

3 CONCRETE WASHOUT

SCALE: NTS



4 STABILIZED CONSTRUCTION ENTRANCE

SCALE: NTS

SHERWOOD
DESIGN ENGINEERS
1525 Seabright Avenue
Santa Cruz, CA 95062
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REGISTERED PROFESSIONAL ENGINEER
ROBYN L. COOPER
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EXP. 12/31/26
CIVIL
STATE OF CALIFORNIA

SCALE:
0 1"
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DESIGNED	CBH
CHECKED	RC

100% CONSTRUCTION DOCUMENTS

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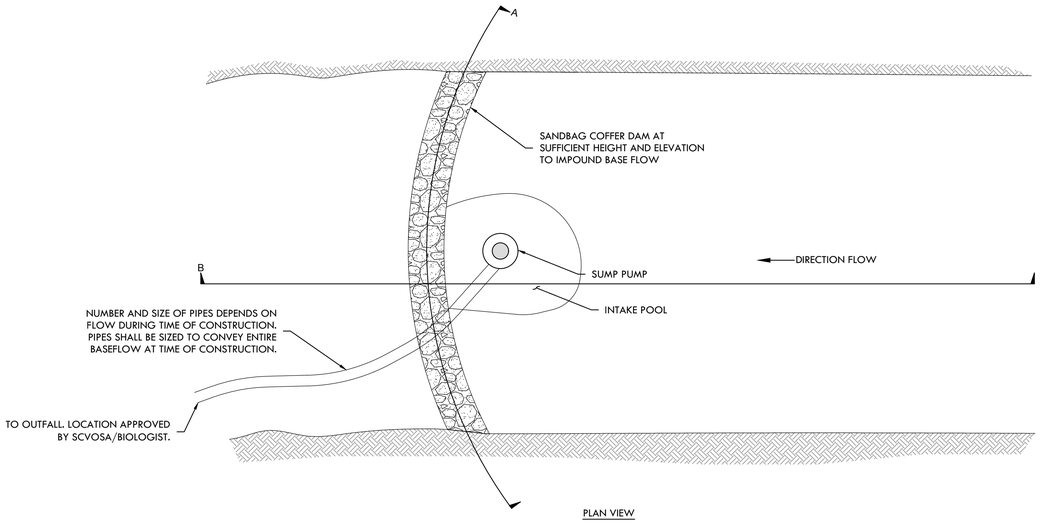
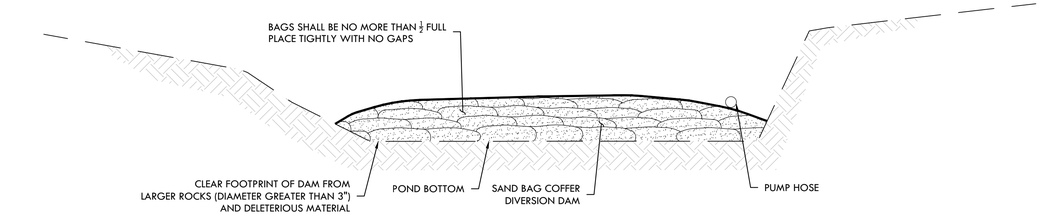
RANCHO CANADA DEL ORO
OPEN SPACE
HABITAT ENHANCEMENT AND POND RESTORATION
CASA LOMA RD., MORGAN HILL, CA 95037

CONSTRUCTION ACCESS
AND STAGING

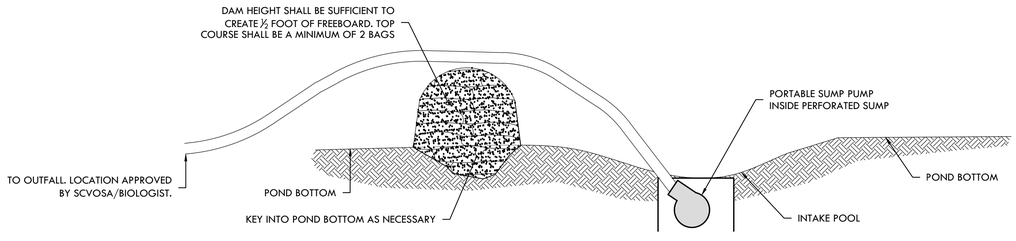
DRAWING NO.
C2.0



PLAN VIEW



SECTION A



SECTION B

1 POND DEWATERING DETAIL

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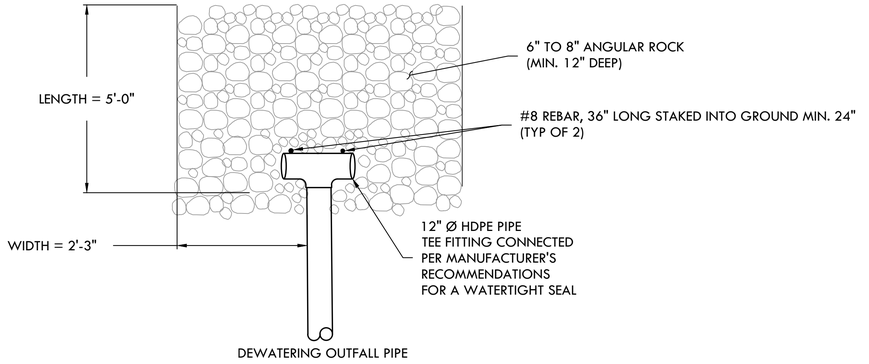
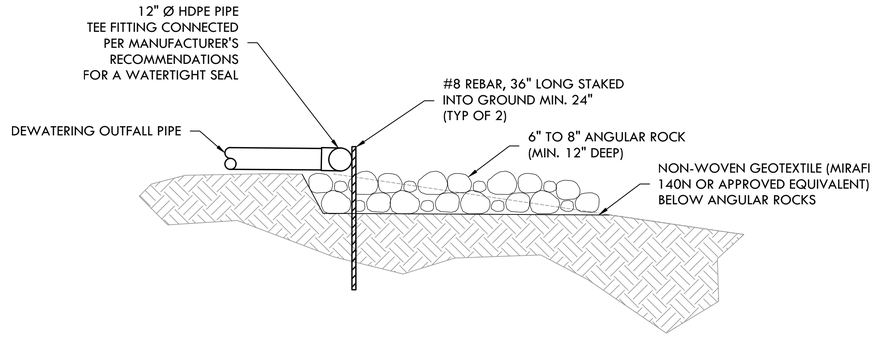


PLAN



PROFILE

NOTES

1. DEMOLISH ROCK AND DEWATERING INFRASTRUCTURE FOLLOWING CONSTRUCTION.

2 TEMPORARY DEWATERING OUTFALL DETAIL

SCALE: NTS

SHERWOOD DESIGN ENGINEERS
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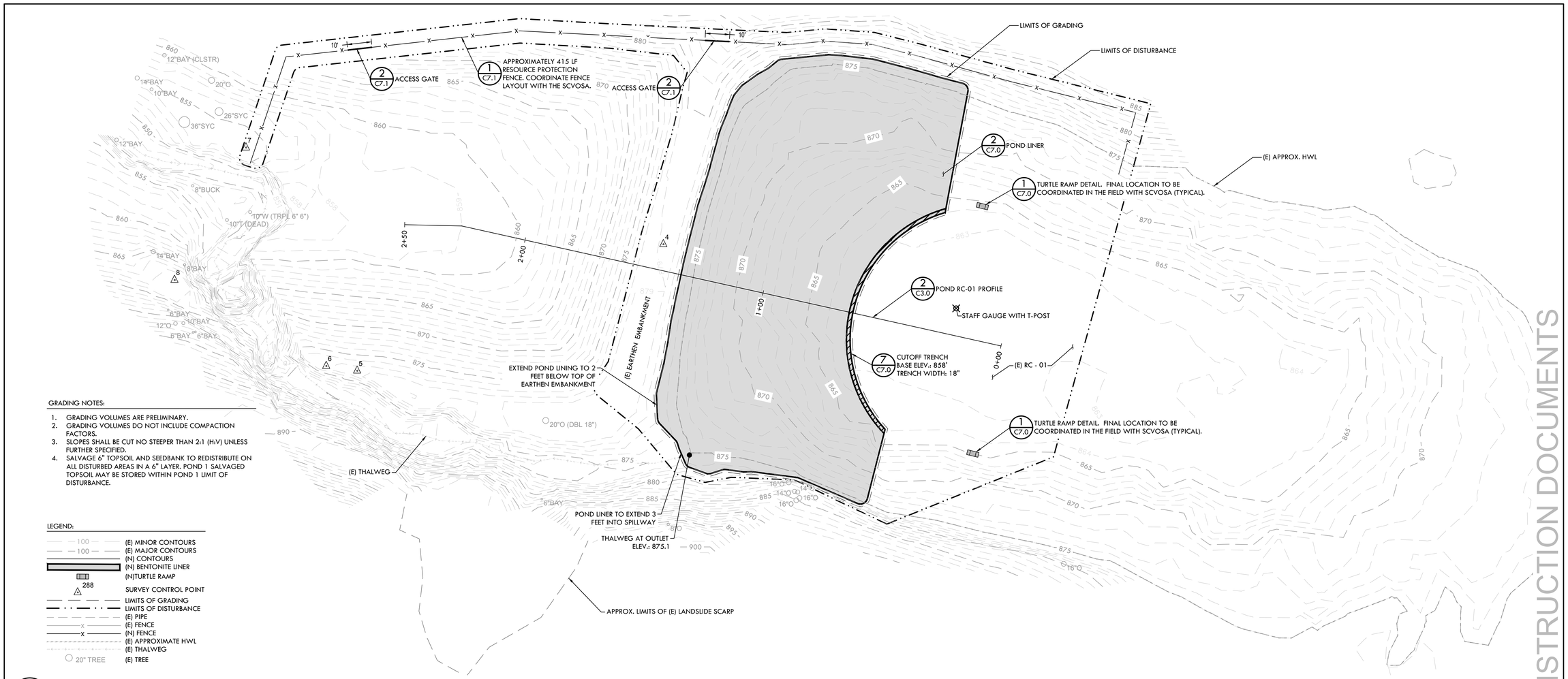
RANCHO CANADA DEL ORO OPEN SPACE
HABITAT ENHANCEMEMENT AND POND RESTORATION
CASA LOMA RD., MORGAN HILL, CA 95037

POND DEWATERING DETAIL

DRAWING NO.
C2.1



GRADING NOTES:

1. GRADING VOLUMES ARE PRELIMINARY.
2. GRADING VOLUMES DO NOT INCLUDE COMPACTION FACTORS.
3. SLOPES SHALL BE CUT NO STEEPER THAN 2:1 (H:V) UNLESS FURTHER SPECIFIED.
4. SALVAGE 6" TOPSOIL AND SEEDBANK TO REDISTRIBUTE ON ALL DISTURBED AREAS IN A 6" LAYER. POND 1 SALVAGED TOPSOIL MAY BE STORED WITHIN POND 1 LIMIT OF DISTURBANCE.

LEGEND:

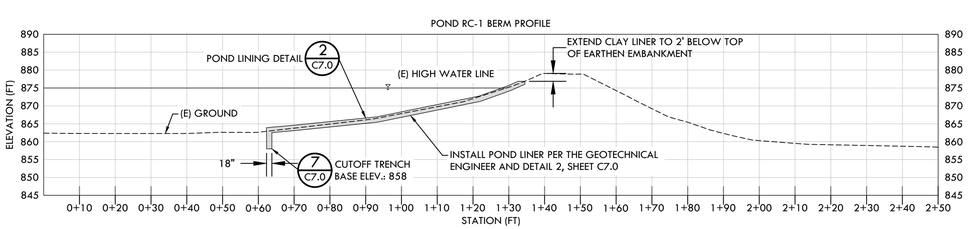
- (E) MINOR CONTOURS
- (E) MAJOR CONTOURS
- (N) CONTOURS
- (N) BENTONITE LINER
- (N)TURTLE RAMP
- SURVEY CONTROL POINT
- LIMITS OF GRADING
- LIMITS OF DISTURBANCE
- (E) PIPE
- (E) FENCE
- (N) FENCE
- (E) APPROXIMATE HWL
- (E) THALWEG
- (E) TREE

1 POND RC-01 GRADING AND DRAINAGE

SCALE: 1"=20'

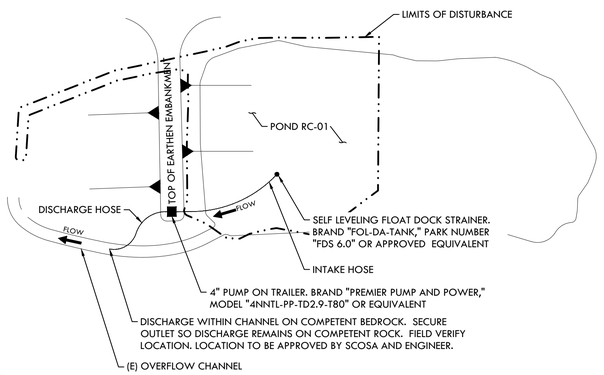
0 10' 20' 40'

NORTH



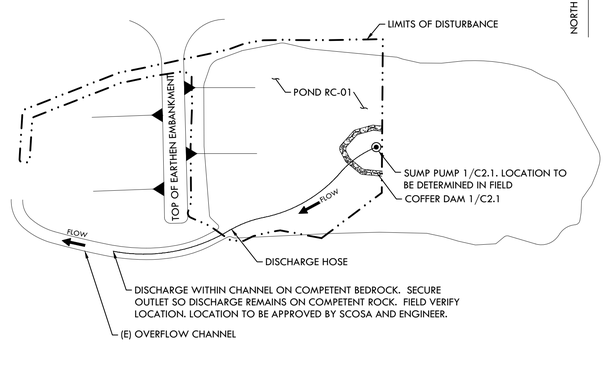
2 POND RC-01 PROFILE

SCALE: 1" = 20'



3 PUMPING SCHEMATIC FOR DRAWNDOWN

SCALE: NTS



4 PUMPING SCHEMATIC FOR DEWATERING DURING CONSTRUCTION

SCALE: NTS

100% CONSTRUCTION DOCUMENTS

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1525 Seabright Avenue
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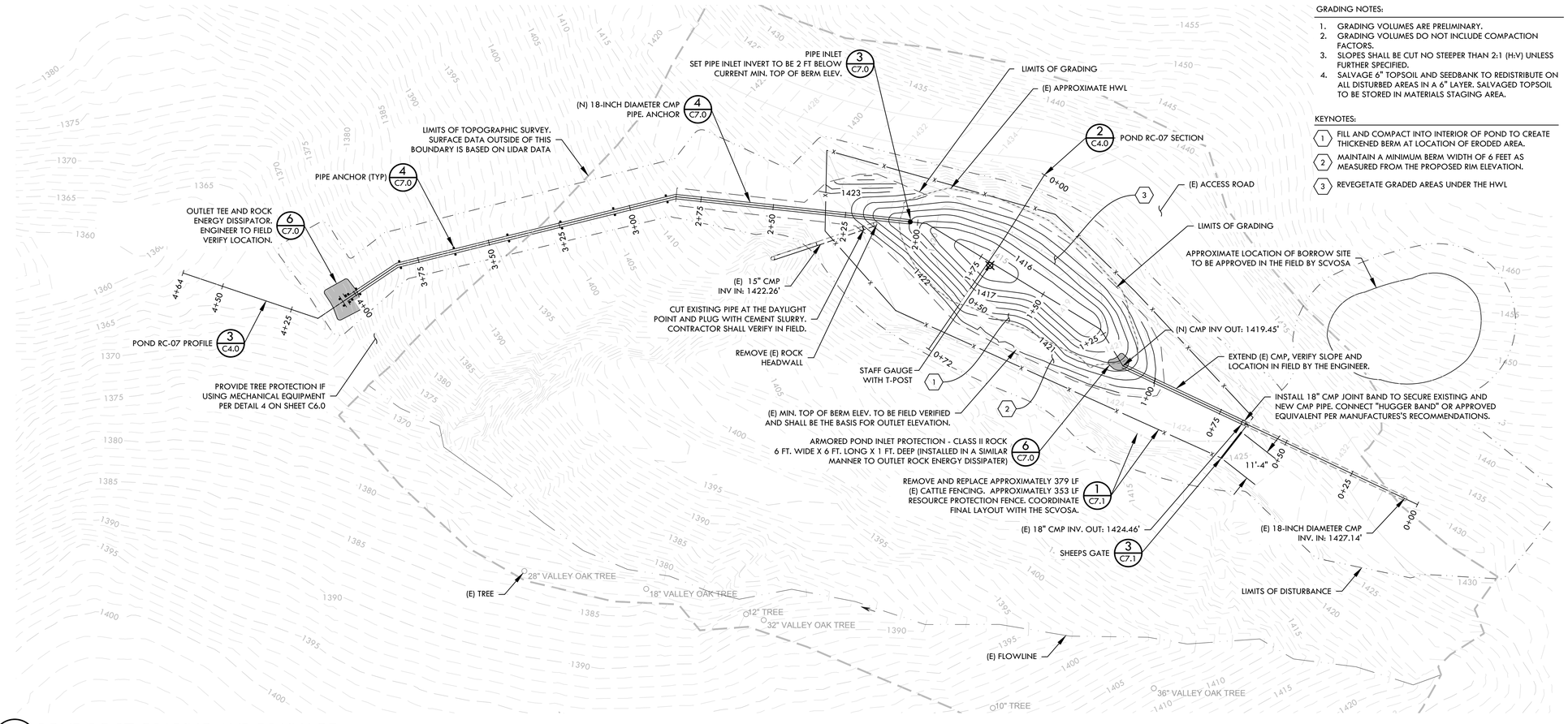
RANCHO CANADA DEL ORO OPEN SPACE
HABITAT ENHANCEMENT AND POND RESTORATION
CASA LOMA RD., MORGAN HILL, CA 95037

POND RC-01
GRADING AND DRAINAGE

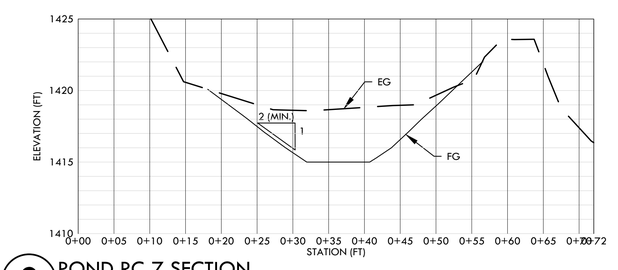
DRAWING NO.
C3.0

1 POND RC-07 GRADING AND DRAINAGE



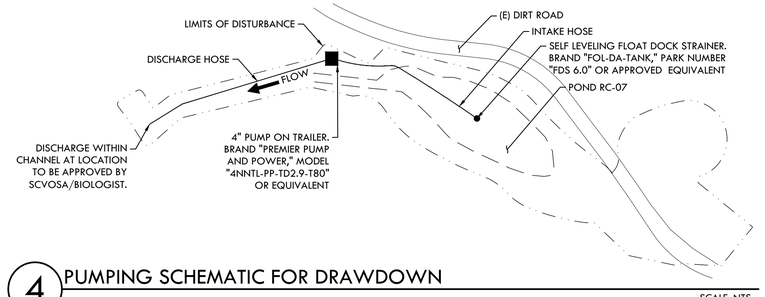
2 POND RC-7 SECTION

SCALE: H: 1"=10', V: 1"=5'



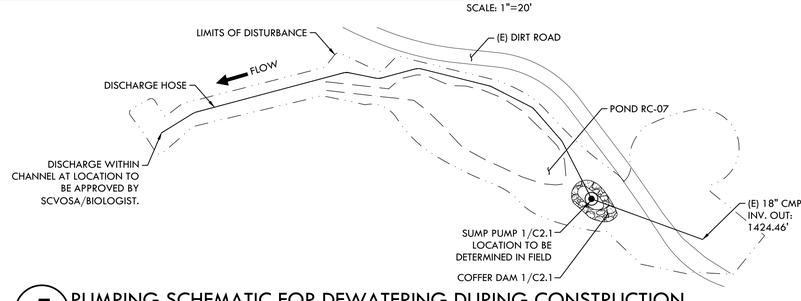
4 PUMPING SCHEMATIC FOR DRAWDOWN

SCALE: NTS



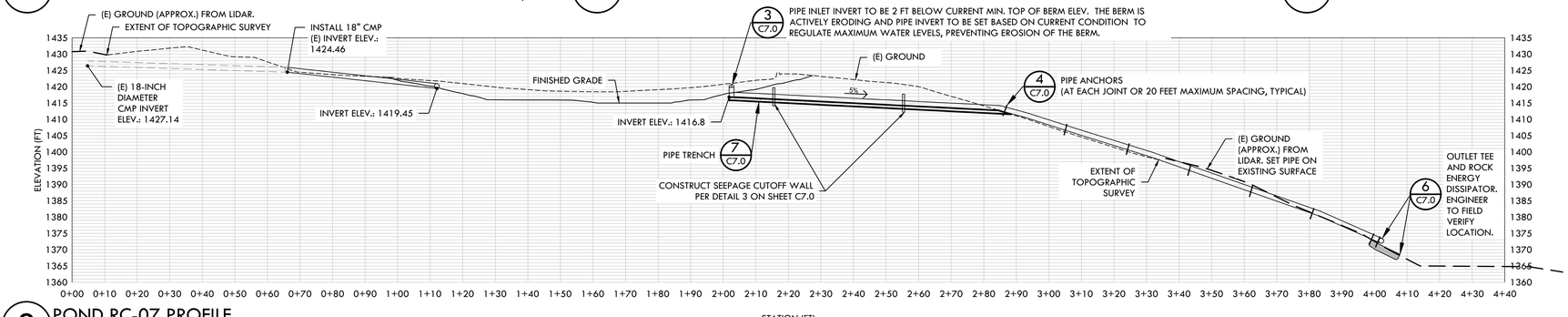
5 PUMPING SCHEMATIC FOR DEWATERING DURING CONSTRUCTION

SCALE: NTS



3 POND RC-07 PROFILE

SCALE: 1"=10'

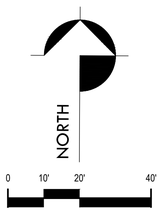


GRADING NOTES:

1. GRADING VOLUMES ARE PRELIMINARY.
2. GRADING VOLUMES DO NOT INCLUDE COMPACTION FACTORS.
3. SLOPES SHALL BE CUT NO STEEPER THAN 2:1 (H:V) UNLESS FURTHER SPECIFIED.
4. SALVAGE 6" TOPSOIL AND SEEDBANK TO REDISTRIBUTE ON ALL DISTURBED AREAS IN A 6" LAYER. SALVAGED TOPSOIL TO BE STORED IN MATERIALS STAGING AREA.

KEYNOTES:

1. FILL AND COMPACT INTO INTERIOR OF POND TO CREATE THICKENED BERM AT LOCATION OF ERODED AREA.
2. MAINTAIN A MINIMUM BERM WIDTH OF 6 FEET AS MEASURED FROM THE PROPOSED RIM ELEVATION.
3. REVEGETATE GRADED AREAS UNDER THE HWL



LEGEND:

- (E) MINOR CONTOURS
- (E) MAJOR CONTOURS
- (N) CONTOURS
- LIMITS OF TOPOGRAPHIC SURVEY
- LIMITS OF GRADING
- LIMITS OF DISTURBANCE
- (E) PIPE
- (E) FENCE
- (N) FENCE
- (E) APPROXIMATE HWL
- (E) ACCESS ROAD EDGE
- 20" TREE (E) TREE
- (E) FLOWLINE

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1525 Seabright Avenue
Santa Cruz, CA 95062
www.sherwoodengineers.com

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SCALE: 0 1"
Note: If this graphic scale does not equal 1", this sheet has been modified from its original size

NO	DATE	REVISION

PROJECT NO. 21848

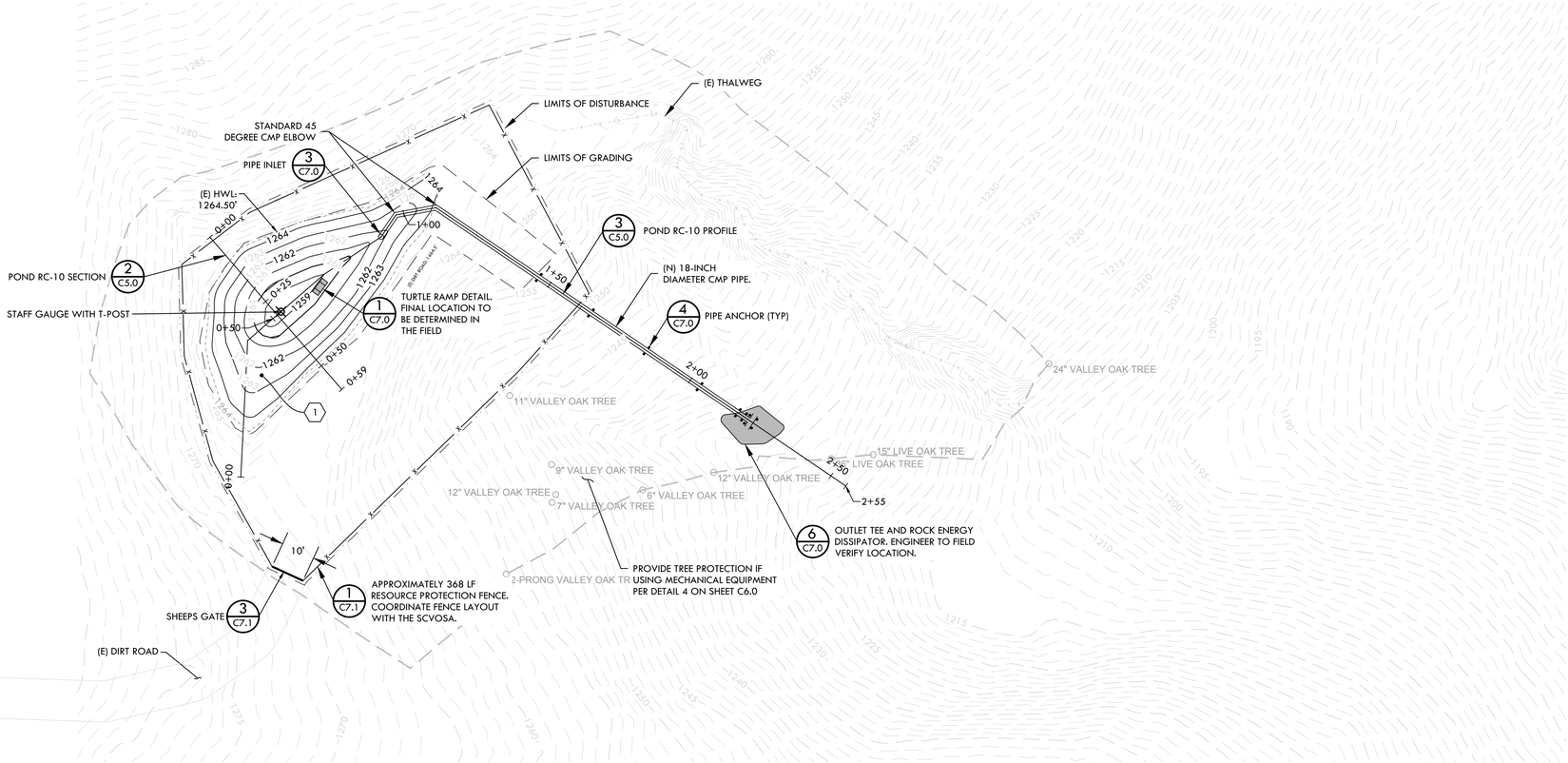
DATE	1/27/25
DRAWN	CBH/PA/EM
DESIGNED	CBH
CHECKED	RC

100% CONSTRUCTION DOCUMENTS

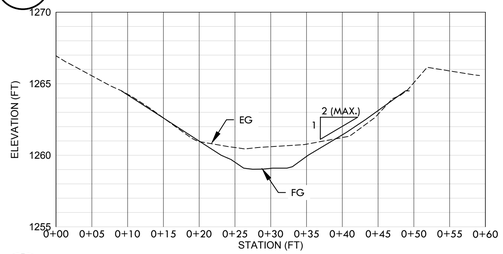
SANTA CLARA VALLEY OPEN SPACE AUTHORITY
RANCHO CANADA DEL ORO OPEN SPACE
HABITAT ENHANCEMEMENT AND POND RESTORATION
CASA LOMA RD., MORGAN HILL, CA 95037

POND RC-07
GRADING AND DRAINAGE

DRAWING NO.
C4.0

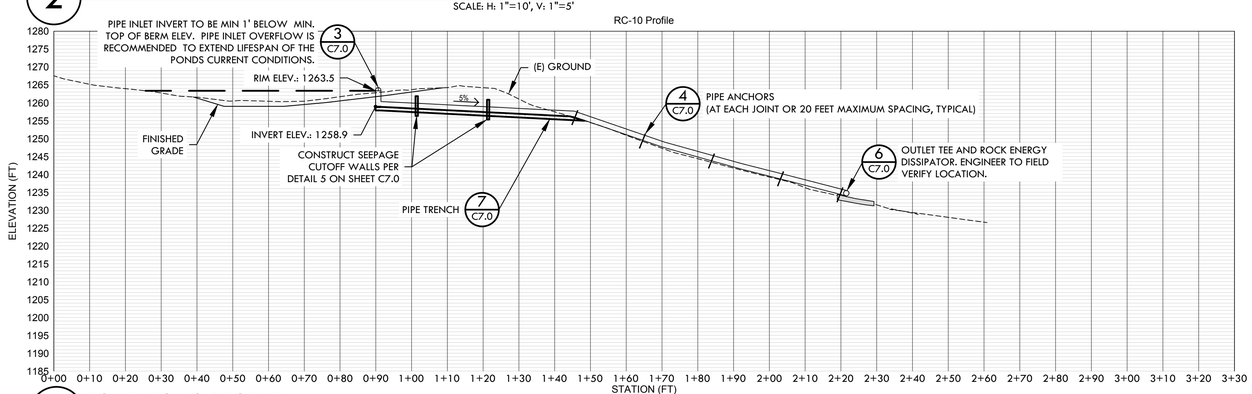


1 POND RC-10 GRADING AND DRAINAGE



2 POND RC-10 SECTION

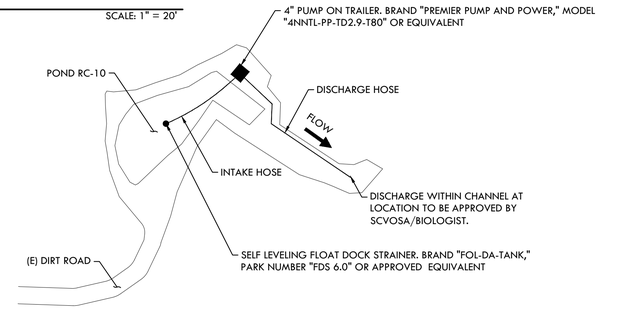
SCALE: H: 1"=10', V: 1"=5'



3 POND RC-10 PROFILE

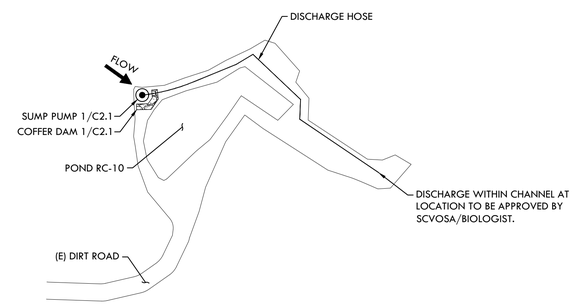
SCALE: 1" = 20'

SCALE: 1" = 20'



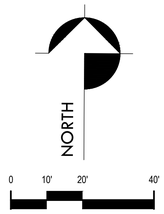
4 PUMP SCHEMATIC FOR DRAWDOWN

SCALE: NTS



5 PUMP SCHEMATIC FOR DEWATERING DURING CONSTRUCTION

SCALE: NTS



LEGEND:

- (E) MINOR CONTOURS
- (E) MAJOR CONTOURS
- (N) CONTOURS
- LIMITS OF TOPOGRAPHIC SURVEY
- LIMITS OF GRADING
- LIMITS OF DISTURBANCE
- (E) PIPE
- (E) FENCE
- (N) FENCE
- (E) APPROXIMATE HWL
- (E) ACCESS ROAD EDGE
- (E) TREE
- (E) FLOWLINE
- (E) THALWEG

KEYNOTES:

1. GRADE POND TO INCREASE VOLUME AND CREATE WETLAND ENVIRONMENT. BANK SLOPE SHALL NOT EXCEED 2:1 PER GEOTECHNICAL ENGINEERING REPORT RECOMMENDATIONS.

GRADING NOTES:

1. GRADING VOLUMES ARE PRELIMINARY.
2. GRADING VOLUMES DO NOT INCLUDE COMPACTION FACTORS.
3. SLOPES SHALL BE CUT NO STEEPER THAN 2:1 (H:V) UNLESS FURTHER SPECIFIED.
4. SALVAGE 6" TOPSOIL AND SEEDBANK TO REDISTRIBUTE ON ALL DISTURBED AREAS IN A 6" LAYER. SALVAGED TOPSOIL TO BE STORED IN MATERIALS STAGING AREA.

NOTES:

1. EXCAVATE EXISTING POND TO EXTEND POND HYDRAULIC PERIOD. REVEGETATE EXCAVATED AREAS.
2. PIPING MAY BE SHOWN SCHEMATICALLY FOR CLARITY. CONTRACTOR SHALL VERIFY FIELD CONDITIONS AND LOCATE AS APPROVED BY PROJECT ENGINEER.

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SCALE:
0 1"
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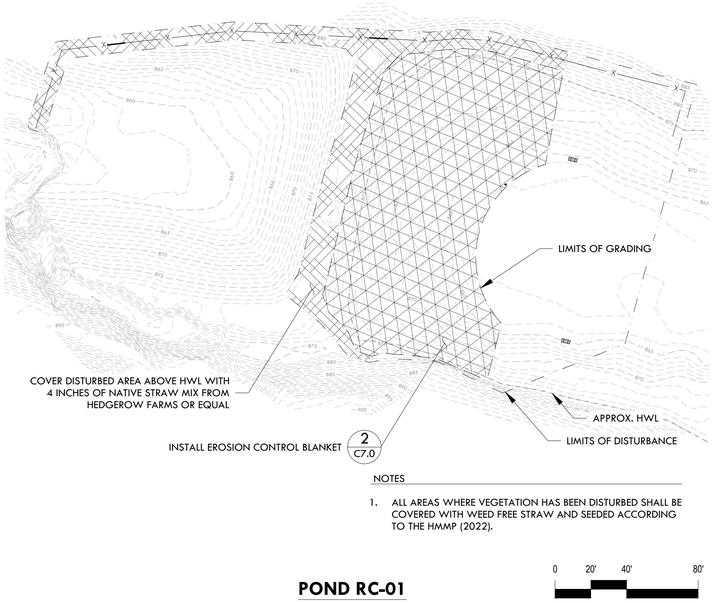
HABITAT ENHANCEMENT AND POND RESTORATION
CASA LOMA RD., MORGAN HILL, CA 95037

POND RC-10
GRADING AND DRAINAGE

DRAWING NO.
C5.0

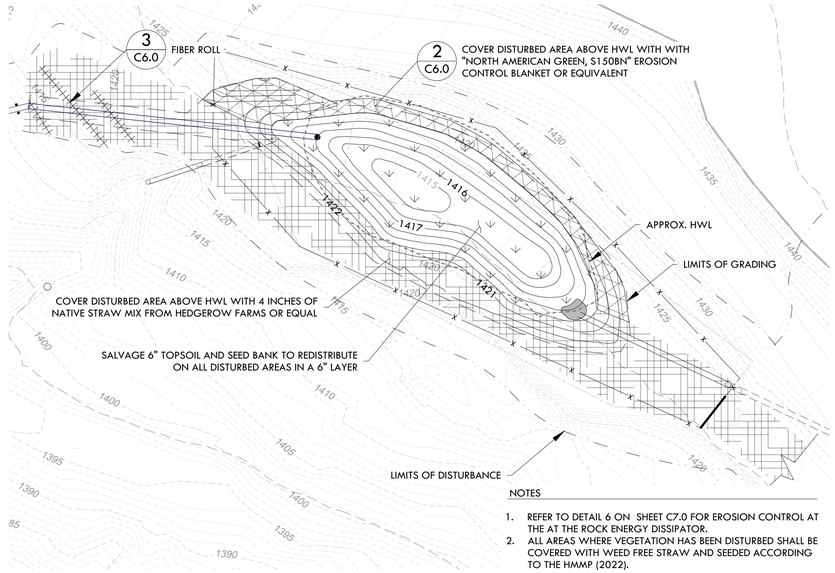


NOTES

1. ALL AREAS WHERE VEGETATION HAS BEEN DISTURBED SHALL BE COVERED WITH WEED FREE STRAW AND SEEDED ACCORDING TO THE HMMP (2022).

POND RC-01

0 20' 40' 80'

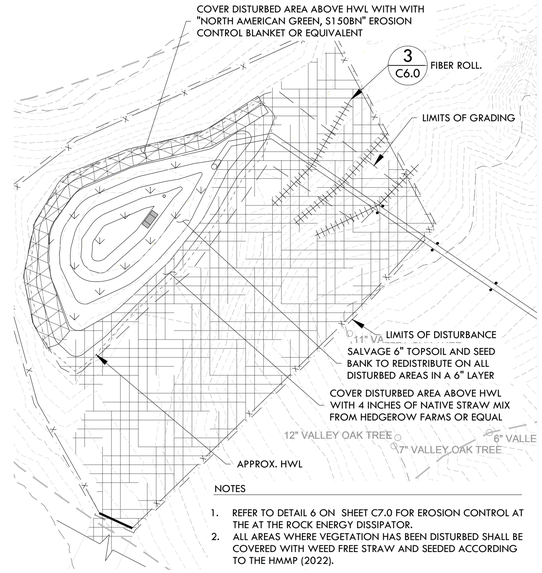


NOTES

1. REFER TO DETAIL 6 ON SHEET C7.0 FOR EROSION CONTROL AT THE AT THE ROCK ENERGY DISSIPATOR.
2. ALL AREAS WHERE VEGETATION HAS BEEN DISTURBED SHALL BE COVERED WITH WEED FREE STRAW AND SEEDED ACCORDING TO THE HMMP (2022).

POND RC-07

0 10' 20' 40'



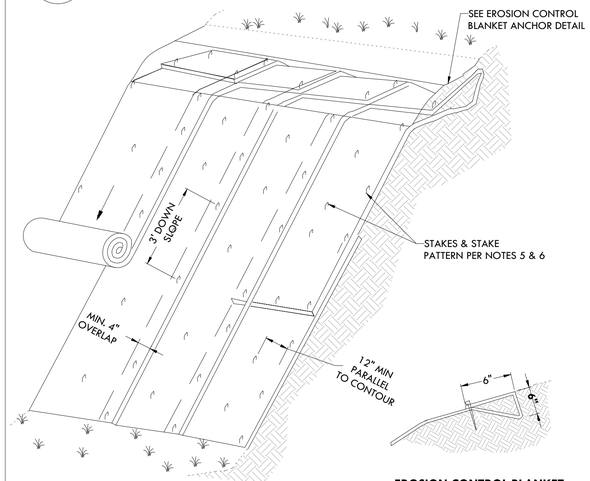
NOTES

1. REFER TO DETAIL 6 ON SHEET C7.0 FOR EROSION CONTROL AT THE AT THE ROCK ENERGY DISSIPATOR.
2. ALL AREAS WHERE VEGETATION HAS BEEN DISTURBED SHALL BE COVERED WITH WEED FREE STRAW AND SEEDED ACCORDING TO THE HMMP (2022).

POND RC-10

0 10' 20' 40'

1 EROSION CONTROL PLAN



ISOMETRIC VIEW

EROSION CONTROL BLANKET ANCHOR DETAIL

EROSION CONTROL BLANKET NOTES

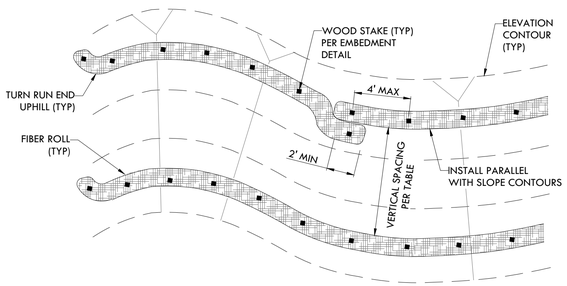
1. EROSION CONTROL BLANKET MATERIAL SHALL BE CONSTRUCTED OF JUTE FIBERS, CURLED WOOD FIBERS, STRAW, COCONUT FIBER, OR A COMBINATION OF THESE MATERIALS. NO PLASTIC MATERIAL WILL BE ACCEPTED.
2. SLOPE SURFACE SHALL BE FREE OF ROCKS AND CLODS LARGER THAN 3", AND ORGANIC DEBRIS. BLANKETS SHALL LAY FLAT ON THE SOIL.
3. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
4. LAY BLANKETS LOOSELY AND VERTICALLY DOWN SLOPE. STAPLE AS SHOWN TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
5. USE "ECO-STAKE 6-INCH" BY "NORTH AMERICAN GREEN" WOODEN STAKES OR EQUIVALENT TO ANCHOR BLANKETS TO THE GROUND SURFACE. STAKES SHOULD BE DRIVEN FLUSH TO THE SOIL SURFACE. ALL ANCHORS SHOULD BE 6" INCHES LONG AND HAVE SUFFICIENT GROUND PENETRATION TO RESIST PULLOUT.
6. BLANKETS SHALL BE STAKED SUFFICIENTLY TO ANCHOR BLANKET AND MAINTAIN CONTACT WITH THE SOIL. STAKES SHALL BE PLACED DOWN THE CENTER AND STAGGERED WITH THE STAKES PLACED ALONG THE EDGES.
7. EXTEND BLANKET A MINIMUM OF TWO FEET BEYOND THE LIMITS OF DISTURBED SLOPES.
8. WHEN BLANKETS MUST BE SPLICED, PLACE BLANKET END OVER END (SHINGLE STYLE) WITH 6" MINIMUM OVERLAP. STAPLE THROUGH OVERLAPPED AREA AT 12" SPACING.
9. ALL EROSION CONTROL BLANKET MATERIALS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

2 EROSION CONTROL BLANKET

SCALE: NTS

STAKE EMBEDMENT DETAIL

FIBER ROLL MAX SPACING	
SLOPE (H:V)	SPACING (FT)
>1:1	5
2:1 - 1:1	10
4:1 - 2:1	15
<4:1	20



PLAN DETAIL

FIBER ROLL NOTES

1. FIBER ROLLS SHALL CONSIST OF RICE, WEED-FREE STRAW, FLAX, COIR, CURLED WOOD FIBERS, OR SIMILAR BIODEGRADABLE MATERIAL WRAPPED INTO A TUBULAR SHAPE WITH BIODEGRADABLE NETTING.
2. FIBER ROLLS SHALL BE EMBEDDED INTO THE GROUND SURFACE ¼ TO ⅓ OF THE THICKNESS OF THE ROLL. THE EMBEDMENT TRENCH SHALL BE EQUAL TO THE WIDTH OF THE ROLL TO ALLOW FOR AREA TO BACKFILL THE ROLL.
3. PLACE FIBER ROLLS ALONG THE CONTOUR OF THE SLOPE TO SLOW RUNOFF VELOCITY AND TRAP SEDIMENT.
4. INSTALL FIBER ROLLS PER PLAN AND AT A MINIMUM ON ERODIBLE FACES AT REGULAR INTERVALS PER MAXIMUM SPACING TABLE AND AT TOP AND TOE OF SLOPE.
5. INSTALL FIBER ROLLS WHEREVER THE DISTURBED SLOPE IS ADJACENT TO A STREAM OR DRAINAGE COURSE.
6. OVERLAP 2' MIN AT ROLL END WHEN SPLICING ROLLS FOR LONGER RUNS.
7. INSTALL WOOD STAKES AT A MAXIMUM OF EVERY FOUR FEET ALONG THE FIBER ROLL.
8. TURN AND STAKE THE END OF THE FIBER ROLL UP HILL TO PREVENT RUNOFF FROM GOING AROUND IT.
9. INSTALL FIBER ROLLS PRIOR TO SEEDING AND MULCHING.
10. INSTALL FIBER ROLLS SHALL PER THE MANUFACTURER'S RECOMMENDATIONS.

3 FIBER ROLL

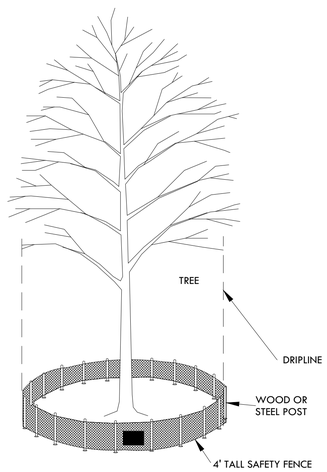
SCALE: NTS

LEGEND

- (E) MINOR CONTOUR
- (E) MAJOR CONTOUR
- (N) CONTOUR
- (N) CONSTRUCTION FENCE
- APPROXIMATE HWL
- (N) EROSION CONTROL BLANKET
- (N) FIBER ROLL
- (N) STRAW MULCH
- TOPSOIL AND SEED BANK AREAS
- LIMITS OF GRADING
- LIMITS OF DISTURBANCE

SCALE: AS SHOWN

NORTH



EROSION CONTROL AND REVEGETATION NOTES:

1. THE CONTRACTOR SHALL INSTALL, MAINTAIN AND INSPECT EROSION CONTROL AND TEMPORARY STORMWATER CONTROL MEASURES TO CONTROL SEDIMENT AND RUNOFF IN ACCORDANCE WITH THESE PLANS.
2. EROSION IS TO BE CONTROLLED AT ALL TIMES ALTHOUGH SPECIFIC MEASURES SHOWN ARE TO BE IMPLEMENTED AT ANY TIME RAIN IS FORECASTED.
3. ALL EROSION CONTROL AND SOIL CONSERVATION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE EROSION CONTROL REQUIREMENTS ESTABLISHED BY SANTA CLARA COUNTY AND REGIONAL WATER BOARD.
4. DISTURBED AREAS SHALL BE STABILIZED PER THE PLANS AT THE COMPLETION OF THE PROJECT.
5. DURING CONSTRUCTION PERIOD IF RAIN IS FORECASTED, ALL DISTURBED AREAS SHALL BE COVEREDACCORDING TO THE FOLLOWING GUIDLINES:
   - 5.1. ALL SLOPES LESS THAN 20% (1V:5H) SHALL BE COVERED WITH 4 TO 6 INCHES OF STRAW MULCH
   - 5.2. OBTAIN STERILE, WEED-FREE NATIVE STRAW IN ORDER TO PREVENT THE SPREAD OF NOXIOUS WEEDS.
   - 5.3. THE MULCH SHALL BE EVENLY DISTRIBUTED BY HAND OR MACHINE TO THE DESIRED DEPTH AND SHOULD COVER THE EXPOSED AREA TO A UNIFORM DEPTH.
   - 5.4. AN APPLICATION RATE OF 2,000 LBS PER ACRE SHOULD BE USED.
   - 5.5. THERE SHOULD BE A MINIMUM OF 3-4" OF STRAW OVER THE SOIL AND NO BARE SOIL SHOULD BE VISIBLE.
   - 5.6. ON STEEP OR HIGH WIND SITES, STRAW MUST BE ANCHORED TO KEEP IT FROM BLOWING AWAY.
6. NATIVE CERTIFIED WEED FREE STRAW OR EROSION CONTROL BLANKETS WILL BE USED FOR EROSION CONTROL AND WILL BE SPREAD AFTER CONSTRUCTION DISTURBANCE.
7. ALL EROSION CONTROL MEASURES AND REVEGETATION SHALL BE COMPLETED IN ACCORDANCE WITH THE HMMP (2022) AND APPROVED BY THE SCVOSA.

4 TREE PROTECTION FENCING

SCALE: NTS

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SCALE: 0 1"

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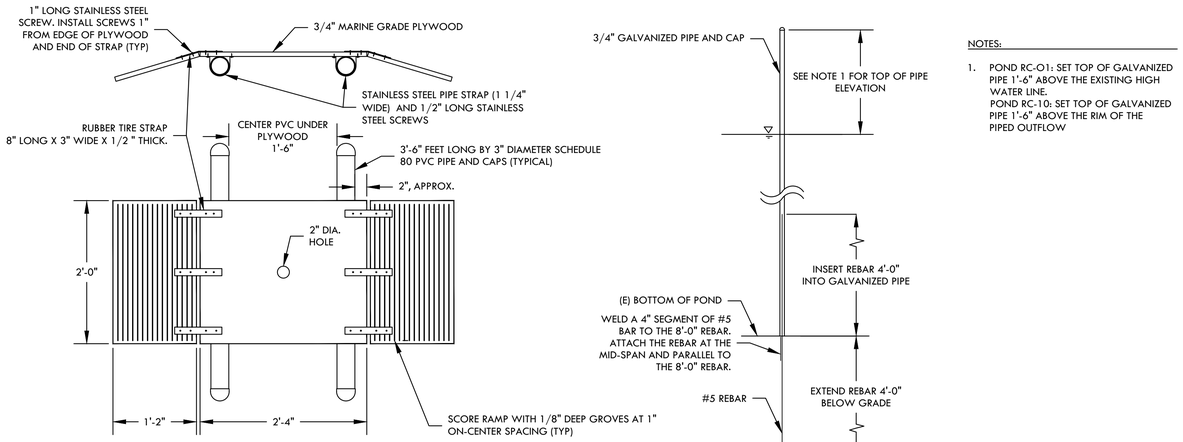
RANCHO CANADA DEL ORO
OPEN SPACE
HABITAT ENHANCEMENT AND POND RESTORATION
CASA LOMA RD., MORGAN HILL, CA 95037

EROSION CONTROL PLAN, DETAILS AND RESOURCE PROTECTION

DRAWING NO.
C6.0

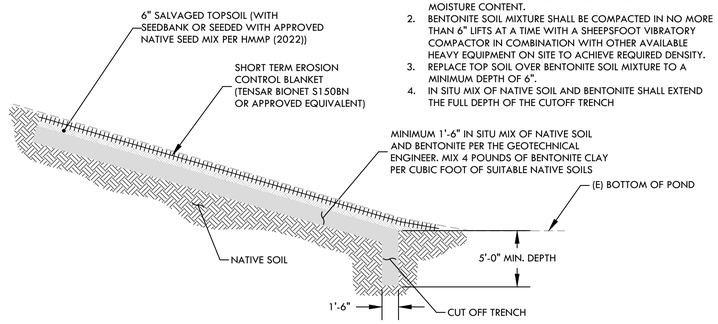


NOTES:

1. POND RC-01: SET TOP OF GALVANIZED PIPE 1'-6" ABOVE THE EXISTING HIGH WATER LINE.
   POND RC-10: SET TOP OF GALVANIZED PIPE 1'-6" ABOVE THE RIM OF THE PIPED OUTFLOW

1 TURTLE RAMP DETAIL

SCALE: NTS

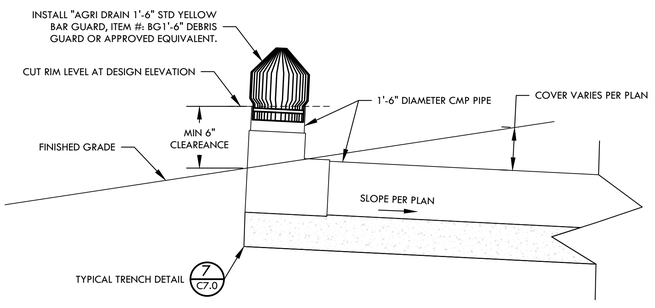


NOTES:

1. BENTONITE CLAY SHALL BE WELL MIXED WITH EXCAVATED NATIVE SOIL AND HYDRATED TO ±2% OF OPTIMUM MOISTURE CONTENT.
2. BENTONITE SOIL MIXTURE SHALL BE COMPACTED IN NO MORE THAN 6" LIFTS AT A TIME WITH A SHEEPSFOOT VIBRATORY COMPACTOR IN COMBINATION WITH OTHER AVAILABLE HEAVY EQUIPMENT ON SITE TO ACHIEVE REQUIRED DENSITY.
3. REPLACE TOP SOIL OVER BENTONITE SOIL MIXTURE TO A MINIMUM DEPTH OF 6".
4. IN SITU MIX OF NATIVE SOIL AND BENTONITE SHALL EXTEND THE FULL DEPTH OF THE CUTOFF TRENCH

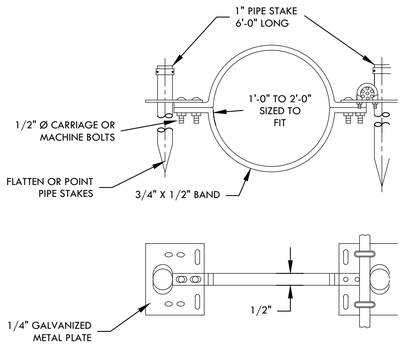
2 POND LINING DETAIL

SCALE: NTS



3 TYPICAL INLET DETAIL

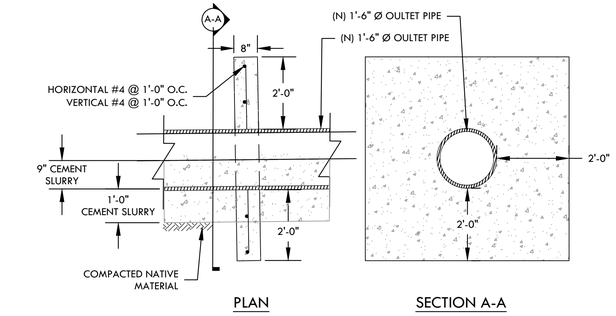
SCALE: NTS



4 TYPICAL PIPE ANCHOR DETAIL

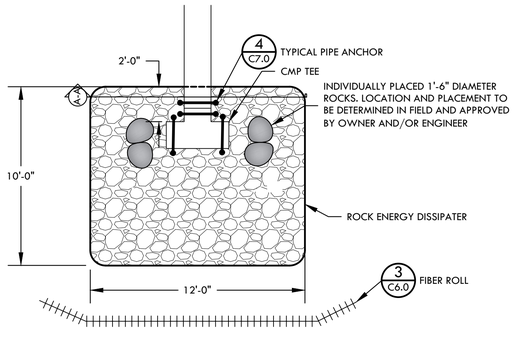
CALTRANS STANDARD DETAIL D87A OR APPROVED EQUAL

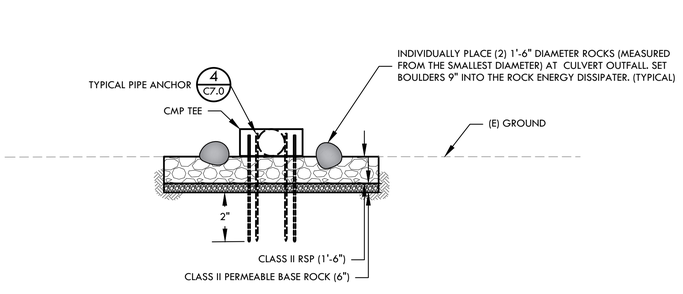
SCALE: NTS



5 SEEPAGE CUTOFF WALL

SCALE: NTS



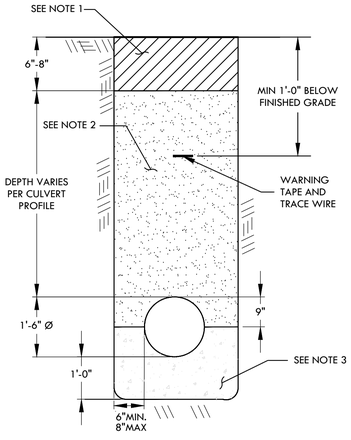


NOTES:

INSTALL CMP TEE AND ENERGY DISSIPATER ON CONTOUR

6 OUTLET ENERGY DISSIPATOR AND TEE

SCALE: NTS



NOTES:

1. SALVAGED TOPSOIL AND SEEDBANK. COMPACT TO 95% RELATIVE COMPACTION.
2. COMPACTED BACKFILL MATERIAL (95% RELATIVE COMPACTION). MATERIAL FROM EXCAVATION, FREE FROM STONES OR LUMPS EXCEEDING 3" GREATEST DIMENSION, ORGANIC MATERIAL, OR OTHER DELETERIOUS MATERIAL. COMPACTED BACKFILL MATERIAL MUST BE APPROVED BY GEOTECHNICAL ENGINEER.
3. CEMENT SLURRY BACKFILL. APPROVED FILL MATERIAL.

7 TYPICAL TRENCH DETAIL

SCALE: NTS

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SCALE:
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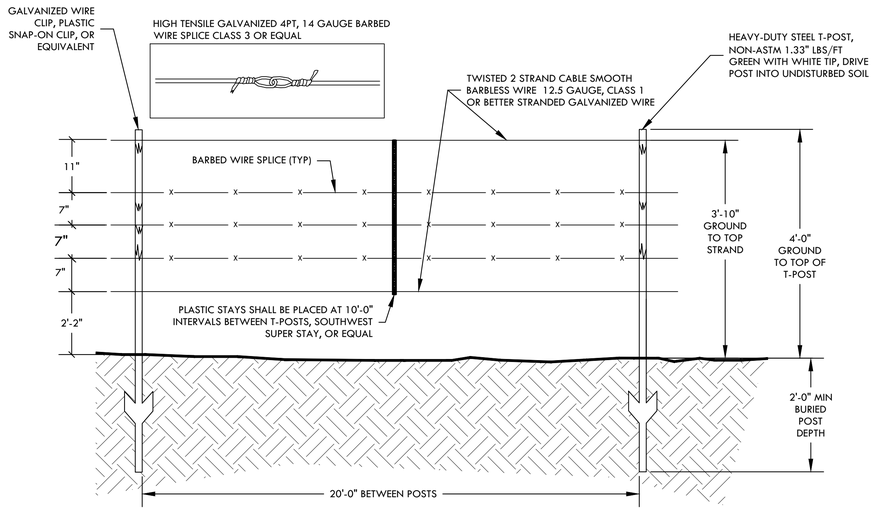
CASA LOMA RD., MORGAN HILL, CA 95037

DETAILS I

DRAWING NO.
C7.0

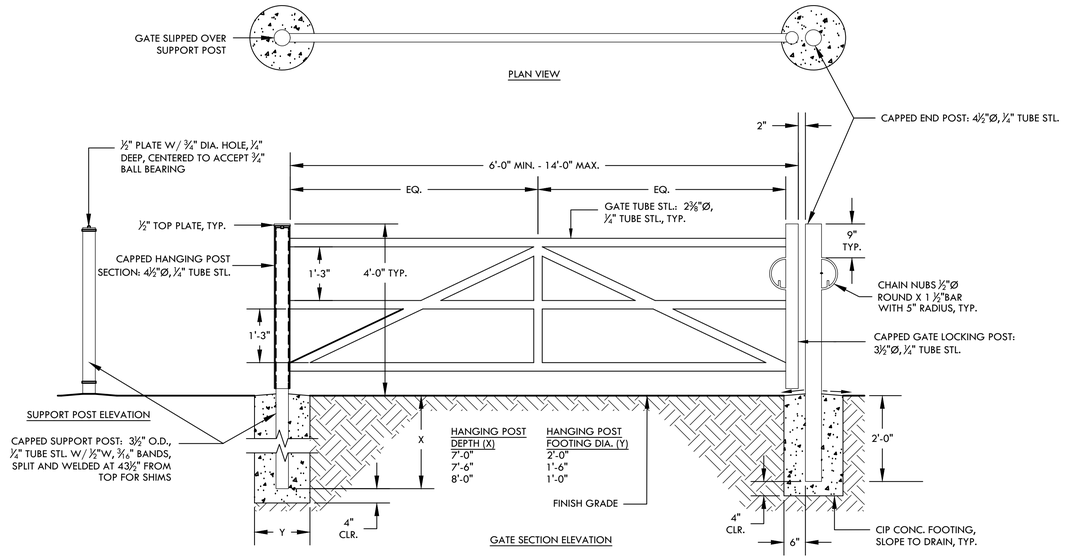


NOTES:

1. SET ALL POSTS PLUMB.
2. STRING WIRE TAUT. STRING WIRE FROM BOTTOM.
3. T-POSTS SHALL BE 6'-0" LONG FOR INTERIOR FENCING & 6'-6" FOR ROADSIDE FENCING.
4. PULL POSTS TO BE DRIVEN CURLY CONNECTOR STRESS POSTS OR EQUAL SET NO LESS THAN 120' ON CENTER (CERTAIN TERRAIN CONDITIONS MAY REQUIRE SETTING CLOSER I.E. HIGH POINTS AND BREAK OF TERRAIN
5. TIE DOWN ANCHORS SHALL BE PLACED AT LOW POINTS WHERE UPWARD PULL WILL BE PRESENT. TIE DOWN ANCHORS SHALL BE 5'-0" OR GREATER, 1.33 LB. ANCHORS WILL BE ATTACHED TO PLASTIC STAYS AND DRIVEN INTO EARTH 4'-0" MINIMUM WITH 9 GAGE TIE WIRE ATTACHING ALL LINES.
6. FOR AREAS WHERE SLOPE IS >45% USE 7'-0" STEEL T-POST AND DRIVE 3'-0" INTO SOIL.
7. USE H-BRACE PANEL (4/C7.1) AT SIGNIFICANT GRADE CHANGES, OR CHANGES OF 135° OR LESS.

1 RESOURCE PROTECTION FENCE

SCALE: NTS



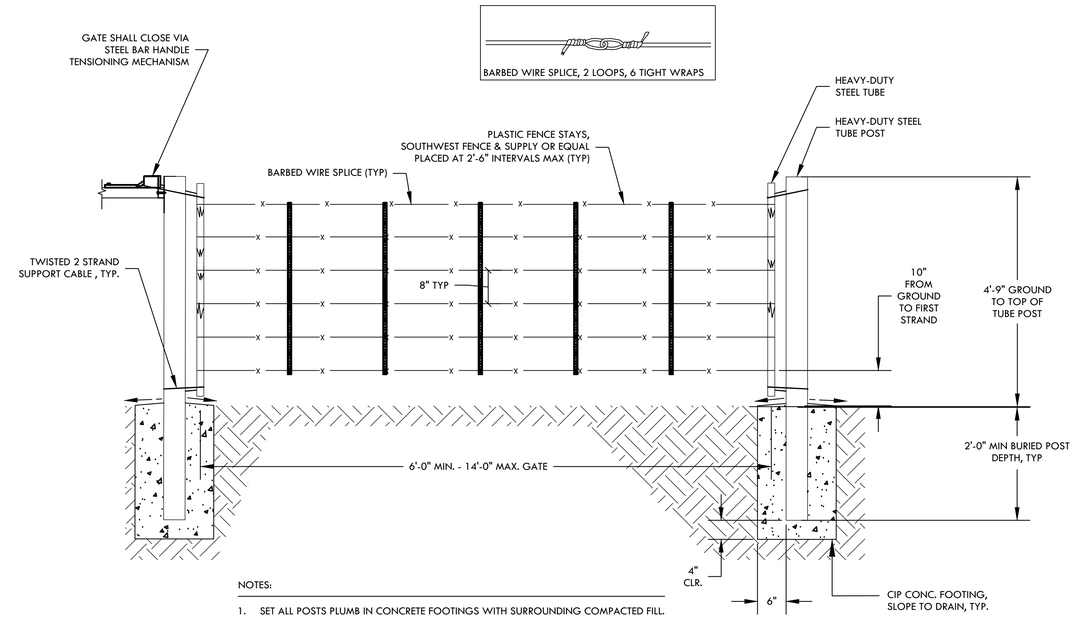
NOTES:

1. ALL PIPE TO BE WELDED ALL AROUND W/ ⅛" FILLET WELD.
2. PLACE HINGE POST ON UPHILL SIDE OF ROADWAY OR AS SHOWN ON DRAWINGS. INSTALL HINGE POST WITH ENOUGH CAMBER (1-2%) TO COMPENSATE FOR BENDING WHEN GATE IS HUNG.
3. PRIME ALL EXPOSED SURFACES WITH RUST INHIBITIVE PAINT.
4. PEDESTRIAN GATES TO BE 6'-0" SELF-CLOSING POWDER RIVER 1600 TUBE GATES OR APPROVED EQUAL. STEEL GATES TO BE 14'-0" POWDER RIVER 1600 TUBE GATES OR APPROVED EQUAL.

2 SINGLE LEAF ACCESS GATE

SOURCE: POWDER RIVER STEEL TUBE ACCESS GATE

SCALE: NTS



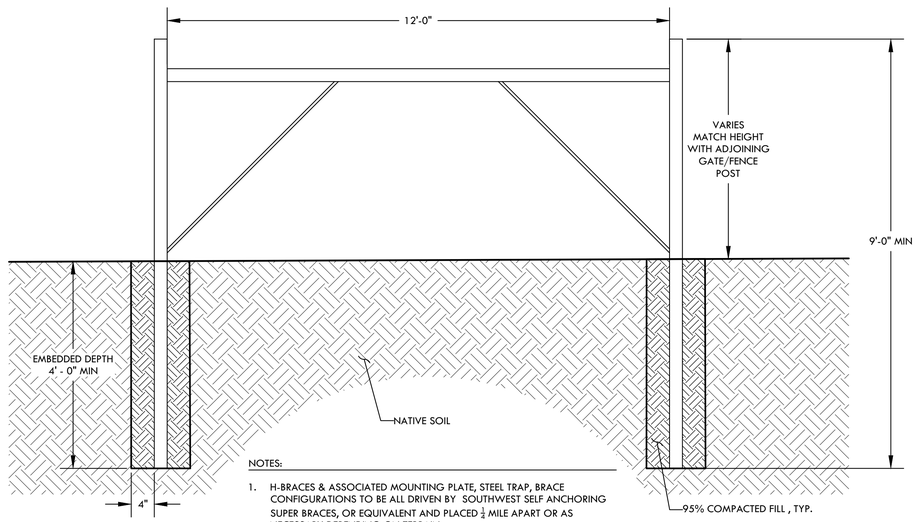
NOTES:

1. SET ALL POSTS PLUMB IN CONCRETE FOOTINGS WITH SURROUNDING COMPACTED FILL.
2. STRING WIRE TAUT. STRING WIRE FROM BOTTOM.

3 SHEEPS GATE

SOURCE: SCVOSA PHOTOS

SCALE: NTS



NOTES:

1. H-BRACES & ASSOCIATED MOUNTING PLATE, STEEL TRAP, BRACE CONFIGURATIONS TO BE ALL DRIVEN BY SOUTHWEST SELF ANCHORING SUPER BRACES, OR EQUIVALENT AND PLACED ¼ MILE APART OR AS NECESSARY DEPENDING ON TERRAIN.
2. H-BRACES SHALL BE DRIVEN INTO THE GROUND 4'-0" AT MINIMUM & SURROUNDED BY COMPACTED FILL.
3. H-BRACES SHALL BE PLACED ON EACH SIDE OF A GATE WHERE DEFLECTIONS ARE GREATER THAN 30 DEGREES.
4. DEFLECTION BRACES, SOUTHWEST SUPER LEG BRACE OR EQUAL, MAY BE USED INSTEAD OF H-BRACES WHERE DEFLECTION ANGLES ARE LESS THAN 30 DEGREES.

4 H-BRACE DETAIL

SOURCE: SOUTHWEST FENCE & SUPPLY

SCALE: NTS

SHERWOOD DESIGN ENGINEERS
1525 Seabright Avenue
Santa Cruz, CA 95062
www.sherwoodengineers.com

REGISTERED PROFESSIONAL ENGINEER — ROBIN L. COOPER — NO. 73041 EXP. 12/31/26 — CIVIL — STATE OF CALIFORNIA

SCALE: 0 1"
Note: If this graphic scale does not equal 1", this sheet has been modified from its original size

NO	DATE	REVISION

PROJECT NO. 21848

DATE 1/27/25
DRAWN CBH/PA/EM
DESIGNED CBH
CHECKED RC

100% CONSTRUCTION DOCUMENTS

SANTA CLARA VALLEY OPEN SPACE AUTHORITY
RANCHO CANADA DEL ORO OPEN SPACE
HABITAT ENHANCEMENT AND POND RESTORATION
CASA LOMA RD., MORGAN HILL, CA 95037

DETAILS II

DRAWING NO.
C7.1

GENERAL SPECIFICATIONS

THE CONTRACTOR SHALL CAREFULLY EXAMINE THE PROJECT PERMITS, SUPPORTING DOCUMENTS, CONSTRUCTION DOCUMENTS, AND SPECIFICATIONS. THE SUBMISSION OF A BID SHALL BE CONCLUSIVE EVIDENCE THAT THE CONTRACTOR HAS INVESTIGATED AND IS SATISFIED AS TO THE CONDITIONS TO BE ENCOUNTERED, THE CHARACTER, QUALITY, AND SCOPE OF WORK TO BE PERFORMED, THE QUANTITIES OF MATERIALS TO BE FURNISHED, AND TO THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. ALL DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE SHOWN ON THE PLANS. ALL WORK SHALL CONFORM TO SANTA CLARA COUNTY STANDARDS.

0. PROJECT DESCRIPTION

RANCHO CANADA DEL ORO OPEN SPACE IS LOCATED IN THE FOOTHILLS OF THE SANTA CRUZ MOUNTAINS IN SOUTH SANTA CLARA COUNTY AND MANAGED BY THE SANTA CLARA VALLEY OPEN SPACE AUTHORITY (SCVOSA). THE PROPOSED PROJECT IS INTENDED TO ENHANCE HABITATS FOR THE CALIFORNIA RED LEGGED FROG (CRLF), CALIFORNIA TIGER SALAMANDER, AND WESTERN POND TURTLE; AND REDUCE EROSION OF THE BERMS AND OUTFLOW AREAS. WORK INCLUDES REPAIRS TO EARTHEN EMBANKMENTS, OUTFALL IMPROVEMENTS, AND DEEPENING TO INCREASE PONDING DURATION. ALL PONDS ARE LOCATED HIGH IN THE WATERSHED AND WERE CUT INTO NATURAL DRAINAGE. A DETAILED PROJECT DESCRIPTION CAN BE FOUND IN THE BASIS OF DESIGN PREPARED BY SHERWOOD DESIGN ENGINEERS DATED APRIL 12, 2022.

1. LOCATION OF THE WORK AND ACCESS

PHYSICAL LOCATION OF THE WORK: RANCHO CANADA DEL ORO OPEN SPACE PRESERVE, MORGAN HILL, SANTA CLARA COUNTY, CALIFORNIA.

2. TIMING OF THE WORK

DAILY WORK HOURS FOR THE OPERATION OF HEAVY EQUIPMENT SHALL BE LIMITED TO HOURS WHICH ARE AGREED UPON WITH THE PROJECT OWNERS AND COMPLY WITH ALL LOCAL ORDINANCES AND REGULATIONS. REFER TO THE HABITAT MITIGATION AND MONITORING PLAN (HMMP) PREPARED BY RINCON CONSULTANTS, INC. DATED AUGUST 2022 TO PROTECT SPECIAL STATUS SPECIES DURING WORK WINDOWS. ALL WORK IS TO BE COMPLETED BETWEEN JUNE 1 AND OCTOBER 1. WORK SHALL NOT TAKE PLACE DURING RAIN.

3. INQUIRIES

3.1. THE CONTRACTOR IS OBLIGATED TO PROVIDE SUBMITTALS FOR ALL MATERIAL SPECIFIED WITHIN THE DESIGN PLANS TO THE PROJECT ENGINEER. ALL SUBMITTALS AND THE CONSTRUCTION SCHEDULE MUST BE PROVIDED PRIOR TO THE START OF CONSTRUCTION.

QUESTIONS SHOULD BE DIRECTED TO THE MANAGING PRINCIPAL:
ROBYN COOPER, M.S. P.E., QSP/D
SHERWOOD DESIGN ENGINEERS
1525 SEABRIGHT AVE
SANTA CRUZ, CA 95062
PHONE: 831.426.9054 X713

4. SPECIAL NOTICES

4.1. THE PROJECT ENGINEER SHALL BE GIVEN SEVEN (7) BUSINESS DAYS' NOTICE PRIOR TO START OF ON-SITE WORK.

4.2. HAZARDOUS MATERIALS. NO HAZARDOUS OR CONTAMINATED SOILS HAVE BEEN OBSERVED ON SITE AND ARE NOT ANTICIPATED TO BE ENCOUNTERED. HOWEVER, IN THE EVENT THAT CONTAMINATED MATERIALS ARE ENCOUNTERED, ALL WORK SHALL CEASE AND THE PROJECT ENGINEER SHALL BE INFORMED.

4.3. CONSTRUCTION WORK SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH ENVIRONMENTAL PERMIT REQUIREMENTS, AS APPLICABLE. PERMITS WILL BE PROVIDED TO THE CONTRACTOR BY THE PROJECT LEAD.

5. SEQUENCE OF WORK

5.1. THE FOLLOWING IS THE PROJECT ENGINEER'S RECOMMENDED ORDER OF WORK. VARIATIONS TO THIS ORDER OF WORK ARE THE DISCRETION OF THE CONTRACTOR TO ACCOMMODATE MEANS AND WAYS OF SATISFACTORY PROJECT PROGRESS AND COMPLETION.

5.1.1. PRE-CONSTRUCTION MEETING

5.1.2. MOBILIZATION, STAGING, AND INSTALLATION OF TEMPORARY EXCLUSION FENCING

5.1.3. SECURE AND ORDER MATERIALS

5.1.4. POND DRAWDOWN AND DEWATERING

5.1.5. STAKE GRADING ENVELOPES

5.1.6. FIELD MEETING WITH OBSERVER TO APPROVE STAKING

5.1.7. POND EXCAVATION AND GRADING

5.1.8. CONSTRUCTION OF OUTLET AND OVERFLOW PIPE

5.1.9. INSTALLATION OF EROSION CONTROL MEASURES AND REVEGETATION

5.1.10. FINAL INSPECTIONS AND APPROVALS.

6. GENERAL TECHNICAL REQUIREMENTS

6.1. PERFORM THE WORK IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS AND OTHER PROVISIONS OF THE PROJECT CONTRACT.

6.2. IF THE CODE PROVISIONS CONFLICT, THE MORE STRINGENT CODE PROVISION SHALL GOVERN. IN ANY INSTANCES WHERE THE DRAWINGS AND SPECIFICATIONS DO NOT SPECIFY EXPLICIT MATERIALS OR METHODS, THEN PERFORM THE WORK IN ACCORDANCE WITH THE MINIMUM REQUIREMENTS OF THE CODE APPLICABLE TO THE WORK.

6.3. ALL MATERIALS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS FOR THE INTENDED APPLICATION. IF IN ANY INSTANCES THE DRAWINGS AND SPECIFICATIONS CONFLICT WITH THE MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION, THEN THE MANUFACTURER'S RECOMMENDATIONS SHALL GOVERN.

6.4. FIELD-VERIFY ALL DIMENSIONS AND CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IMMEDIATELY NOTIFY THE PROJECT ENGINEER OF ANY CONFLICTS.

6.5. CLEARING LIMITS: MINIMIZE DISTURBANCE AND EXISTING VEGETATION OUTSIDE OF THE CLEARING LIMITS TO THE MAXIMUM EXTENT PRACTICABLE.

7. SUBMITTAL PROCEDURE

7.1. MAKE ALL SUBMITTALS TO THE DISTRICT AND SIGN TO INDICATE THEY COMPLY WITH THE CONTRACT REQUIREMENTS.

7.2. SUBMITTALS SHALL INCLUDE TWO COPIES; ONE COPY RETAINED BY THE DISTRICT AND THE OTHER TO BE RETURNED TO THE CONTRACTOR.

7.3. ANY FEATURES THAT DIFFER FROM THE CONTRACT REQUIREMENTS SHALL BE EXPLICITLY AND CLEARLY INDICATED.

8. SUBMITTAL LIST

8.1. CONSTRUCTION (PROGRESS) SCHEDULE. SUBMIT THE PROPOSED PROGRESS WORK SCHEDULE WITH THE CONTRACTOR BID PROPOSAL. ITEMIZE EACH PRINCIPAL COMPONENT PHASE OF WORK AND THE CALENDAR DAYS OF ANTICIPATED PERFORMANCE. SUBMIT A REVISED SCHEDULE ANY TIME THE ACTUAL WORK PROGRESS LAGS THE SCHEDULED TIME BY MORE THAN 14 CALENDAR DAYS.

8.2. CONTRACTOR SHALL SUBMIT MATERIAL AND PRODUCT SPECIFICATIONS, CATALOG CUTS, STANDARD COLOR CHARTS, STATEMENT OF COMPLIANCE WITH SPECIFIED REFERENCED STANDARDS, MATERIAL AND PRODUCT CERTIFICATION AND TEST REPORTS FOR ALL MATERIALS AND PRODUCTS USED. SEE MATERIAL SPECIFICATIONS.

8.3. CLOSE-OUT DOCUMENTS. SEE SECTION 13.0.

9. CONSTRUCTION SUPPORT

9.1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EQUIPMENT AND CONSTRUCTION METHODS NECESSARY TO EFFICIENTLY PERFORM THE WORK. EARTHWORK EQUIPMENT SHOULD BE CHOSEN TO MINIMIZE ENVIRONMENTAL IMPACTS TO THE PROJECT AND ADJACENT AREAS AS WELL AS THE ACCESS ROAD.

9.2. THE CONTRACTOR SHALL PROVIDE A FIELD SURVEYOR (HORIZONTAL LAYOUT AND GRADE CONTROL STAKING) TO ACCURATELY ESTABLISH THE HORIZONTAL AND VERTICAL LOCATIONS OF THE WORK. ADJUST THE LAYOUT OF THE WORK AS NECESSARY FOR SMOOTH HORIZONTAL AND VERTICAL TRANSITION TO EXISTING FEATURES.

10. FINAL INSPECTION

10.1. NOTIFY THE PROJECT ENGINEER AT LEAST SEVEN (7) BUSINESS DAYS PRIOR TO THE ANTICIPATED DATE OF COMPLETION OF ALL WORK. THE PROJECT ENGINEER AND CONTRACTOR OR "DESIGNATED REPRESENTATIVE" (WHO WILL OVERSEE THE ACTUAL CONSTRUCTION WORK) WILL PROCEED WITH FINAL INSPECTION AS PROMPTLY AS PRACTICABLE.

10.2. THE TIME REQUIRED FOR SUCH REVIEW AND FOR MAKING ANY CORRECTIONS, AS A RESULT THEREOF, SHALL BE INCLUDED IN THE CONTRACT PERFORMANCE TIME.

10.3. THE CONTRACTOR REPRESENTATIVE RESPONSIBLE FOR THE WORK SHALL BE PRESENT AT THE FINAL INSPECTION AND SHALL SUBMIT A PRELIMINARY LIST OF UNFINISHED WORK.

11. CLOSE OUT DOCUMENTS

11.1. RECORD DOCUMENTS: MAINTAIN ON THE PROJECT SITE WHEN WORK IS IN PROGRESS, A CURRENT SET OF DRAWINGS CLEARLY AND ACCURATELY SHOWING THE AS-CONSTRUCTED WORK. PRIOR TO FINAL PAYMENT, SUBMIT ONE SET OF AS-BUILT DRAWINGS THAT CLEARLY INDICATE THE AS-CONSTRUCTED FEATURES SHOWN IN RED. AFTER COMPLETION OF THE WORK AND PRIOR TO FINAL PAYMENT, SUBMIT A RELEASE OF CLAIMS FORM, PROPERLY EXECUTED BY THE CONTRACTOR, RELEASING CLAIMS AGAINST THE DISTRICT ARISING OUT OF THIS CONTRACT, OTHER THAN CLAIMS ACCEPTED FROM THE OPERATION OF THE RELEASE.

MATERIAL SPECIFICATIONS

THE ACCOMPANIED PLANS PRESENT THE GENERAL LAYOUT AND CONSTRUCTION DETAILS FOR THE HABITAT ENHANCEMENT AND POND RESTORATION AT RANCHO CANADA DEL ORO OPEN SPACE PRESERVE. THE FOLLOWING ARE MATERIAL SPECIFICATIONS FOR THE WORK ASSOCIATED WITH THE GRADING AND DRAINAGE WORK AND EROSION CONTROL THAT WILL BE COMPLETED AT THE SITE. ALL MATERIALS USED FOR THE CONSTRUCTION OF THIS PROJECT SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS AND AS DESCRIBED IN THE ACCOMPANIED PLANS.

1. GENERAL MATERIAL SPECIFICATIONS

THE CONTRACTOR SHALL UTILIZE MATERIALS AS SPECIFIED IN THE FOLLOWING SECTIONS. ALL MATERIAL SPECIFICATIONS SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE FOLLOWING GOVERNING ORGANIZATIONS AS NEEDED: ASSOCIATION OF STANDARDS AND TESTING OF MATERIALS (ASTM), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AND SANTA CLARA COUNTY

2. RESOURCE PROTECTION FENCING

2.1. TEMPORARY FENCING SHALL BE INSTALLED AS DESCRIBED IN THE HMMP.

3. DEWATERING

3.1. DRAWDOWN AND DEWATERING SCHEMATICS ARE PROVIDED IN THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR FINAL DESIGN, INSTALLATION, TESTING, OPERATION, AND MAINTENANCE OF A DEWATERING SYSTEM OF SUFFICIENT SCOPE, SIZE, AND CAPACITY TO CONTROL HYDROSTATIC PRESSURES AND PERMIT EXCAVATION AND CONSTRUCTION TO PROCEED ON DRY, STABLE SUBGRADES.

3.2. FABRIC SHALL BE

3.2.1. MORAFI NON-FILTER WOVEN FABRIC OR AS APPROVED EQUAL TO.

4. SOIL MATERIALS

4.1. ALL FILL MATERIAL USED IN CONSTRUCTION OF THE POND AND EARTHEN BERMS SHALL BE TAKEN FROM APPROVED BORROW AREAS, DESIGNATED BORROW AREAS SHALL BE DETERMINED BY SANTA CLARA OPEN SPACE AUTHORITY IN CONJUNCTION WITH THE PROJECT GEOTECHNICAL ENGINEER.

4.2. ALL GRADING ACTIVITIES SHALL CONFORM TO THE RECOMMENDATIONS PRESENTED IN THE GEOTECHNICAL INVESTIGATION REPORT TITLED GEOTECHNICAL INVESTIGATION DESIGN PHASE FOR PONDS RC-01, 05, 08, AND 10 PREPARED BY BUTANO GEOTECHNICAL ENGINEERING INC. AND DATED JANUARY 2020. POND RC-07 WAS NOT INCLUDED IN THE GEOTECHNICAL REPORT.

5. ENGINEERED FILL

5.1. MATERIAL FOR ENGINEERED FILL SHALL BE APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER BEFORE COMMENCEMENT OF GRADING OPERATIONS. NATIVE OR IMPORTED SOIL PROPOSED FOR USE AS ENGINEERED FILL SHALL MEET THE REQUIREMENTS DEFINED IN THE GEOTECHNICAL REPORT.

6. ROCK

6.1. ROCK SHALL BE DENSE, SOUND, AND RESISTANT TO ABRASION; AND SHALL BE FREE FROM CRACKS, SEAMS, AND OTHER DEFECTS THAT WOULD TEND TO INCREASE UNDULY THEIR DESTRUCTION BY WATER OR FROST ACTIONS (SEE PLANS FOR ROCK SIZE IN SPECIFIC APPLICATIONS).

6.1.1. ANGULAR ROCK. ROCK SHALL BE ANGULAR IN SHAPE AS TO FORM A STABLE PROTECTION STRUCTURE OF THE REQUIRED SECTION. FLAT OR NEEDLE SHAPES WILL NOT BE ACCEPTED UNLESS THE THICKNESS OF THE INDIVIDUAL PIECES IS GREATER THAN 0.33 TIMES THE LENGTH.

8. ACCESS GATES

8.1. SINGLE LEAF STEEL TUBE ACCESS GATE WITH A MINIMUM CLEAR WIDTH OF 16'-0". DETAILS FOR ACCESS GATE INSTALLATION AND TYPE CAN BE FOUND IN THE DESIGN DETAILS. ACCESS GATES SHALL MEET THE FOLLOWING SPECIFICATIONS:

8.1.1. GALVANIZED-STEEL FRAMES AND BRACING: FABRICATE MEMBERS FROM GALVANIZED STEEL PIPE IN THE SIZES SPECIFIED ON DRAWINGS A WELL AS GALVANIZED STEEL PIPE FITTINGS IN THE SIZES SPECIFIED ON DRAWINGS. GALVANIZED STEEL PIPE SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.

8.1.2. STEEL PIPE: ASSOCIATION OF STANDARDS AND TESTING OF MATERIALS (ASTM), 53/A 53M, STANDARD WEIGHT (SCHEDULE 40) UNLESS OTHERWISE INDICATED.

8.1.3. GALVANIZING: FOR ITEMS OTHER THAN HARDWARE THAT ARE INDICATED TO BE GALVANIZED, HOT-DIP GALVANIZE TO COMPLY WITH ASSOCIATION OF STANDARDS AND TESTING OF MATERIALS (ASTM) A 123/A 123M. FOR HARDWARE ITEMS, HOT-DIP GALVANIZE TO COMPLY WITH ASSOCIATION OF STANDARDS AND TESTING OF MATERIALS (ASTM) A 153/A 153M.

8.1.4. HARDWARE: LATCHES PERMITTING OPERATION FROM BOTH SIDES OF GATE, HINGES, AND KEEPERS FOR EACH GATE LEAF MORE THAN 5 FEET WIDE. PROVIDE CENTER GATE STOPS AND CANE BOLTS FOR PAIRS OF GATES. FABRICATE LATCHES WITH INTEGRAL EYE OPENINGS FOR PADLOCKING; PADLOCK ACCESSIBLE FROM BOTH SIDES OF GATE.

8.1.5. OWNER TO PROVIDE PADLOCKS.

8.1.6. METALLIC-COATED-STEEL FINISH: GALVANIZED FINISH.

8.1.7. COATING MATERIAL. EPOXY PRIMER FOR GALVANIZED STEEL: EPOXY PRIMER RECOMMENDED IN WRITING BY TOPCOAT MANUFACTURER.

9. PIPING AND FITTINGS

9.1. PIPE: CORRUGATED METAL PIPE (CMP): ALL PIPES AND FITTINGS SHALL BE METALLIC ZINC-COATED, ALUMINUM-COATED, OR ALUMINUM-ZINC ALLOY-COATED CORRUGATED STEEL CONFORMING TO THE REQUIREMENTS OF ASSOCIATION OF STANDARDS AND TESTING OF MATERIALS (ASTM) A 742.A 760, A 761, A 762, A 849, A 875, A 885, A 929 OR EQUIVALENT. PIPE SIZES SHALL BE SHOWN ON THE PROJECT PLANS. PIPE SHALL BE 14 GAUGE.

9.1.1. PIPE JOINT COUPLING BANDS SHALL BE PROVIDED MEETING THE PIPE MANUFACTURER'S RECOMMENDATIONS.

9.1.2. COUPLING BANDS SHALL BE MADE OF THE SAME BASE METAL AND COATINGS AS THE CMP TO A MINIMUM OF 18 GAUGE. ENDS OF THE CMP ARE RE-ROLLED WITH STRAIGHT, NON-HELICAL COLLAR CAPABLE OF RECEIVING "HUGGER BANDS" AS COUPLER UNIONS. CONNECTION FASTENERS WILL BE PROVIDED.

9.2. PIPE ANCHORS: THE PIPES SHALL BE ANCHORED TO THE EMBANKMENT AND MEET THE SPECIFICATION AS DETAILED IN THE PLANS. THE ANCHOR STAKES SHALL BE 6 FT IN LENGTH AND BE INSTALLED TANGENT TO THE EMBANKMENT SLOPE

9.3. PIPE: POLYVINYL CHLORIDE (PVC) PIPE: ALL PVC PIPING SHALL CONFORM TO AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION (AASHTO) M-278 OR ASSOCIATION OF STANDARDS AND TESTING OF MATERIALS (ASTM) F758, TYPE PS 28 STANDARDS, OR EQUIVALENT. FITTINGS AND COUPLINGS FOR PLASTIC PIPE SHALL BE THREADED OR SLIP-FITTED TAPERED SOCKET SOLVENT WELD TYPE. THREADED ADAPTERS SHALL BE PROVIDED WITH SOCKET PIPE FOR CONNECTIONS TO THREADED PIPE.

10. CONCRETE

10.1. CONCRETE COMPONENTS

10.1.1. CEMENT: PROVIDE A STANDARD BRAND OF PORTLAND CEMENT, ASSOCIATION OF STANDARDS AND TESTING OF MATERIALS (ASTM) C150, TYPE I OR II.

10.1.2. AGGREGATES: PROVIDE HARDROCK AGGREGATE, ASSOCIATION OF STANDARDS AND TESTING OF MATERIALS (ASTM) C33, WITH ADDITIONAL ATTRIBUTES AS SPECIFIED HEREIN.

10.1.3. FINE AGGREGATE: PROVIDE WASHED NATURAL SAND HAVING STRONG, HARD, DURABLE PARTICLES, AND CONTAINING NOT MORE THAN 2 PERCENT BY WEIGHT OF DELETERIOUS MATTER SUCH AS CLAY LUMPS, MICA, SHALE OR SCHIST. GRADE FROM COARSE TO FINE.

10.1.4. COARSE AGGREGATE: PROVIDE COARSE AGGREGATE CONSISTING OF CLEAN, HARD, FINE-GRAINED, SOUND CRUSHED ROCK OR WASHED GRAVEL, OR A COMBINATION OF BOTH, CONTAINING NOT MORE THAN 5 PERCENT BY WEIGHT OF FLAT, CHIP-LIKE, THIN, ELONGATED, FRIABLE OR LAMINATED PIECES, NOR MORE THAN 2 PERCENT BY WEIGHT OF SHALE OR CHERTY MATERIAL. USE COARSE AGGREGATE OF THE LARGEST PRACTICABLE SIZE FOR EACH CONDITION OF PLACEMENT.

10.1.5. WATER: USE ONLY CLEAN POTABLE WATER.

10.1.6. CONCRETE FORMS AND ACCESSORIES:

10.1.7. THIS SECTION SPECIFIES CONSTRUCTION OF CONCRETE FORMS:

10.1.7.1. PLYWOOD: B-B PLYFORM.

10.1.7.2. STEEL: PREFABRICATED.

10.1.7.3. LUMBER: STANDARD GRADE, (CONCEALED SURFACES ONLY).

10.1.7.4. FORM TIES AND SPREADERS: SNAP-OFF TYPE, GALVANIZED METAL, FIXED LENGTH, CONE TYPE, WITH WATERPROOFING WASHER AND LEAVING NO METAL WITHIN 1 INCH OF THE CONCRETE FACE.

10.1.7.5. FORM RELEASE AGENT: COLORLESS MINERAL OIL WHICH WILL NOT STAIN CONCRETE, OR ABSORB MOISTURE, OR IMPAIR NATURAL BONDING OR COLOR CHARACTERISTICS OF COATING INTENDED FOR USE ON CONCRETE. DIESEL OR OIL BASED RELEASE AGENTS SHALL NOT BE USED.

10.2. CEMENT SLURRY

10.2.1. FOR STORM DRAIN PIPES TO BE ABANDONED, FILL WITH SLURRY CONFORMING TO CALTRANS 19-3.02E

11. CONCRETE WASHOUT

11.1. LATH AND FLAGGING SHOULD BE COMMERCIAL TYPE.

11.2. PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MILLIMETER POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

12. EROSION CONTROL

12.1. CONTRACTOR SHALL USE EROSION CONTROL MATERIALS AS SPECIFIED IN THE PLANS AND THE HMMP.

13. POND LINER

13.1. BENTONITE CLAY SHALL BE WELL MIXED WITH EXCAVATED NATIVE SOIL AND HYDRATED TO ±2% OF OPTIMUM MOISTURE CONTENT.

13.2. BENTONITE SOIL MIXTURE SHALL BE COMPACTED IN NO MORE THAN 6" LIFTS AT A TIME WITH A SHEEPSFOOT VIBRATORY COMPACTOR IN COMBINATION WITH OTHER AVAILABLE HEAVY EQUIPMENT ON SITE TO ACHIEVE REQUIRED DENSITY. CONTRACTOR SHALL SUBMIT MATERIAL TO PROJECT ENGINEER.

14. STAFF GAUGE

14.1. CONTRACTOR SHALL SUBMIT MATERIALS TO PROJECT ENGINEER AND INSTALL STAFF GAUGE.

SHERWOOD DESIGN ENGINEERS
1525 Seabright Avenue
Santa Cruz, CA 95062
www.sherwoodengineers.com

REGISTERED PROFESSIONAL ENGINEER — ROBYN L. COOPER — NO. 73041 — EXP. 12/31/26 — CIVIL — STATE OF CALIFORNIA

SCALE: 0 1"
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NO	DATE	REVISION

PROJECT NO. 21848
DATE 1/27/25
DRAWN CBH/PA/EM
DESIGNED CBH
CHECKED RC

100% CONSTRUCTION DOCUMENTS

SANTA CLARA VALLEY OPEN SPACE AUTHORITY
RANCHO CANADA DEL ORO OPEN SPACE
HABITAT ENHANCEMENT AND POND RESTORATION
CASA LOMA RD., MORGAN HILL, CA 95037

GENERAL AND MATERIAL SPECIFICATIONS

DRAWING NO.
C8.0

CONSTRUCTION SPECIFICATIONS

PROJECT CONSTRUCTION SHALL CONFORM ALL REQUIREMENTS OF THE PROJECT PERMITS, CONSTRUCTION DOCUMENTS, AND FOLLOWING SPECIFICATIONS. ALL NECESSARY CONSTRUCTION PERMITS SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF ALL SITE WORK. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO ALL JURISDICTIONAL REQUIREMENTS.

1. PRE-CONSTRUCTION CONFERENCE

THE CONTRACTOR OR A "DESIGNATED REPRESENTATIVE" (WHO WILL OVERSEE THE ACTUAL CONSTRUCTION WORK) SHALL HAVE A PRE-CONSTRUCTION MEETING WITH THE PROJECT MANAGER AND PROJECT ENGINEER AT LEAST ONE WEEK PRIOR TO COMMENCEMENT OF SITE WORK. THE PROJECT MANAGER AND PROJECT ENGINEER SHALL BE CONTACTED 7 DAYS PRIOR TO THE MEETING CONFERENCE. THE MEETING SHOULD BE CONDUCTED TO REVIEW THE DESIGN, MATERIAL, AND CONSTRUCTION SPECIFICATIONS. ALL CONTRACTOR PROPOSED REVISIONS IN THE DESIGN SHALL BE APPROVED BY THE PROJECT ENGINEER.

2. RESOURCE PROTECTION

2.1. WORK LIMITS ARE WITHIN THE LIMITS OF DISTURBANCE, INCLUDING THE IMMEDIATE WORK SITES AND A STAGING AREAS.

2.2. INVASIVE SPECIES MANAGEMENT: INVASIVE SPECIES SHALL BE MANAGED ACCORDING TO THE HMMP.

2.3. WETLANDS: WHEN DISPOSING OF EXCESS, SPOIL, OR OTHER CONSTRUCTION MATERIALS ON PUBLIC OR PRIVATE PROPERTY, CONTRACTOR SHALL NOT FILL IN OR OTHERWISE CONVERT WETLANDS.

2.4. FLOODPLAINS: WHEN DISPOSING EXCESS, SPOIL, OR OTHER CONSTRUCTION MATERIALS ON PUBLIC OR PRIVATE PROPERTY, CONTRACTOR SHALL NOT FILL IN OR OTHERWISE CONVERT 100 YEAR FLOODPLAIN AREAS DELINEATED ON THE LATEST FEDERAL EMERGENCY MANAGEMENT AGENCY FLOODPLAIN MAPS.

2.5. HISTORIC PRESERVATION: ANY EXCAVATION BY CONTRACTOR THAT UNCOVERS AN HISTORICAL OR ARCHAEOLOGICAL ARTIFACT SHALL BE IMMEDIATELY REPORTED TO OWNER. CONSTRUCTION SHALL BE TEMPORARILY HALTED PENDING THE NOTIFICATION PROCESS AND FURTHER DIRECTIONS.

2.6. ENDANGERED SPECIES: CONTRACTOR SHALL COMPLY WITH THE ENDANGERED SPECIES ACT, WHICH PROVIDES FOR THE PROTECTION OF ENDANGERED AND/OR THREATENED SPECIES AND CRITICAL HABITAT. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS AND RECOMMENDATIONS IN THE HMMP.

2.7. COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL LAWS AND REGULATIONS. THIS CONDITION APPLIES TO, BUT IS NOT LIMITED TO, LAWS AND REGULATIONS GOVERNING PROTECTION OF BIOLOGICAL RESOURCES, AIR AND WATER QUALITY STANDARDS, CULTURAL RESOURCES, AND NOISE LEVELS.

2.8. MITIGATION MEASURES TO PROTECT BIOLOGICAL RESOURCES SHALL BE FOLLOWED AS DESCRIBED IN THE HMMP DURING PROJECT CONSTRUCTION.

2.9. PROTECT ADJACENT VEGETATION, PROPERTY, STRUCTURES, AND IMPROVEMENTS FROM DAMAGE. REPAIR OF DAMAGE INCURRED TO ADJACENT VEGETATION, PROPERTY, STRUCTURES, AND IMPROVEMENTS AS A RESULT OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR.

2.10. RESTORE ANY DISTURBED AREAS TO THEIR PRE-CONSTRUCTION CONDITION. SLOPE ANY DISTURBED SOIL AREAS TO DRAIN. INSTALL EROSION CONTROL MEASURES IN ANY DISTURBED SOIL AREAS AS INDICATED IN SECTION 25.

2.11. PROVIDE SAFETY EQUIPMENT AND METHODS AS NECESSARY TO PERFORM THE WORK IN A SAFE MANNER IN ACCORDANCE WITH FEDERAL AND STATE HEALTH AND SAFETY REGULATIONS. PROVIDE TEMPORARY FENCING, BARRICADES, AND WARNING DEVICES AS NECESSARY TO SAFEGUARD THE PUBLIC, WORKERS, THE DISTRICT, RANCH STAFF, AND LIVESTOCK.

2.12. RESOURCE PROTECTION FENCING CONSTRUCTION SHALL BE INSTALLED IN LOCATIONS INDICATED ON DRAWINGS FOLLOWING DETAIL ON PLANS.

3. STABILIZED CONSTRUCTION ENTRANCE/EXIT

3.1. POINTS OF ENTRANCE/EXIT TO THE SITE FOR CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO STABILIZED ENTRANCE/EXIT

3.2. A MINIMUM DEPTH OF STONE SHALL BE 12". STONES SHALL BE 3" TO 6" DIAMETER ANGULAR STONES

4. FIELD ENGINEERING

4.1. STAGING AREAS: PRIOR TO THE START OF WORK THE CONTRACTOR SHALL PROPOSE A STAGING AREA TO BE APPROVED BY SANTA CLARA VALLEY OPEN SPACE AUTHORITY.

4.2. UTILITIES. PRIOR TO THE START OF CLEARING AND EXCAVATION WORK, LOCATE ANY EXISTING UTILITIES AND PROVIDE FIELD ENGINEERING TO ACCURATELY ESTABLISH THE HORIZONTAL LAYOUT AND VERTICAL ELEVATIONS OF THE WORK. MAINTAIN AND RENEW THE FIELD STAKING AS THE WORK PROGRESSES.

4.3. VERTICAL TOLERANCE. VERTICALLY LAYOUT AND FINISH-GRADE THE EARTHWORK AREA TO WITHIN 0.025 FEET OF THE ELEVATION(S) SHOWN ON THE DRAWINGS, AND TO SMOOTHLY TRANSITION VERTICALLY WITH THE EXISTING GROUND LINES.

4.4. HORIZONTAL TOLERANCE. HORIZONTALLY LAYOUT AND CONSTRUCT EARTHWORK WITHIN 0.5 FEET OF THE TRUE HORIZONTAL POSITION INDICATED ON THE DRAWINGS, AND SMOOTHLY TRANSITION HORIZONTALLY WITH THE EXISTING GROUND LINES. THE PRINCIPAL EDGES OF EARTHWORK SHALL BE CONSTRUCTED STRAIGHT OR SMOOTHLY CURVED AS INDICATED ON THE DRAWINGS WITHOUT READILY NOTICEABLE WAVINESS.

4.5. THE CONTRACTOR SHALL PROVIDE SUFFICIENT HORIZONTAL AND VERTICAL CONTROL FOR INSTALLATION OF THE WORK AT DATUM POINTS NECESSARY TO ESTABLISH ALIGNMENT AND GRADE. THE PROTECTION AND CARE OF THE STAKES ONCE SET, SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR.

4.6. SURVEY-WORK BENCHMARKS: RESURVEY BENCHMARKS REGULARLY DURING DEWATERING AND MAINTAIN AN ACCURATE LOG OF SURVEYED ELEVATIONS FOR COMPARISON WITH ORIGINAL ELEVATIONS. PROMPTLY NOTIFY ARCHITECT IF CHANGES IN ELEVATIONS OCCUR OR IF CRACKS, SAGS, OR OTHER DAMAGE IS EVIDENT IN ADJACENT CONSTRUCTION.

5. POND DRAWDOWN AND DEWATERING

5.1. ALL DEWATERING ACTIVITIES SHALL CONFORM WITH STORMWATER POLLUTION PREVENTION PLAN (SWPPP) (TO BE PREPARED BY CONTRACTOR) AND ANY GOVERNING PERMIT REQUIREMENT RELEVANT TO THE PROJECT.

5.2. THE POND SHALL BE COMPLETELY DRAINED OF ALL WATER BEFORE GRADING OF THE SITE. THE POND SHALL BE COMPLETELY DRIED PRIOR TO RESTORING TO FULL WATER CAPACITY.

5.3. PROVIDE TEMPORARY GRADING TO FACILITATE DEWATERING AND CONTROL OF SURFACE WATER.

5.4. PROTECT AND MAINTAIN TEMPORARY EROSION AND SEDIMENTATION CONTROLS, SPECIFIED IN THE PLANS AND THE SECTION ON DEWATERING OPERATIONS AS INDICATED BELOW.

5.5. INSTALL DEWATERING SYSTEM UTILIZING WELLS, WELL POINTS, OR SIMILAR METHODS COMPLETE WITH PUMP EQUIPMENT, STANDBY POWER AND PUMPS, FILTER MATERIAL GRADATION, VALVES, APPURTENANCES, WATER DISPOSAL, AND SURFACE-WATER CONTROLS.

5.6. SPACE WELL POINTS OR WELLS AT INTERVALS REQUIRED TO PROVIDE SUFFICIENT DEWATERING.

5.7. USE FILTERS OR OTHER MEANS TO PREVENT PUMPING OF FINE SANDS OR SILTS FROM THE SUBSURFACE.

5.8. PLACE DEWATERING SYSTEM INTO OPERATION TO LOWER WATER TO SPECIFIED LEVELS BEFORE EXCAVATING BELOW GROUND-WATER LEVEL.

5.9. PROVIDE STANDBY EQUIPMENT ON-SITE, INSTALLED AND AVAILABLE FOR IMMEDIATE OPERATION, TO MAINTAIN DEWATERING ON CONTINUOUS BASIS IF ANY PART OF SYSTEM BECOMES INADEQUATE OR FAILS.

5.10. OPERATE SYSTEM CONTINUOUSLY UNTIL DEWATERING IS NO LONGER REQUIRED.

5.11. OPERATE SYSTEM TO LOWER AND CONTROL GROUND WATER TO PERMIT EXCAVATION, CONSTRUCTION OF STRUCTURES, AND PLACEMENT OF FILL MATERIALS ON DRY SUBGRADES. DRAIN WATER-BEARING STRATA ABOVE AND BELOW BOTTOM OF FOUNDATIONS, DRAINS, SEWERS, AND OTHER EXCAVATIONS.

5.12. DO NOT PERMIT OPEN-SUMP PUMPING THAT LEADS TO LOSS OF FINES, SOIL PIPING, SUBGRADE SOFTENING, AND SLOPE INSTABILITY.

5.13. REMOVE DEWATERING SYSTEM FROM PROJECT SITE ON COMPLETION OF DEWATERING. PLUG OR FILL WELL HOLES WITH SAND OR CUT OFF AND CAP WELLS A MINIMUM OF 36 INCHES BELOW OVERLYING CONSTRUCTION.

6. POLLUTION CONTROL

6.1. STORAGE OF REGULATED MATERIALS: THE STORAGE AND USE OF ANY REGULATED MATERIALS SHALL MEET ALL REQUIREMENTS OF LOCAL, STATE, AND FEDERAL REGULATORY AGENCIES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SATISFY THE REQUIREMENTS OF ANY REGULATORY AGENCY FOR THE STORAGE, MONITORING, USAGE, TRANSPORTATION, SAFETY, REPORTING, OR ANY OTHER REQUIREMENTS REGARDING THE MANAGEMENT OF REGULATED MATERIALS ON AND OFF THE PROJECT SITE.

6.2. WATER POLLUTION: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL PERMITTING REQUIREMENTS RELEVANT TO THE CONSTRUCTION OF THE PROJECT ARE MET AT ALL TIMES. ACTIONS BY THE CONTRACTOR, THE SUBCONTRACTORS OR EMPLOYEES THEREOF RESULTING IN NONCOMPLIANCE OF PERMITTING REQUIREMENTS MAY BE GROUNDS FOR TERMINATION OF THIS CONTRACT.

6.3. NOISE POLLUTION: IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO KEEP NOISE POLLUTION, DUE TO THESE CONSTRUCTION ACTIVITIES, AS LOW AS POSSIBLE.

6.4. SOIL CONTAMINATION: THE CONTRACTOR SHALL NOT ALLOW REGULATED MATERIALS TO SPILL ON THE PROJECT SITE. ANY SPILLAGE OR REGULATED MATERIALS RESULTING FROM THE CONTRACTOR'S OPERATION SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

7. WASTE DISPOSAL

7.1. ALL WASTE DISPOSAL SHALL BE CONDUCTED AS FOLLOWS:

- 7.1.1. REMOVE WASTE FROM CLEARING OPERATIONS.
- 7.1.2. DISPOSE OF AWAY FROM THE SITE IN A LEGAL MANNER.
- 7.1.3. DO NOT STORE OR PERMIT DEBRIS TO ACCUMULATE ON THE JOB SITE.
- 7.1.4. DO NOT BURN DEBRIS AT THE SITE.

8. DELETERIOUS MATERIALS

8.1. MATERIALS CONTAINING AN EXCESS OF 5% (BY WEIGHT) OF VEGETATION OR OTHER DELETERIOUS MATTER MAY BE UTILIZED IN AREAS OF LANDSCAPING OR OTHER NON-STRUCTURAL FILLS. DELETERIOUS MATERIAL INCLUDES ALL VEGETATIVE AND NON-MINERAL MATTER, AND ALL NON-REDUCIBLE STONE, RUBBLE AND/OR MINERAL MATTER O F GREATER THAN 6 INCHES.

9. SITE WORK

9.1. MOBILIZATION: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PREPARATORY WORK AND PLACEMENT OF MATERIALS IN A STAGING AREA REQUIRED FOR CONSTRUCTION OPERATIONS INCLUDING, BUT NOT LIMITED TO, THOSE NECESSARY FOR THE MOVEMENT OF PERSONNEL, EQUIPMENT, SUPPLIES, AND INCIDENTALS TO THE PROJECT SITE; FOR THE ESTABLISHMENT OF FACILITIES NECESSARY FOR WORK ON THE PROJECT; PROVIDING POLLUTION CONTROL MEASURES; AND FOR ALL OTHER WORK AND OPERATIONS WHICH MUST BE PERFORMED.

- 9.1.1. THE CONTRACTOR SHALL PROVIDE MATERIALS, NOT SPECIFICALLY DESCRIBED BUT REQUIRED FOR PROPER COMPLETION OF THE WORK OF THIS SECTION.

9.2. KEEP THE WORK SITE IN NEAT APPEARANCE. KEEP ROADWAYS, PARKING AREAS, AND WALKWAYS FREE OF MUD AND ROCKS. SWEEP DAILY AS NECESSARY. DISPOSE OF DEBRIS LEGALLY AT LICENSED DISPOSAL FACILITIES. UPON COMPLETION OF THE WORK AND IMMEDIATELY PRIOR TO THE FINAL INSPECTION, CLEAN THE IMPROVEMENTS, AND REMOVE ANY TEMPORARY LABELS. FURTHER TRASH REMOVAL AND CLEAN UP REQUIREMENTS ARE PRESENTED IN THE HMMP.

10. CLEARING AND GRUBBING

10.1. CLEAR AND GRUB WITHIN THE LIMITS OF DISTURBANCE. PROTECT TREES AND SHRUBS TO THE MAXIMUM EXTENT PRACTICAL. ANY REQUIRED TREE TRIMMING SHALL OCCUR WITH OVERSIGHT FROM THE PROJECT MANAGER. EXAMINE THE AREAS AND CONDITIONS UNDER WHICH THE WORK OF THIS SECTION WILL BE PERFORMED. CORRECT CONDITIONS DETRIMENTAL TO TIMELY AND PROPER COMPLETION OF THE WORK. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS ARE CORRECTED.

10.2. FOLLOWING THE DEMOLITION AND INITIAL SITE PREPARATION, SURFACE VEGETATION, TREE ROOTS, AND ORGANICALLY CONTAMINATED TOPSOIL SHOULD BE STRIPPED FROM THE AREA TO BE GRADED. IN ADDITION, ANY REMAINING DEBRIS OR LARGE ROCKS MUST ALSO BE REMOVED (THIS INCLUDES ROCKS GREATER THAN 2 INCHES IN GREATEST DIMENSION). THIS MATERIAL MAY BE STOCKPILED FOR USE IN REESTABLISHING VEGETATION ADJACENT TO THE TRAIL. STRIPPING SHALL CONFORM TO THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL ENGINEERING REPORT.

11. EARTHWORK

11.1. ALL EARTHWORK SHALL CONFORM WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT, PROJECT 19-169-SCL, DATED JANUARY 31, 2020 BY BUTANO GEOTECHNICAL ENGINEERING, INC..

12. SITE PREPARATION

12.1. THE INITIAL PREPARATION OF THE SITE WILL CONSIST OF POND DRAINING, CLEARING AND GRUBBING, AS NECESSARY TO PREPARE THE SITE FOR GRADING AND EXCAVATION.

12.2. SURFACE VEGETATION AND ORGANICALLY CONTAMINATED TOPSOIL SHOULD BE STRIPPED FROM AREAS WITHIN THE LIMITS OF GRADING. THE REQUIRED DEPTH OF STRIPPING WILL VARY WITH THE TIME OF YEAR AND MUST BE BASED UPON VISUAL OBSERVATIONS OF THE GEOTECHNICAL ENGINEER. THE EXTENT OF SEDIMENT, VEGETATION AND DEBRIS REMOVAL WILL BE DESIGNATED BY THE CIVIL AND GEOTECHNICAL ENGINEER IN THE FIELD.

12.3. TOPSOIL REMOVED DURING SOIL EXCAVATION WILL BE PRESERVED AND REUSED TO FACILITATE REVEGETATION OF THE SITE. SEE HMMP FOR DETAILS REGARDING SAVING AND REUSING TOP SOIL.

12.4. HIGH VISIBILITY TEMPORARY FENCING SHALL BE USED TO PROTECT BIOLOGICAL RESOURCES AND DEFINE THE LIMITS OF WORK AS DESCRIBED IN THE HMMP.

12.5. SEDIMENT REMOVED FROM PONDS DEEMED BY THE GEOTECHNICAL ENGINEER TO BE SUITABLE FOR REUSE, SHALL BE MIXED IN TO THE FILL MATERIAL WHERE FEASIBLE.

12.6. ALL UNSUITABLE DEBRIS, GRUBBED MATERIAL, AND SEDIMENT MUST BE DISPOSED OF IN AN APPROVED DISPOSAL AREA OUTSIDE OF THE LIMITS OF THE PROJECT SITE OR BELOW THE POND AND EMBANKMENT. APPROPRIATE DISPOSAL AREAS TO BE APPROVED BY THE DISTRICT.

12.7. ALL VOIDS, INCLUDING THOSE CREATED BY THE DEMOLITION OF THE STRUCTURES, SUBSURFACE OBSTRUCTIONS, UTILITIES OR TREES AND ROOT BALLS MUST BE BACKFILLED WITH PROPERLY COMPACTED APPROVED BORROW SOILS THAT ARE FREE OF ORGANIC AND OTHER DELETERIOUS MATERIALS OR WITH APPROVED IMPORT FILL.

13. SITE GRADING

13.1. ALL GRADING SHALL CONFORM TO THE GEOTECHNICAL REPORT. ALL GRADING SHALL ALSO CONFORM TO THE SANTA CLARA COUNTY REGULATIONS FOR EXCAVATING, GRADING, FILLING, AND CLEARING ON LANDS IN UNINCORPORATED SANTA CLARA COUNTY.

13.2. THE GEOTECHNICAL ENGINEER SHALL BE NOTIFIED AT LEAST FOUR (4) WORKING DAYS PRIOR TO ANY GRADING OR FOUNDATION EXCAVATING SO THE WORK IN THE FIELD CAN BE COORDINATED WITH THE GRADING CONTRACTOR, AND ARRANGEMENTS FOR TESTING AND OBSERVATION CAN BE MADE. THE GEOTECHNICAL ENGINEER SHALL PERFORM THE REQUIRED TESTING AND OBSERVATION DURING GRADING AND CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE THE NECESSARY ARRANGEMENTS FOR THESE REQUIRED SERVICES.

13.3. THE CONTRACTOR OR ANY SUBCONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT ONE (CALL PROGRAM 48 HOURS IN ADVANCE OF PERFORMING EXCAVATION WORK BY CALLING THE TOLL-FREE NUMBER 800-227-2600). EXCAVATION IS DEFINED AS BEING 18 OR MORE INCHES IN DEPTH BELOW THE EXISTING GROUND.

13.4. ACTUAL GRADING SHALL BEGIN WITHIN 30 DAYS OF VEGETATION REMOVAL OR THE AREA SHALL BE PLANTED TO CONTROL EROSION. SURFACE PLANT GROWTH ONLY AND WHICH DOES NOT EXCEED 4 INCHES IN DEPTH.

13.5. SURVEYOR'S OR CIVIL ENGINEER'S REFERENCE DATUM (INSTALLED PRIOR TO ANY GRADING) SHALL BE USED TO ESTABLISH INDICATED ELEVATIONS ON SUBMITTED PLANS AND SHALL REMAIN IN PLACE UNDISTURBED THROUGHOUT THE ENTIRETY OF CONSTRUCTION WORK ON THIS PERMIT.

13.6. EROSION CONTROL MEASURES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY, WHEN RAIN IS FORECASTED.

13.7. ALL GRADING AND CUT BANKS SHALL BE DONE IN ACCORDANCE WITH THE SOILS REPORT. CUT SLOPES EXCEEDING 3:2 RATIO MAY BE REQUIRED TO BE REVIEWED BY THE SOILS ENGINEER BY THE COUNTY, IF REQUESTED. SHORING OR OTHER MEANS OF CUT STABILIZATION WILL BE REQUIRED, IF REQUESTED BY THE SOILS ENGINEER.

13.8. CONTRACTOR SHALL SUPPLY ALL EQUIPMENT, LABOR AND MATERIALS NECESSARY TO PERFORM THE WORK SHOWN ON THIS PLAN. THE CONTRACTOR SHALL REMOVE ALL OBSTRUCTIONS, BOTH ABOVE GROUND AND UNDERGROUND AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.

13.9. THE CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

13.10. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS ON THE JOB, AND SHALL NOTIFY THE ENGINEER OF ANY VARIATION FROM THE DIMENSIONS AND CONDITIONS SHOWN. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.

13.11. IF SOILS ARE TO BE EXPORTED FROM THIS SITE THEY SHALL BE REMOVED AND DISPOSED OF IN A MANNER AND LOCATION ACCEPTABLE TO SANTA CLARA COUNTY FOLLOWING THE REQUIREMENTS OF ALL APPLICABLE COUNTY, STATE, AND FEDERAL LAWS OR ORDINANCES.

13.12. AREAS TO BE GRADED SHALL BE CLEARED OF STRUCTURES, OBSTRUCTIONS AND DELETERIOUS MATERIAL, INCLUDING TREES NOT DESIGNATED TO REMAIN AND OTHER UNSUITABLE MATERIAL. EXISTING DEPRESSIONS OR VOIDS CREATED DURING SITE CLEARING SHOULD BE BACKFILLED WITH ENGINEERED FILL. SOILS CONTAMINATED WITH DELETERIOUS MATERIAL SHOULD BE REMOVED FROM THE SITE. THE EXTENT OF THIS SOIL REMOVAL WILL BE DESIGNATED BY THE GEOTECHNICAL ENGINEER IN THE FIELD.

13.13. FOLLOWING CLEARING AND STRIPPING, THE EXPOSED SOILS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER IN THE FIELD TO PROVIDE SUPPLEMENTAL RECOMMENDATIONS IF NECESSARY.

13.14. ENGINEERED FILL SHALL BE COMPACTED AND MOISTURE CONDITIONED ACCORDING TO THE GEOTECHNICAL REPORT..

13.15. EXAMINE THE AREAS AND CONDITIONS UNDER WHICH THE WORK OF THIS SECTION WILL BE PERFORMED. CORRECT CONDITIONS DETRIMENTAL TO TIMELY AND PROPER COMPLETION OF THE WORK. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS ARE CORRECTED.

14. EXCAVATION AND FILL

14.1. ALL EXCAVATION AND FILL SHALL CONFORM TO THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL ENGINEERING REPORT.

14.2. EXCAVATE AND FILL TO THE LINES AND GRADES SHOWN ON THE PLANS.

14.3. PROVIDE A SMOOTH HORIZONTAL AND VERTICAL TRANSITION WITH EXISTING FEATURES

14.4. FILL SHALL BE PLACED IN IN ACCORDANCE WITH THE RECOMMENDATION PROVIDED IN THE GEOTECHNICAL ENGINEERING REPORT.

14.5. THE CONTRACTOR IS RESPONSIBLE FOR ACHIEVEMENT OF PROPER COMPACTION, AS SPECIFIED IN THE GEOTECHNICAL REPORT.

14.6. SAMPLES OF ANY PROPOSED IMPORTED FILL PLANNED FOR USE ON THIS PROJECT SHOULD BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROPRIATE TESTING AND APPROVAL NOT LESS THAN 4 WORKING DAYS BEFORE THE ANTICIPATED JOBSITE DELIVERY.

14.7. ALL EXCAVATION WORK SHALL BE MADE TO THE LINES, GRADES AND DIMENSIONS SHOWN IN THE ACCOMPANIED PLANS. EXCAVATIONS SHALL BE PERFORMED IN THE DAY AND IN A MANNER THAT MINIMIZES EROSION, FLOODING AND SEDIMENTATION. EXCAVATED SOILS THAT ARE TO BE STOCKPILED ON-SITE SHALL BE PLACED IN A LOCATION AND MANNER THAT MINIMIZES EROSION AND CONTROLS SEDIMENTATION.

14.8. THE CONTRACTOR SHALL TAKE EXTRA PRECAUTION WHERE EXCAVATION EQUIPMENT MAY ENCOUNTER EXISTING UNDERGROUND UTILITIES AND OTHER FACILITIES OF ANY NATURE. CONTRACTOR SHALL PERSON HIS OPERATION IN SUCH A MANNER AND SHALL EXERCISE THE GREATEST OF CARE SO AS NOT TO INJURE IN ANY MANNER EXISTING UNDERGROUND UTILITIES, MAINS OR FACILITIES OF ANY NATURE. SHOULD THE CONTRACTOR INJURE, BREAK OR DAMAGE EXISTING UNDERGROUND UTILITIES, MAINS, OR FACILITIES OF ANY NATURE IN ANY MANNER, THEY SHALL REPAIR THE SAME AT THEIR OWN EXPENSE. IF IT DOES NOT APPEAR FEASIBLE THAT THE CONTRACTOR CAN MAKE NEEDED REPAIRS, THEN SUCH REPAIRS SHALL BE MADE BY THE OWNER AND THE CONTRACTOR SHALL BE CHARGED FOR SUCH REPAIRS.

15. COMPACTION AND MOISTURE CONDITIONING

15.1. ALL FILL, COMPACTION AND MINIMUM DENSITY REQUIREMENTS SHALL MEET ALL REQUIREMENTS STATED IN THE GEOTECHNICAL REPORT.

15.2. ALL MOISTURE CONDITIONING REQUIREMENTS SHALL MEET ALL REQUIREMENTS STATED IN THE GEOTECHNICAL REPORT.

16. SUBSURFACE DRAINAGE

16.1. RECOMMENDED CUT AND FILL SLOPE GRADIENTS ASSUME THAT THE SOIL MOISTURE IS A RESULT OF PRECIPITATION PENETRATING THE SLOPE FACE, AND NOT A RESULT OF SUBSURFACE SEEPS OR SPRINGS, WHICH CAN DESTABILIZE SLOPES WITH HYDROSTATIC PRESSURE. ALL GROUNDWATER SEEPS ENCOUNTERED DURING CONSTRUCTION SHOULD BE DRAINED AS NECESSARY TO MAINTAIN STABLE SLOPES AT THE RECOMMENDED GRADIENTS. DRAINAGE FACILITIES MAY INCLUDE SUBDRAINS, GRAVEL BLANKETS, ROCK-FILLED SURFACE TRENCHES OR HORIZONTALLY DRAINS. THE GEOTECHNICAL ENGINEER WILL DETERMINE THE DRAINAGE FACILITIES REQUIRED DURING THE GRADING OPERATIONS.

17. SUBGRADE PREPARATION

17.1. FOLLOWING THE SITE PREPARATION, THE AREA SHOULD BE EXCAVATED TO THE DESIGN GRADES. THE EXPOSED SOILS IN THE GRADING AND CONSTRUCTION AREAS SHOULD THEN BE SCARIFIED, MOISTURE CONDITIONED, AND COMPACTED AS AN ENGINEERED FILL.

18. LAYING AND BEDDING CMP

18.1. UNLESS OTHERWISE SPECIFIED, THE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. PIPE SHALL BE INSTALLED SO NO REVERSAL OF GRADE BETWEEN JOINTS RESULTS UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

18.2. FIELD WELDING OF CORRUGATED GALVANIZED IRON OR STEEL PIPE IS NOT PERMITTED. THE PIPE SECTIONS SHALL BE JOINED WITH FABRICATOR-SUPPLIED COUPLING BANDS MEETING THE SPECIFIED JOINT REQUIREMENTS. THE COUPLINGS SHALL BE INSTALLED AS RECOMMENDED BY THE FABRICATOR.

18.3. THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS FULL LENGTH TO THE DEPTH AND IN THE MANNER SPECIFIED ON THE DRAWINGS.

19. ACCESS GATES

19.1. INSTALL GATES ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, LEVEL, PLUMB, AND SECURE FOR FULL OPENING WITHOUT INTERFERENCE. ATTACH HARDWARE USING TAMPER-RESISTANT OR CONCEALED MEANS. INSTALL GROUND-SET ITEMS IN CONCRETE FOR ANCHORAGE. ADJUST HARDWARE FOR SMOOTH OPERATION AND LUBRICATE WHERE NECESSARY.

19.2. ADJUST GATES TO OPERATE SMOOTHLY, EASILY, AND QUIETLY, FREE OF BINDING, WARP, EXCESSIVE DEFLECTION, DISTORTION, NONALIGNMENT, MISPLACEMENT, DISRUPTION, OR MALFUNCTION, THROUGHOUT ENTIRE OPERATIONAL RANGE. CONFIRM THAT LATCHES AND LOCKS ENGAGE ACCURATELY AND SECURELY WITHOUT FORCING OR BINDING.

19.3. LUBRICATE HARDWARE AND OTHER MOVING PARTS.

19.4. EXCAVATION FOR SUPPORT POSTS: HAND-EXCAVATE HOLES FOR BASES IN FIRM, UNDISTURBED SOIL TO DIMENSIONS AND DEPTHS AND AT LOCATIONS INDICATED.

19.5. CONCRETE BASES: CAST-IN-PLACE OR PRECAST CONCRETE, DIMENSIONED AND REINFORCED ACCORDING AS INDICATED ON THE PLANS.

20. CONCRETE

20.1. POURED IN PLACE CONCRETE WORK SHALL BE CONSTRUCTED OF NORMAL WEIGHT, PORTLAND CEMENT CONCRETE, HAVING A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 POUNDS PER SQUARE INCH. ALL PORTLAND CEMENT CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF AMERICAN CONCRETE INSTITUTE (ACI) 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", LATEST EDITION. MAXIMUM CONCRETE SLUMP SHALL BE 4 INCHES. THE USE OF ANY ADMIXTURE IN THE CONCRETE MUST BE APPROVED BY THE ENGINEER.

20.2. ALL NEWLY PLACED CONCRETE SHALL BE CURED IN ACCORDANCE WITH THE PROVISIONS IN AMERICAN CONCRETE INSTITUTE (ACI) 308, "STANDARD PRACTICE FOR CURING CONCRETE," LATEST EDITION. METHOD OF CURING SHALL BE AT THE OPTION OF THE CONTRACTOR WITH APPROVAL OF THE OWNER.

20.3. ALL METAL ANCHORAGE DEVICES, ANCHOR BOLTS, ETC. SHALL BE SECURED IN PLACE AND INSPECTED BY THE PROJECT ENGINEER PRIOR TO PLACING CONCRETE.

20.4. FOR ABANDONED PIPES, FILL PIPE WITH CEMENT SLURRY. PIPE SHALL BE FILLED FROM DOWNSTREAM TO UPSTREAM. DURING FILING, THE TREMIE PIPE SHALL REMAIN AT LEAST 5 FEET BELOW THE TOP OF THE CEMENT SLURRY.

20.5. ALL WORK DONE UNDER THIS SECTION SHALL CONFORM WITH THE APPLICABLE PORTIONS OF AMERICAN CONCRETE INSTITUTE (ACI) 318, LATEST EDITION.

21. CONCRETE WASHOUT

21.1. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE LOCATED A MINIMUM OF 50 FT FROM STORM OPEN DRAINAGE FACILITIES, AND WATERCOURSES.

21.2. A SIGN SHALL BE INSTALLED ADJACENT TO THE WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES.

21.3. CONCRETE WASHOUT FACILITY SHALL BE CONSTRUCTED SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

21.4. TEMPORARY WASHOUT FACILITIES SHALL HAVE A TEMPORARY PIT OR BERMED AREAS OF SUFFICIENT VOLUME TO COMPLETELY CONTAIN ALL LIQUID AND WASTE CONCRETE MATERIALS GENERATED DURING WASHOUT PROCEDURES.

21.5. WASHOUT OF CONCRETE TRUCKS SHOULD BE PERFORMED IN DESIGNATED AREAS ONLY.

21.6. CONCRETE WASHOUT FROM CONCRETE PUMPER BINS CAN BE WASHED INTO CONCRETE PUMPER TRUCKS AND DISCHARGED INTO DESIGNATED WASHOUT AREA OR PROPERLY DISPOSED OF OFFSITE.

21.7. ONCE CONCRETE WASTES ARE WASHED INTO THE DESIGNATED AREA AND ALLOWED TO HARDEN, THE CONCRETE SHALL BE BROKEN UP, REMOVED, AND DISPOSED OF PER WM-5, SOLID WASTE MANAGEMENT. DISPOSE OF HARDENED CONCRETE ON A REGULAR BASIS.

21.8. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHALL BE REMOVED AND DISPOSED OF. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.

21.9. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

22. EROSION CONTROL AND REVEGETATION

22.1. THE SURFACE SOILS ARE CLASSIFIED AS MODERATELY TO HIGHLY DEGRADABLE. ALL FINISHED AND DISTURBED GROUND SURFACES, INCLUDING ALL CUT AND FILL SLOPES, SHOULD BE PREPARED AND MAINTAINED TO REDUCE EROSION AS DEFINED IN THE BASIS OF DESIGN AND HMMP. THIS WORK, AT A MINIMUM, SHOULD INCLUDE TRACK ROLLING OF THE SLOPES , INSTALLATION OF EROSION CONTROL FABRIC, AND SEEDING AS DETAILED IN THE DESIGN PLANS. THE PROTECTION OF THE SLOPES SHOULD BE INSTALLED AS SOON AS PRACTICABLE SO THAT SUFFICIENT GROWTH WILL BE ESTABLISHED PRIOR TO INCLEMENT WEATHER CONDITIONS. IT IS VITAL THAT NO SLOPE BE LEFT STANDING THROUGH A WINTER SEASON WITHOUT THE EROSION CONTROL MEASURES HAVING BEEN PROVIDED.

22.2. SPREAD TOPSOIL AND FINISH GRADE ANY DISTURBED SOIL AREAS TO SMOOTHLY TRANSITION WITH THE SURROUNDING GROUND LINES AND STRUCTURES. ONCE THE EARTHWORK IS STABLE, PROMPTLY REMOVE ANY TEMPORARY EROSION CONTROL MATERIALS.

23. POND LINER

23.1. INSTALL POND LINER AS SPECIFIED ON THE PLANS AND IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS.

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REGISTERED PROFESSIONAL ENGINEER
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NO. 73041
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STATE OF CALIFORNIA

SCALE:
0 1"
Note: If this graphic scale does not equal 1", this sheet has been modified from its original size.

NO	DATE	REVISION

PROJECT NO. 21848
DATE 1/27/25
DRAWN CBH/PA/EM
DESIGNED CBH
CHECKED RC

SANTA CLARA VALLEY OPEN SPACE AUTHORITY
RANCHO CANADA DEL ORO
OPEN SPACE
HABITAT ENHANCEMENT AND POND RESTORATION
CASA LOMA RD., MORGAN HILL, CA 95037

CONSTRUCTION SPECIFICATIONS

DRAWING NO.
C9.0