

DRAFT - NOT FOR CONSTRUCTION

PALO ALTO HORIZONTAL LEVEE PILOT PROJECT

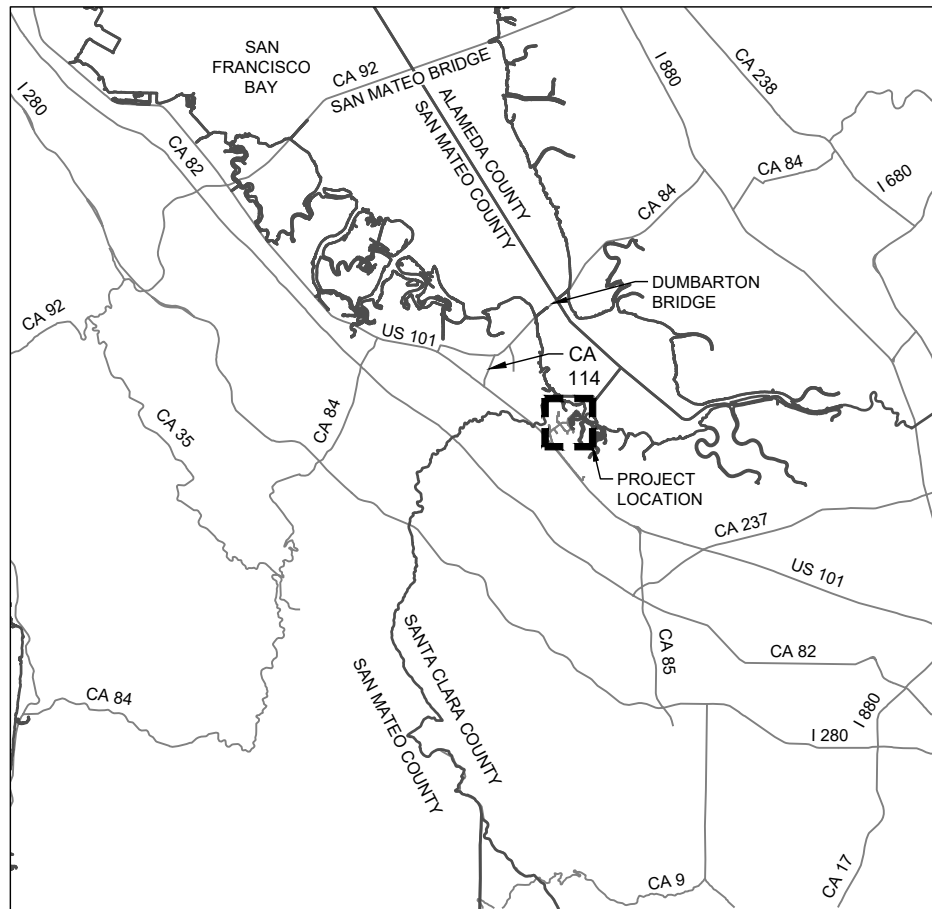
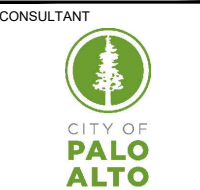
OCTOBER 21, 2020

DRAFT 30% DESIGN DRAWINGS

CITY OF PALO ALTO, CALIFORNIA



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LOCATION MAP
CITY OF PALO ALTO



VICINITY MAP

SCALE: 1" = 800'



SHEET INDEX

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ABBREVIATIONS

AC	ASPHALTIC CONCRETE	RW	RECLAIMED WATER
CONC	CONCRETE	RWQCP	REGIONAL WATER QUALITY CONTROL PLANT
D/S	DOWNSTREAM		
(E)	EXISTING	SAFER	STRATEGY TO ADVANCE FLOOD PROTECTION, ECOSYSTEMS, AND RECREATION
EL	ELEVATION		
EFF	EFFLUENT		
F/L	FLOWLINE	SCP	SURVEY CONTROL POINT
G	GAS	SD	STORM DRAIN
HDPE	HIGH-DENSITY POLYETHYLENE	SS	SANITARY SEWER
INV	INVERT	TYP	TYPICAL
JP	JOINT SERVICE POLE	U/S	UPSTREAM
(N)	NEW	W	WATER
OVHD / OH	OVERHEAD UTILITIES	WM	WATER METER
RCP	REINFORCED CONCRETE PIPE		

PROJECT NAME
PALO ALTO HORIZONTAL LEVEE PILOT PROJECT

EMBARCADERO ROAD
PALO ALTO, CA 94303

REVISIONS

#	DATE	DESCRIPTION

DESIGNED ML
DRAWN GW, BD
CHECKED LW
IN CHARGE M. LINDLEY
66701

PROJECT NUMBER D201801306.01
ISSUE DATE 10/21/2020

SCALE IS AS SHOWN WHEN PLOTTED TO FULL SIZE (22"x34")
1" = 1"

PHASE
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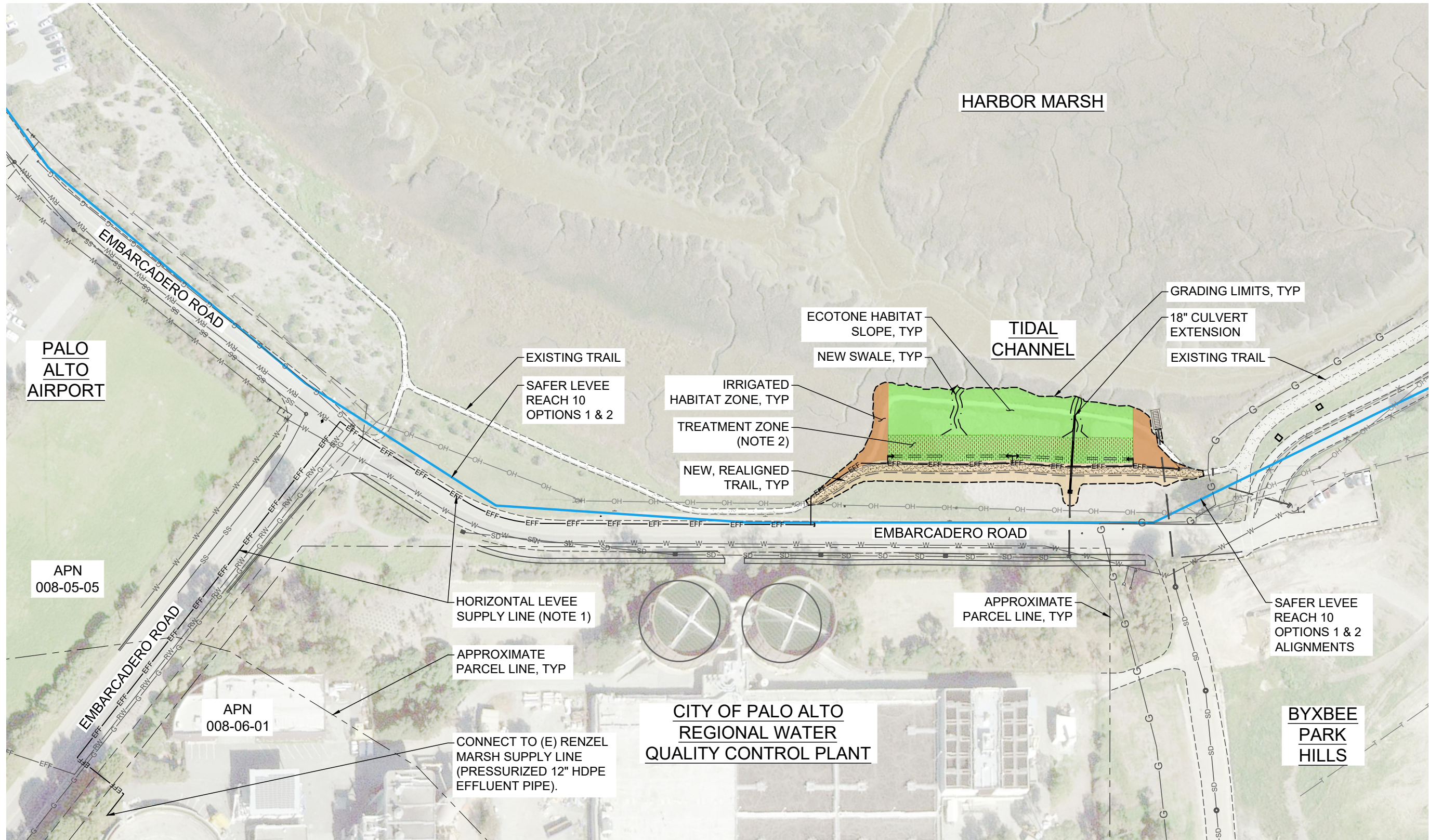
SHEET TITLE

TITLE

SHEET NUMBER
C-01

SHEET 1 OF 12

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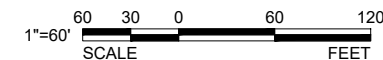
OVERALL SITE PLAN

PLAN

SCALE: 1" = 60'

NOTES

1. THIS PROJECT WILL ROUTE TREATED EFFLUENT FROM THE PALO ALTO REGIONAL WATER QUALITY CONTROL PLANT TO THE PROPOSED HORIZONTAL LEVEE.
2. THE HORIZONTAL LEVEE WILL INCORPORATE A SUBSURFACE TREATMENT ZONE THAT DISCHARGES SURFACE WATER TO THE ECOTONE HABITAT SLOPE.



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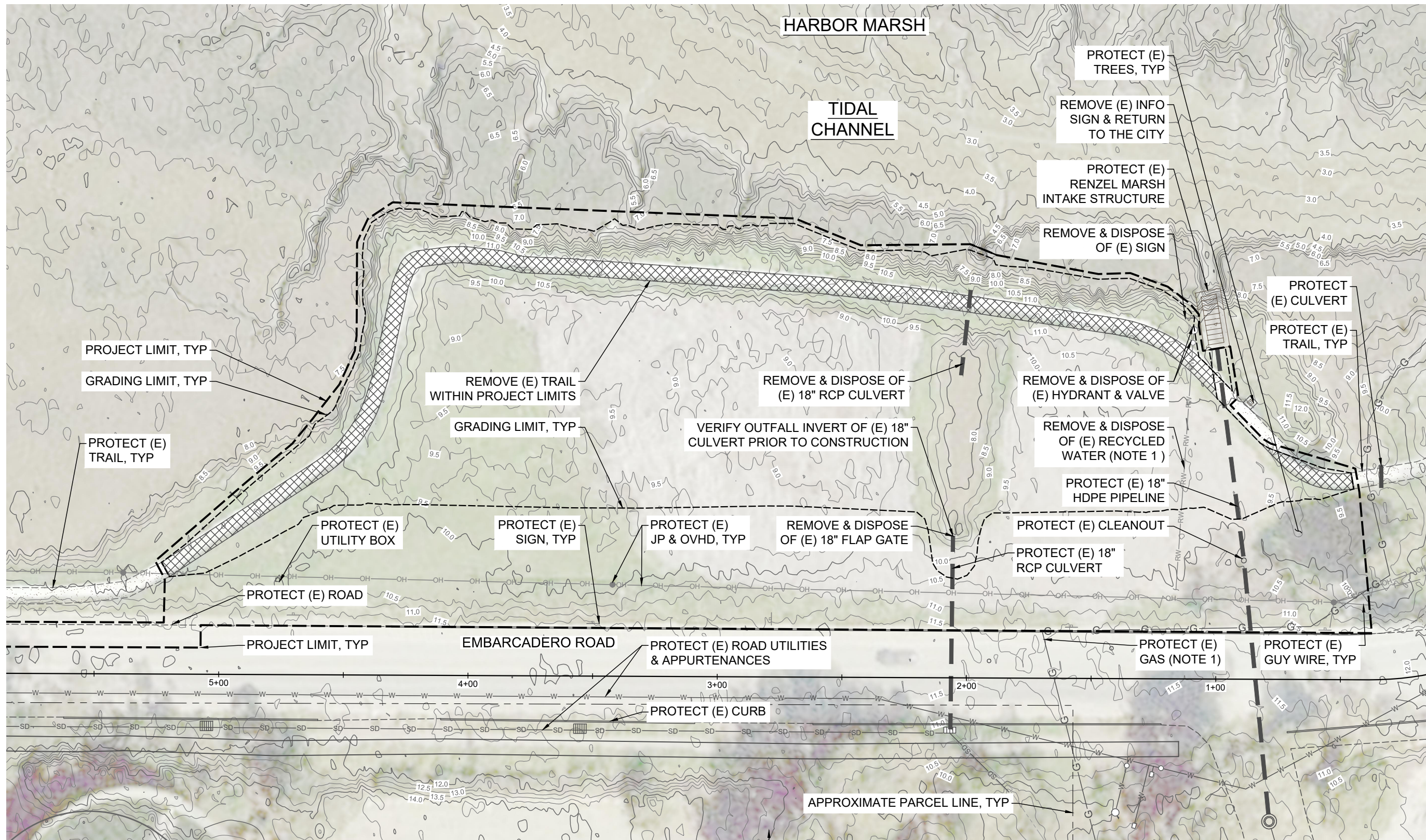
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OVERALL SITE PLAN

SHEET NUMBER

C-02

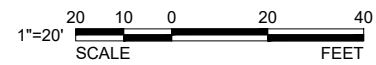
SHEET 2 OF 12



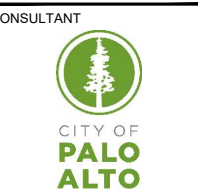
- NOTES**
1. RECYCLED WATER AND GAS UTILITY AS SHOWN IS PER RECORD INFORMATION THAT CANNOT BE VERIFIED. UTILITY MAY NOT HAVE BEEN INSTALLED, MAY HAVE BEEN REMOVED, OR MAY HAVE BEEN ABANDONED. TO BE CONFIRMED PRIOR TO CONSTRUCTION.
 2. TOPOGRAPHIC SURVEY BASED ON USGS TOPOGRAPHIC LIDAR (USGS, 2010), AS DOWNLOADED FROM THE NOAA OFFICE FOR COASTAL MANAGEMENT.
 3. AERIAL PHOTOGRAPH OBTAINED FROM USGS EARTH EXPLORER DATABASE, PREPARED BY NORTHROP GRUMMAN BETWEEN FEBRUARY 20 TO 24, 2015.
 4. HORIZONTAL DATUM: NAD83 CA STATE PLANE ZONE 3.

EXISTING CONDITIONS AND DEMOLITION

- PLAN SCALE: 1" = 20'
5. VERTICAL DATUM: NAVD88.
 6. UTILITY LOCATIONS SHOWN ARE PLOTTED FROM RECORD INFORMATION AND ARE APPROXIMATE ONLY. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL POTHOLE AND VERIFY THE LOCATIONS OF ALL UTILITIES, AND NOTIFY THE ENGINEER IMMEDIATELY IF ANY CONFLICTS OR DISCREPANCIES ARE IDENTIFIED.
 7. ALL EXISTING UTILITIES SIZING AND MATERIALS TO BE CONFIRMED PRIOR TO CONSTRUCTION.



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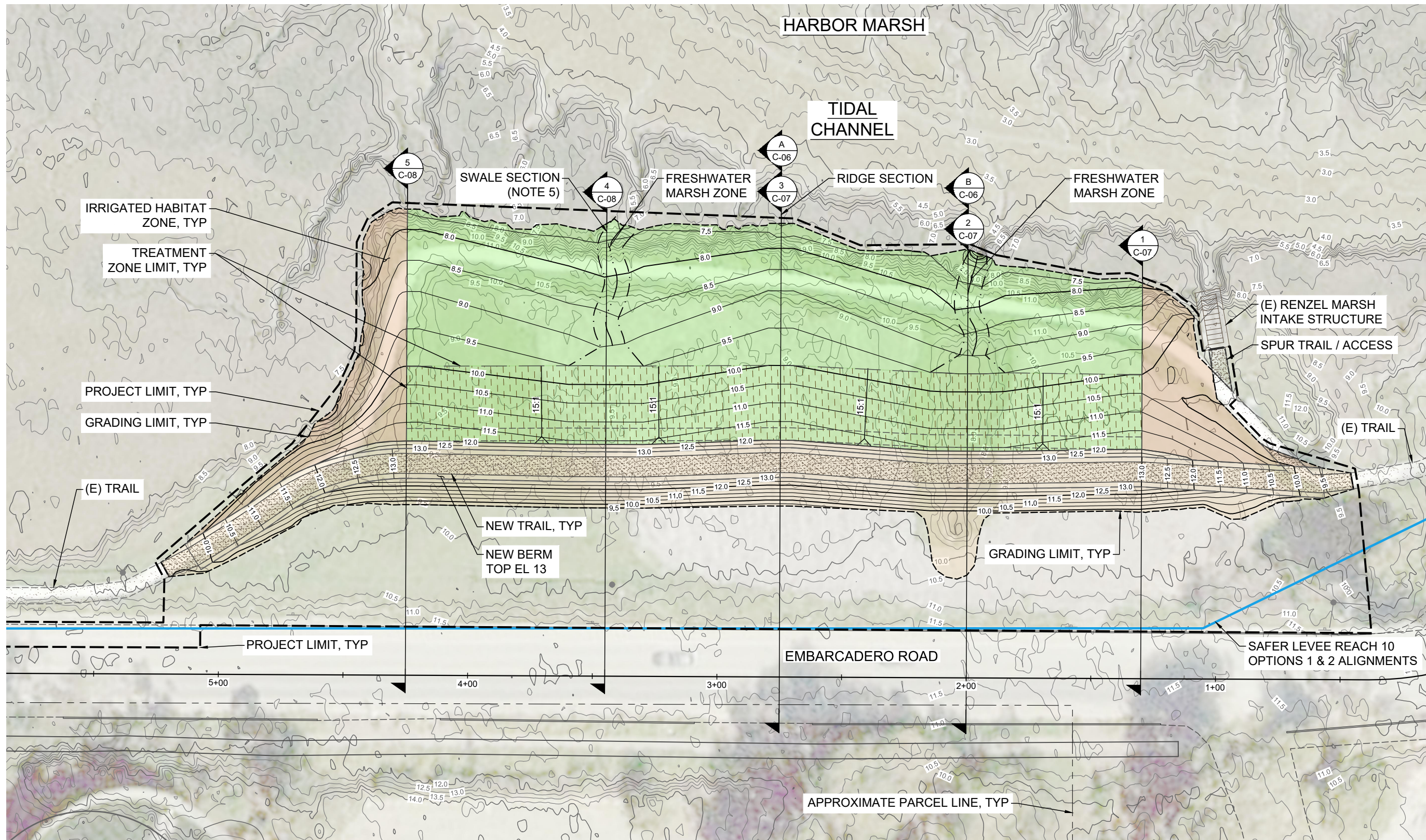
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SHEET TITLE
EXISTING CONDITIONS AND DEMOLITION

SHEET NUMBER
C-03
SHEET 3 OF 12



DETAILED PLAN

PLAN

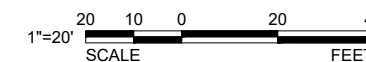
SCALE: 1" = 20'

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3. HORIZONTAL DATUM: NAD83 CA STATE PLANE ZONE 3.

4. VERTICAL DATUM: NAVD88.

5. PROPOSED SWALES ARE INTENDED TO ADD HABITAT COMPLEXITY. THEY ARE NOT DRAINAGE INFRASTRUCTURE ELEMENTS, AND THE SECTION AREA, FLOWLINE ALIGNMENT, AND CONFIGURATION DO NOT REQUIRE MAINTENANCE (EXCEPT FOR AT THE CULVERT OUTFALL, WHICH SHALL BE MAINTAINED SIMILARLY TO THE EXISTING CULVERT BEING REPLACED).



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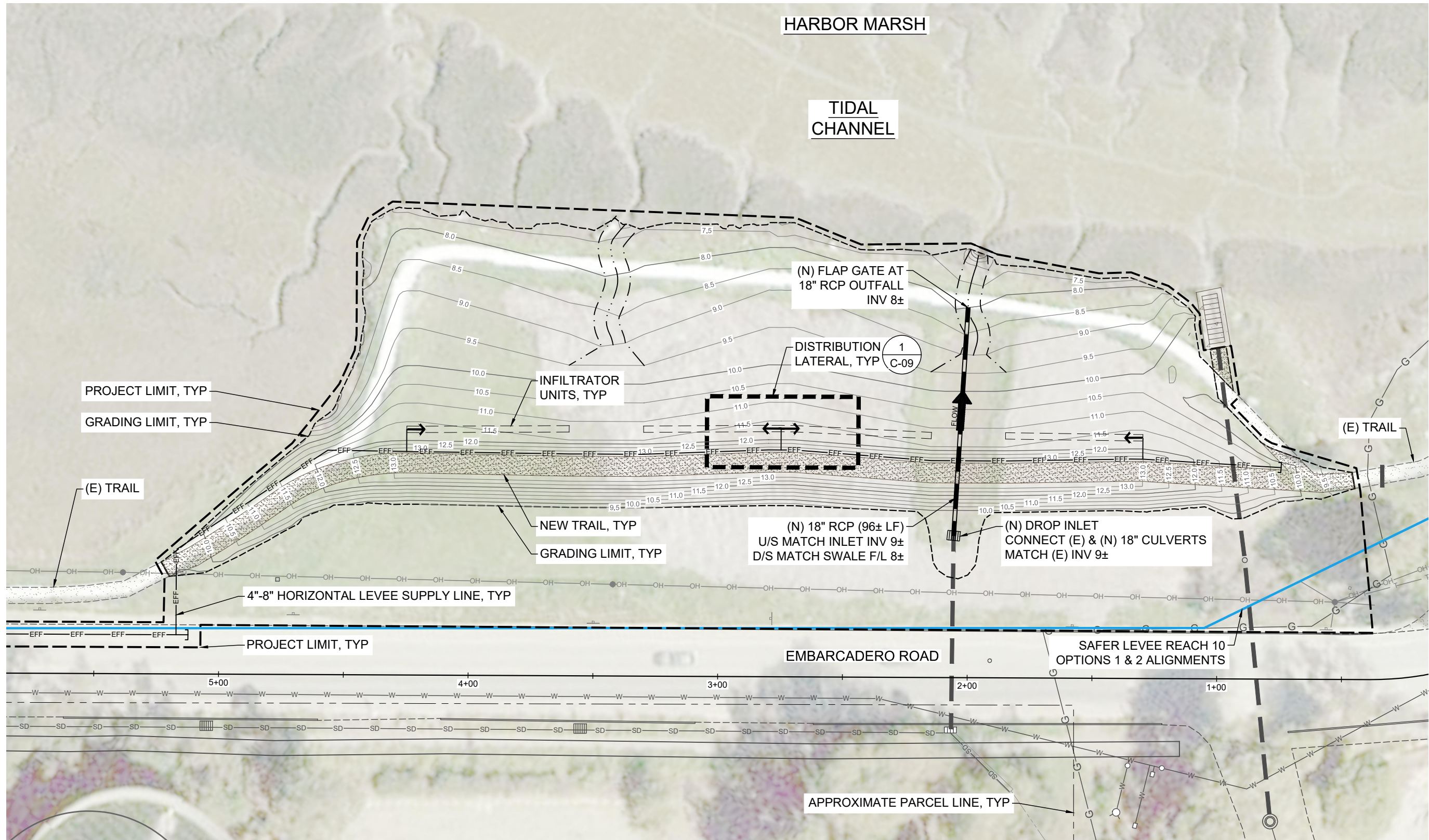
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DETAILED PLAN

SHEET NUMBER

C-04

SHEET 4 OF 12



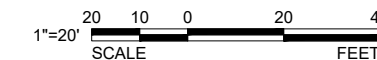
UTILITY PLAN

PLAN

SCALE: 1" = 20'

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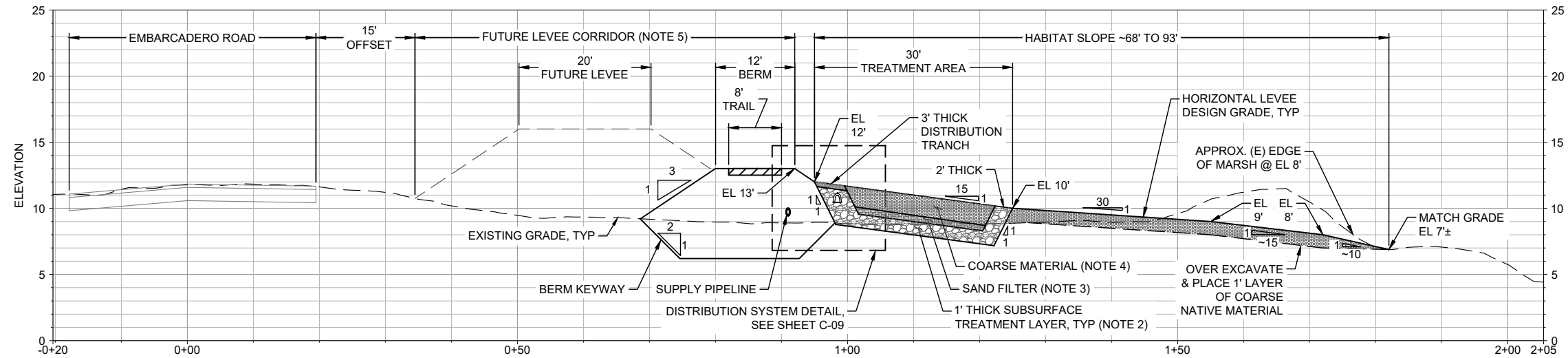
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UTILITY PLAN

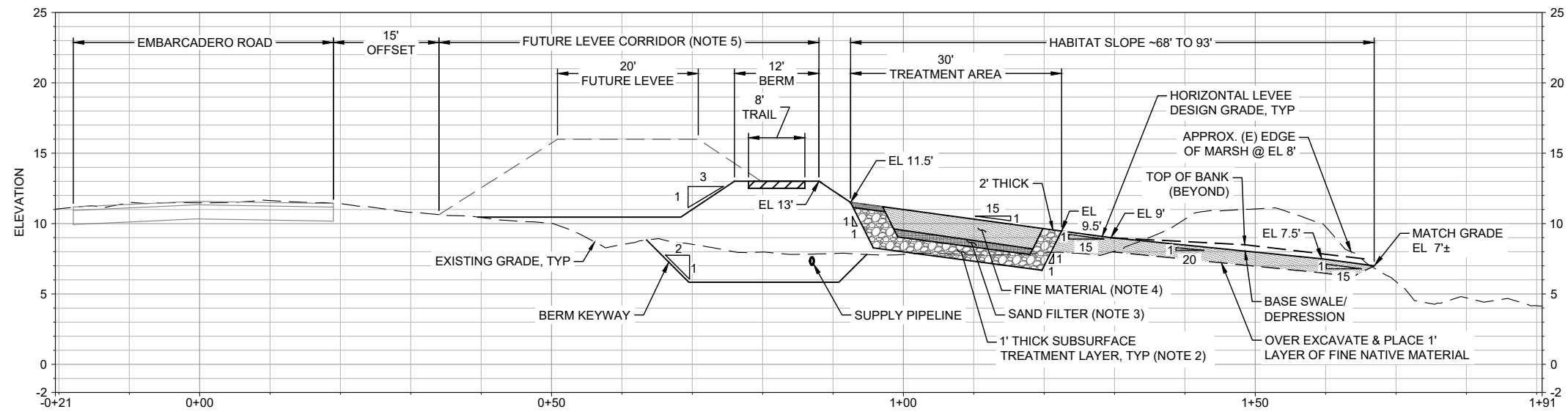
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C-05

SHEET 5 OF 12



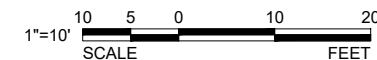
(A) TYPICAL SECTION - RIDGES/HIGH & WIDE
 PROFILE SCALE: 1" = 10' H
 1" = 5' V



(B) TYPICAL SECTION - SWALES & DEPRESSIONS
 PROFILE SCALE: 1" = 10' H
 1" = 5' V

NOTES

1. SEGREGATE FINE AND COARSE MATERIAL ENCOUNTERED DURING EXCAVATION OF SITE TO SUBGRADE. DURING FILL OPERATIONS, PLACE COARSE MATERIAL ON THE RIDGES AND FINE MATERIALS IN THE SWALES.
2. SUBSURFACE TREATMENT LAYER COMPRISED OF A BLEND OF DRAIN ROCK AND COMPOSTED WOOD CHIPS.
3. SAND FILTER COMPRISED OF A BLEND OF SAND AND WOOD CHIPS.
4. COARSE AND FINE MATERIAL INCLUDES A BLEND OF NATIVE MATERIAL WITH COMPOSTED WOOD FINES.
5. FUTURE FLOOD CONTROL LEVEE MAY OR MAY NOT BE CONSTRUCTED, BUT THIS LAYOUT PLANS FOR ITS POTENTIAL SPACE SHOULD IT BE CONSTRUCTED.
6. ALL ELEVATIONS ARE ON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).



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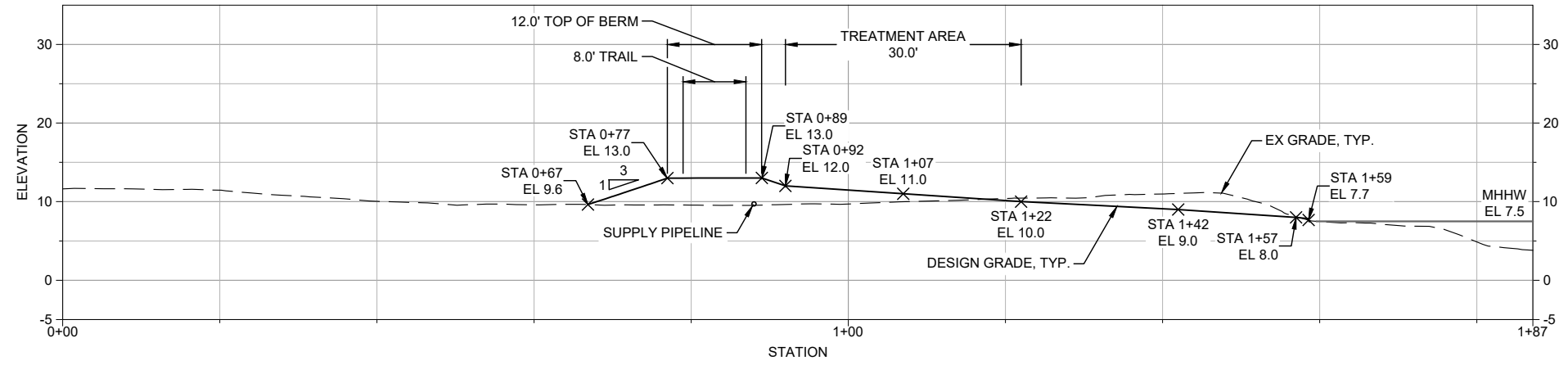
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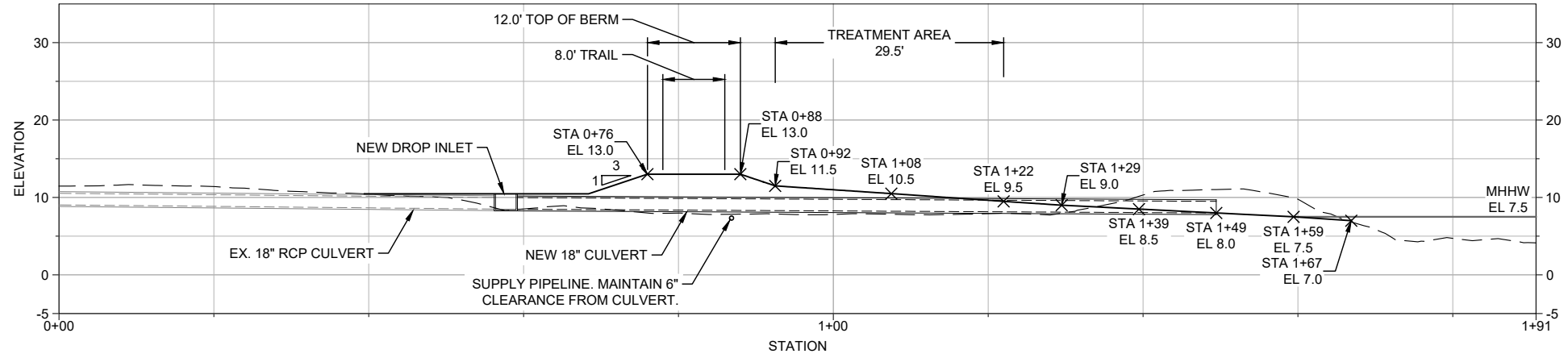
TYPICAL CROSS SECTIONS

SHEET NUMBER

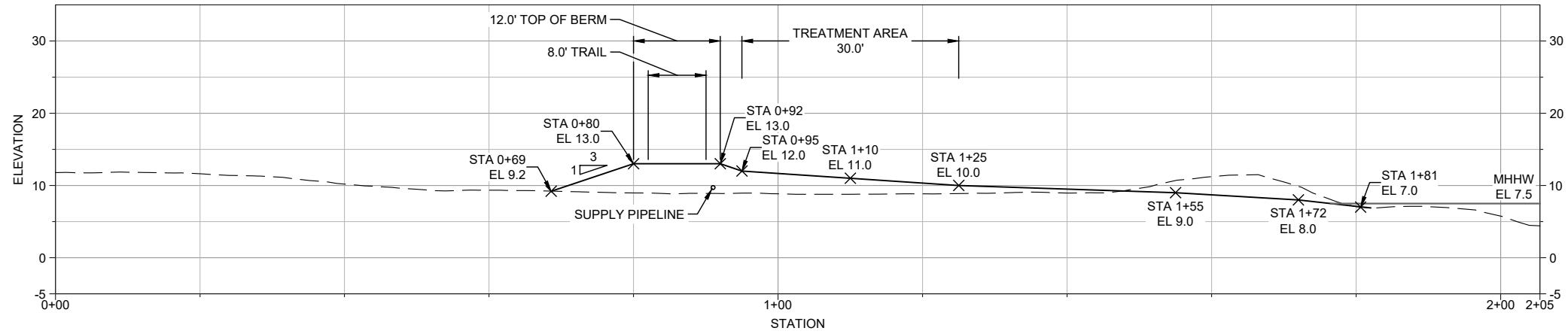
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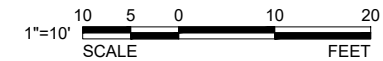
1
SECTION
SCALE: 1" = 10' H
1" = 10' V



2
SECTION
SCALE: 1" = 10' H
1" = 10' V



3
SECTION
SCALE: 1" = 10' H
1" = 10' V



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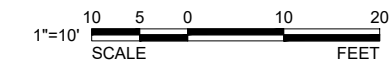
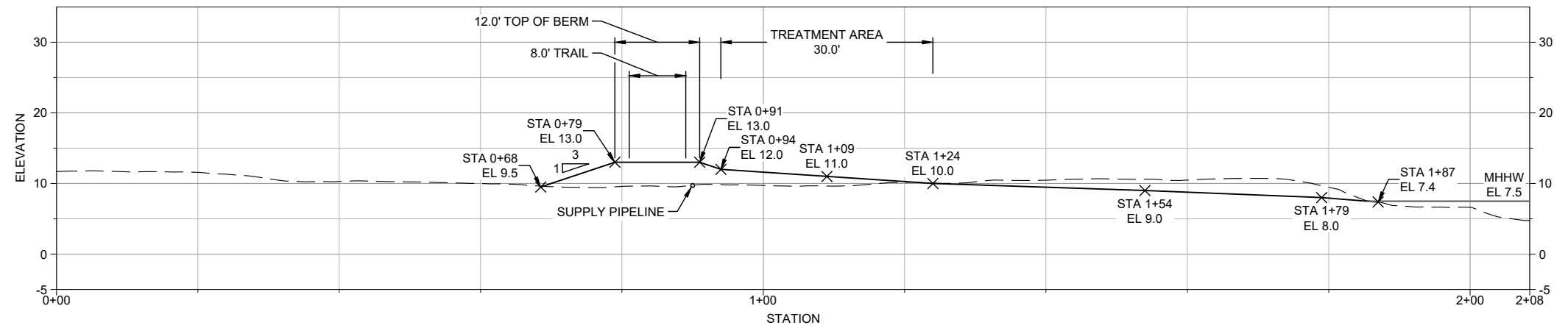
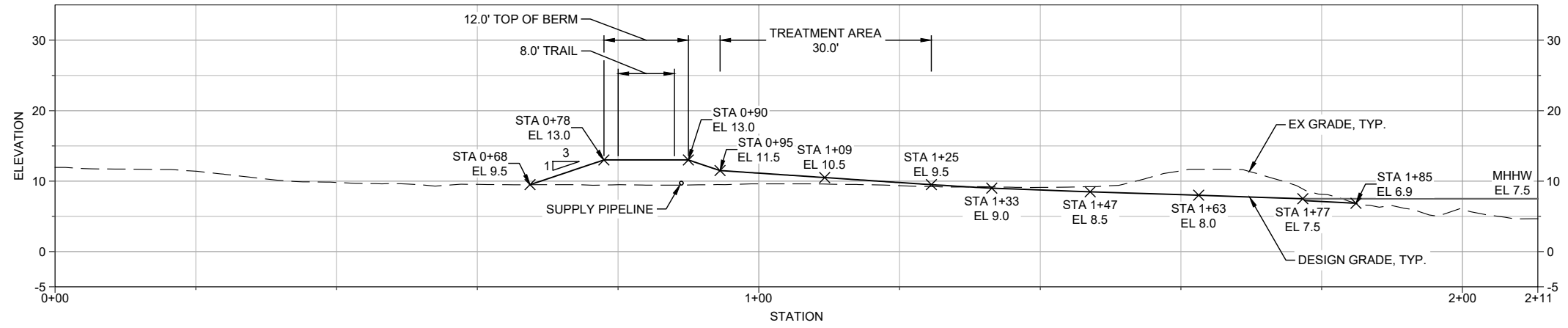
SHEET TITLE

GRADING SECTIONS
1

SHEET NUMBER

C-07

SHEET 7 OF 12



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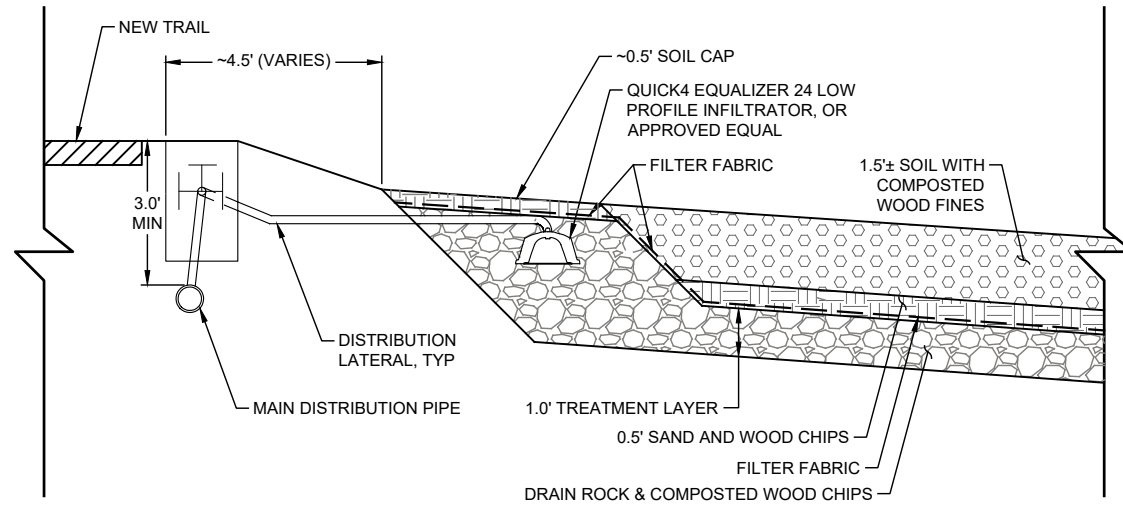
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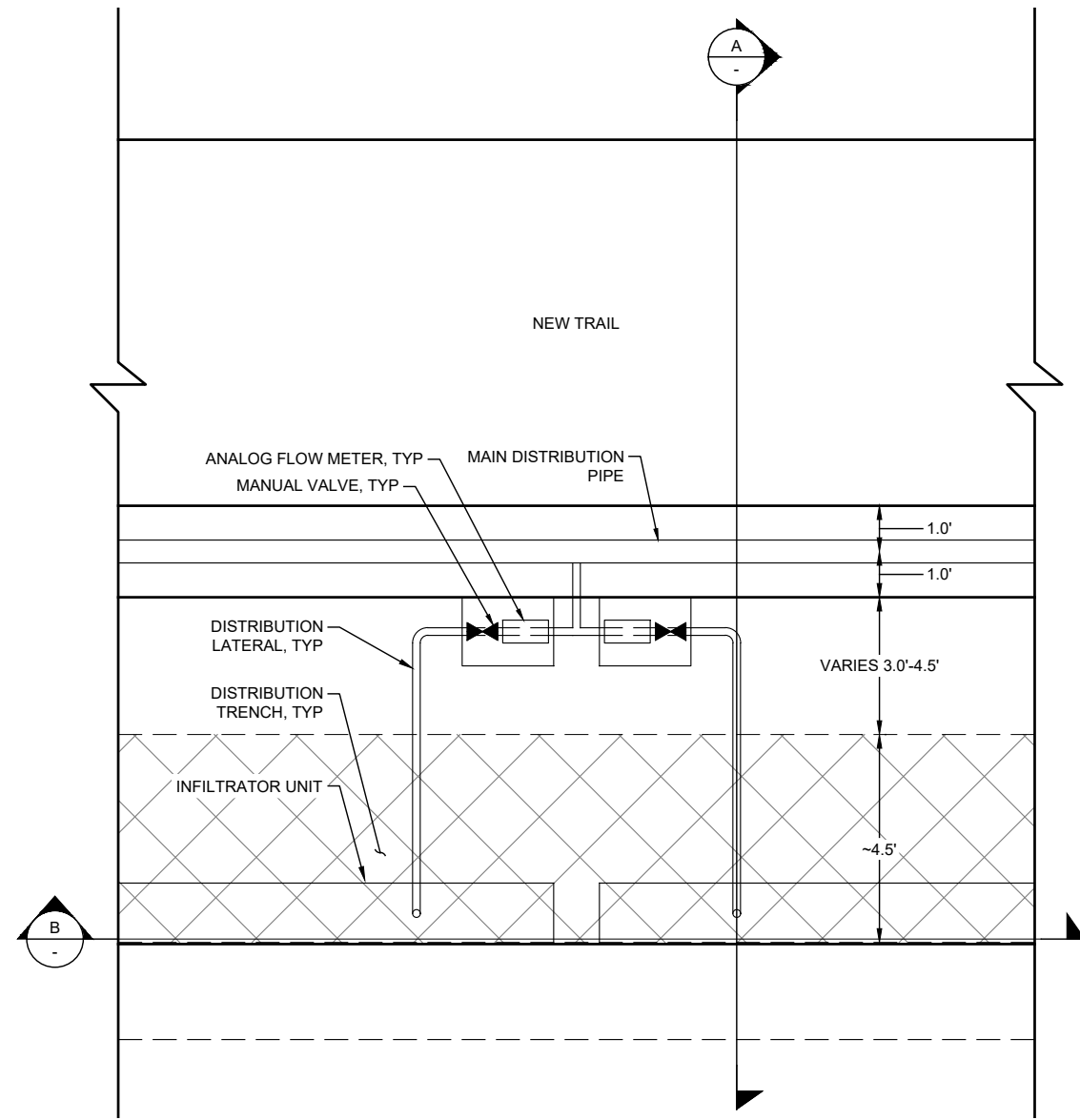
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SHEET TITLE
**GRADING SECTIONS
2**

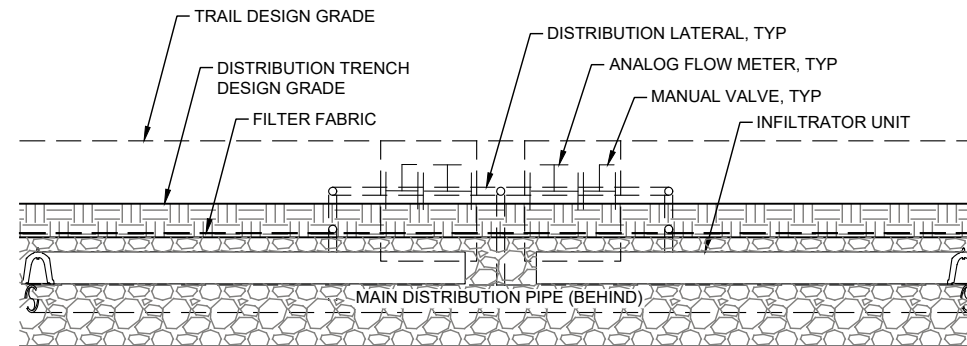
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C-08
SHEET 8 OF 12



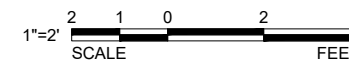
A
- SECTION
DISTRIBUTION CONNECTION AND TREATMENT ZONE MATERIAL
SCALE: 1" = 2'



1
- DETAIL
DISTRIBUTION HEAD
SCALE: 1" = 2'



B
- SECTION
DISTRIBUTION TRENCH
SCALE: 1" = 2'



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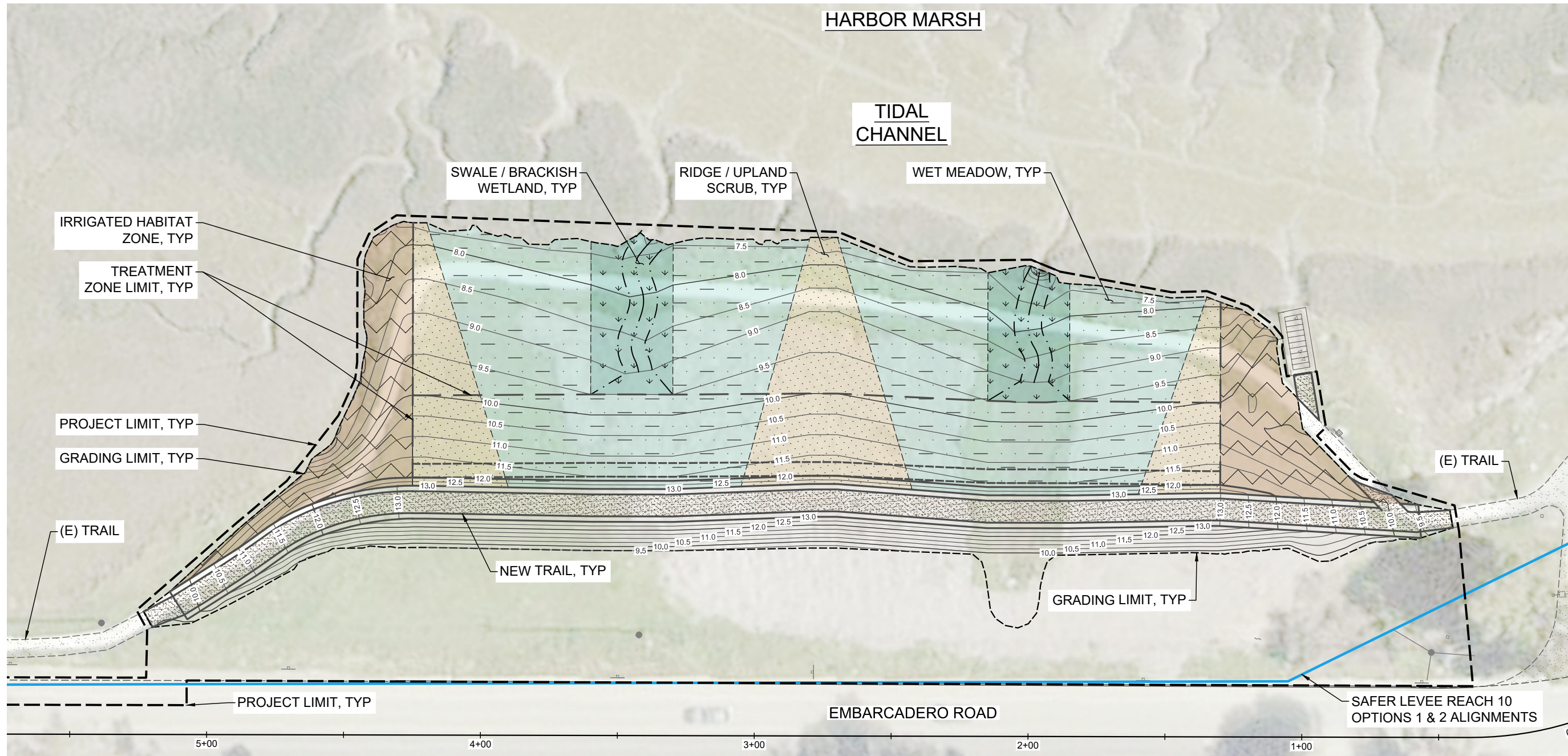
SHEET TITLE

DETAILS

SHEET NUMBER

C-09

SHEET 9 OF 12



PLANTING PLAN

PLAN

SCALE: 1" = 20'

LEGEND

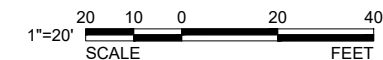
- IRRIGATED HABITAT ZONE
- RIDGE/UPLAND SCRUB
- WET MEADOW
- SWALE/BRACKISH WETLAND

PLANTING TABLES

IRRIGATED HABITAT ZONE PLANT ASSEMBLAGE	
CALIFORNIA ROSE	Rosa californica
BLACK ELDER	Sambucus nigra
ARROYO WILLOW	Salix lasiolepis
RED WILLOW	Salix laevigata
WESTERN RAGWEED	Ambrosia psilostachya
WESTERN GOLDENROD	Euthamia occidentalis
PACIFIC ASTER	Symphyotrichum chilense
SUISUN MARSH ASTER	Symphyotrichum lentum
CALIFORNIA SUNFLOWER	Helianthus californicus
CREeping WILDRIES	Elymus triticoides, E. x gouldii
VALLEY SEDGE	Carex barbarae
FIELD SEDGE	Carex praegracilis
BALTIC RUSH	Juncus arcticus

RIDGE/UPLAND SCRUB PLANT ASSEMBLAGE	
CALIFORNIA ROSE	Rosa californica
WESTERN RAGWEED	Ambrosia psilostachya
WESTERN GOLDENROD	Euthamia occidentalis
PACIFIC ASTER	Symphyotrichum chilense
SUISUN MARSH ASTER	Symphyotrichum lentum
CALIFORNIA SUNFLOWER	Helianthus californicus
CREeping WILDRIES	Elymus triticoides, E. x gouldii
VALLEY SEDGE	Carex barbarae
FIELD SEDGE	Carex praegracilis

WET MEADOW AND SWALE/BRACKISH WETLAND PLANT ASSEMBLAGE	
COMMON SPIKERUSH	Eleocharis macrostachya
THREESQUARE BULRUSH	Schoenoplectus americanus
SMARTWEEDS	Persicaria punctata, spp.
BROADLEAF CATTAIL	Typha latifolia
SOUTHERN CATTAIL	Typha domingensis
COMMON TULE	Schoenoplectus acutus
GIANT BULRUSH	Schoenoplectus californicus
SLENDER CLUBRUSH	Isolepis cernua
CREeping WILDRIES	Elymus triticoides, E. x gouldii
VALLEY SEDGE	Carex barbarae
FIELD SEDGE	Carex praegracilis
SALTGRASS	Distichlis spicata
BALTIC RUSH	Juncus arcticus



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PLANTING PLAN

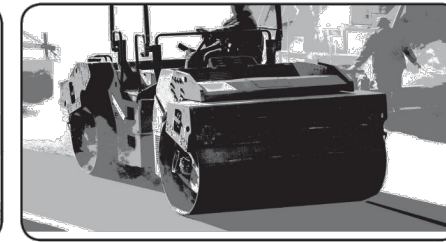
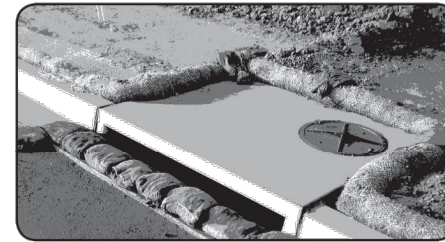
SHEET NUMBER
C-10

SHEET 10 OF 12

POLLUTION PREVENTION — IT'S PART OF THE PLAN

Construction projects are required to implement year-round stormwater BMPs, as they apply to your project.

Runoff from streets and other paved areas is a major source of pollution to San Francisco Bay. Construction activities can directly affect the health of the Bay unless contractors and crews plan ahead to keep construction dirt, debris, and other pollutants out of storm drains and local creeks. Following these guidelines will ensure your compliance with City of Palo Alto Ordinance requirements.



MATERIALS & WASTE MANAGEMENT

Non-Hazardous Materials

- Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or when they are not in use.
- Use (but don't overuse) reclaimed water for dust control.
- Ensure dust control water doesn't leave site or discharge to storm drains.

Hazardous Materials

- Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- Follow manufacturer's application instructions for hazardous materials and do not use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- Cover and maintain dumpsters. Check frequently for leaks. Place dumpsters under roofs or cover with tarps or plastic sheeting secured around the outside of the dumpster. A plastic liner is recommended to prevent leaks. Never clean out a dumpster by hosing it down on the construction site.
- Place portable toilets away from storm drains. Make sure they are in good working order. Check frequently for leaks.
- Dispose of all wastes and demolition debris properly. Recycle materials and wastes that can be recycled, including solvents, water-based paints, vehicle fluids, broken asphalt and concrete, wood, and cleared vegetation.
- Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.
- Keep site clear of litter (e.g. lunch items, cigarette butts).
- Prevent litter from uncovered loads by covering loads that are being transported to and from site.

Construction Entrances and Perimeter

- Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

EQUIPMENT MANAGEMENT & SPILL CONTROL

Maintenance and Parking

- Designate an area of the construction site, well away from streams or storm drain inlets and fitted with appropriate BMPs, for auto and equipment parking, and storage.
- Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment, and do not use diesel oil to lubricate equipment or parts onsite.

Spill Prevention and Control

- Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- Maintain all vehicles and heavy equipment. Inspect frequently for and repair leaks. Use drip pans to catch leaks until repairs are made.
- Clean up leaks, drips and other spills immediately and dispose of cleanup materials properly.
- Use dry cleanup methods whenever possible (absorbent materials, cat litter and/or rags).
- Sweep up spilled dry materials immediately. Never attempt to "wash them away" with water, or bury them.
- Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- Report any hazardous materials spills immediately! Call City of Palo Alto Communications, (650) 329-2413. If the spill poses a significant hazard to human health and safety, property or the environment, you must report it to the State Office of Emergency Services. (800) 852-7550 (24 hours).

EARTHMOVING

Grading and Earthwork

- Schedule grading and excavation work during dry weather.
- Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- Remove existing vegetation only when absolutely necessary, plant temporary vegetation for erosion control on slopes or where construction is not immediately planned.
- Prevent sediment from migrating offsite and protect storm drain inlets, drainage courses and streams by installing and maintaining appropriate BMPs (e.g., silt fences, gravel bags, fiber rolls, temporary swales, etc.).
- Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
 - Unusual soil conditions, discoloration, or odor.
 - Abandoned underground tanks.
 - Abandoned wells.
 - Buried barrels, debris, or trash.
- If the above conditions are observed, document any signs of potential contamination and clearly mark them so they are not disturbed by construction activities.

Landscaping

- Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- Stack bagged material on pallets and under cover.
- Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

CONCRETE MANAGEMENT & DEWATERING

Concrete Management

- Store both dry and wet materials under cover, protected from rainfall and runoff and away from storm drains or waterways. Store materials off the ground, on pallets. Protect dry materials from wind.
- Wash down exposed aggregate concrete only when the wash water can (1) flow onto a dirt area; (2) drain onto a bermed surface from which it can be pumped and disposed of properly; or (3) block any storm drain inlets and vacuum washwater from the gutter. If possible, sweep first.
- Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and make sure wash water does not leach into the underlying soil. (See CASQA Construction BMP Handbook for properly designed concrete washouts.)

Dewatering

- Reuse water for dust control, irrigation or another on-site purpose to the greatest extent possible.
- Be sure to obtain a Permit for Construction in the Public Street from Public Works Engineering before discharging water to a street, gutter, or storm drain. Call the Regional Water Quality Control Plant (RWQCP) at (650) 329-2598 for an inspection prior to commencing discharge. Use filtration or diversion through a basin, tank, or sediment trap as required by the approved dewatering plan. Dewatering is not permitted from October to April.
- In areas of known contamination, testing is required prior to reuse or discharge of groundwater. Consult with the City inspector to determine what testing to do and to interpret results. Contaminated groundwater must be treated or hauled off-site for proper disposal.

PAVING/ASPHALT WORK

Paving

- Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- Cover storm drain inlets and manholes when applying seal coat, slurry seal, fog seal, or similar materials.
- Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.

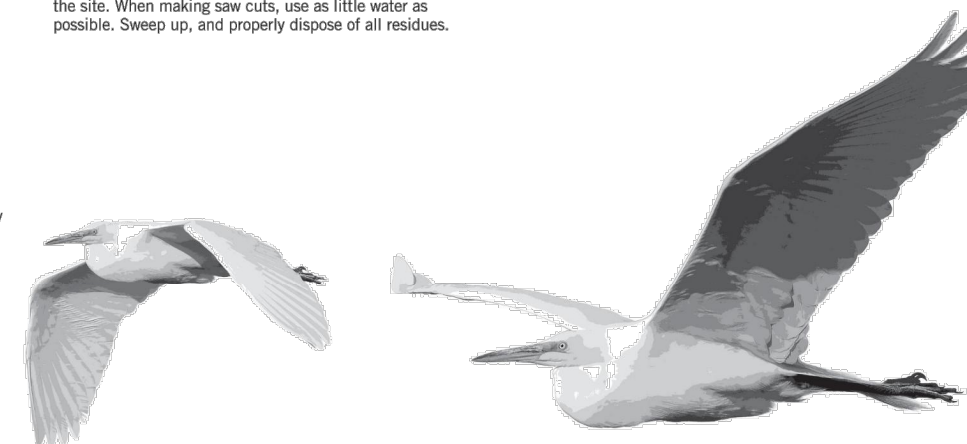
Sawcutting & Asphalt/Concrete Removal

- Protect storm drain inlets during saw cutting.
- If saw cut slurry enters a catch basin, clean it up immediately.
- Shovel or vacuum saw cut slurry deposits and remove from the site. When making saw cuts, use as little water as possible. Sweep up, and properly dispose of all residues.

PAINTING & PAINT REMOVAL

Painting Cleanup and Removal

- Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- Sweep up or collect paint chips and dust from non-hazardous dry stripping and sand blasting into plastic drop cloths and dispose of as trash.
- Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state certified contractor.



STORM DRAIN POLLUTERS MAY BE LIABLE FOR FINES OF UP TO \$10,000 PER DAY!

250 Hamilton Avenue
Palo Alto, CA 94301
650.329.2211
cityofpaloalto.org



STAMP
PRELIMINARY
NOT FOR
CONSTRUCTION



PROJECT NAME
**PALO ALTO HORIZONTAL
LEVEE PILOT PROJECT**
EMBARCADERO ROAD
PALO ALTO, CA 94303

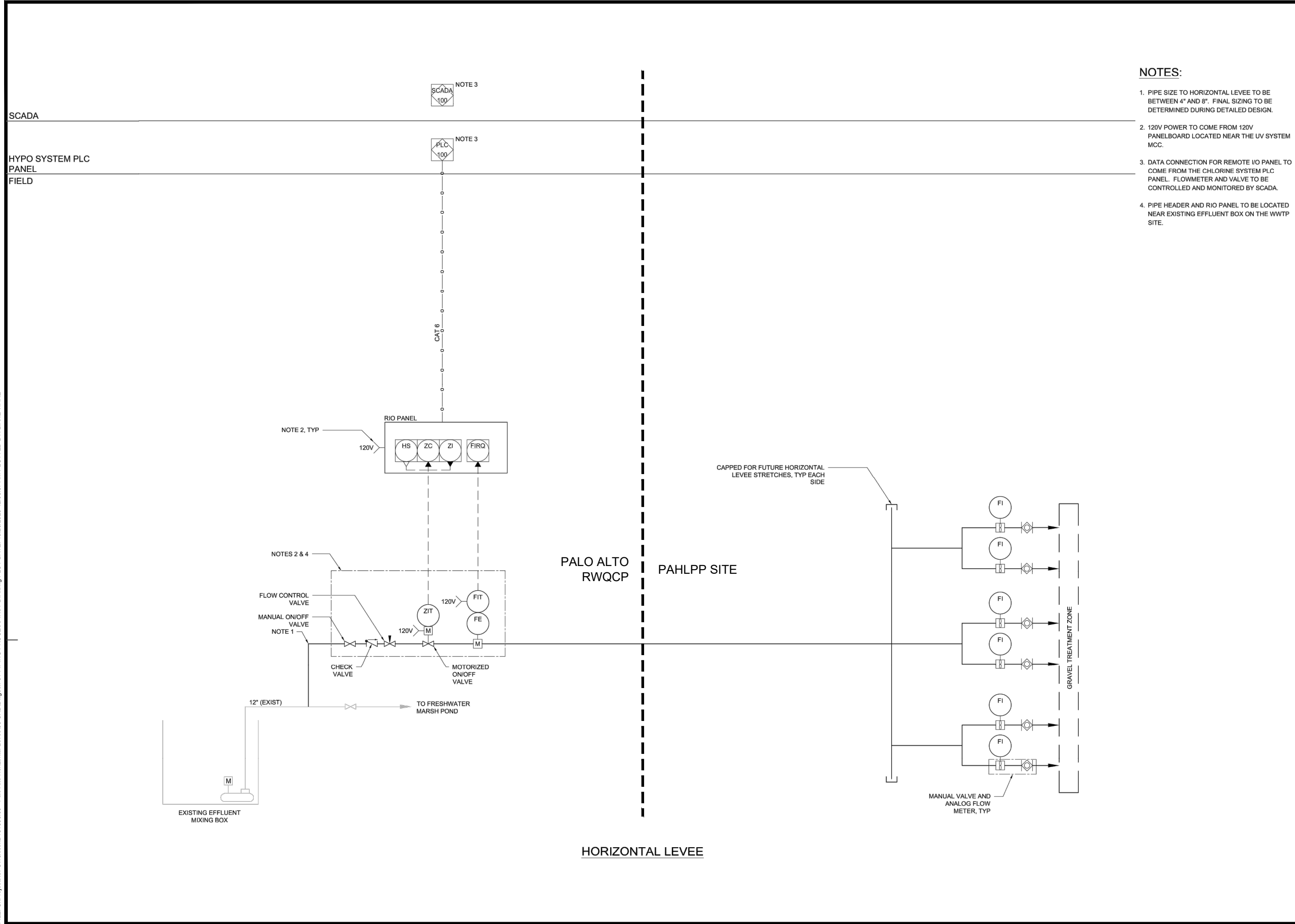
REVISIONS		
#	DATE	DESCRIPTION

DESIGNED	ML
DRAWN	GW
CHECKED	SS
IN CHARGE	M. LINDLEY 66701
PROJECT NUMBER	D201801306.01
ISSUE DATE	10/21/2020
SCALE IS AS SHOWN WHEN PLOTTED TO FULL SIZE (22"x34")	

PHASE
DRAFT 30% DESIGN
DRAWINGS

SHEET TITLE
**STORMWATER
POLLUTION
PREVENTION BMPs**

SHEET NUMBER
C-11
SHEET 11 OF 12



NOTES:

1. PIPE SIZE TO HORIZONTAL LEVEE TO BE BETWEEN 4" AND 8". FINAL SIZING TO BE DETERMINED DURING DETAILED DESIGN.
2. 120V POWER TO COME FROM 120V PANELBOARD LOCATED NEAR THE UV SYSTEM MCC.
3. DATA CONNECTION FOR REMOTE I/O PANEL TO COME FROM THE CHLORINE SYSTEM PLC PANEL. FLOWMETER AND VALVE TO BE CONTROLLED AND MONITORED BY SCADA.
4. PIPE HEADER AND RIO PANEL TO BE LOCATED NEAR EXISTING EFFLUENT BOX ON THE WWTP SITE.



STAMP
PRELIMINARY
-
NOT FOR
CONSTRUCTION



PROJECT NAME
**PALO ALTO HORIZONTAL
LEVEE PILOT PROJECT**
EMBARCADERO ROAD
PALO ALTO, CA 94303

REVISIONS		
#	DATE	DESCRIPTION

DESIGNED R. NATOLI
DRAWN R. MCCOMB
CHECKED ---
IN CHARGE ---

PROJECT NUMBER D201801306.01
ISSUE DATE 10/21/2020
SCALE IS AS SHOWN WHEN PLOTTED TO FULL SIZE (22"x34")

PHASE
DRAFT 30% DESIGN
DRAWINGS
SHEET TITLE
**PIPING PROCESS
AND
INSTRUMENTATION
DIAGRAM (P&ID)**

SHEET NUMBER
M-01
SHEET 12 OF 12