

**RESOLUTION OF THE PLANNING COMMISSION
OF THE COUNTY OF HUMBOLDT**

Resolution Number 25-021

Record Number PLN-2023-18855

Assessor Parcel Numbers: Portion of 310-021-003-000, 310-021-004-000, 310-033-004-000, 310-043-001-000, 310-043-003-000, 310-043-004-000, 310-043-005-000, 310-043-006-000, and 310-051-001-000

Resolution by the Planning Commission of the County of Humboldt certifying compliance with the California Environmental Quality Act and conditionally approving the California Trout Inc. Conditional Use Permit.

WHEREAS, California Trout Inc. submitted an application and evidence in support of approving a Conditional Use Permit for major restoration of Cannibal Island and the surrounding area in the Eel River estuary; and

WHEREAS, the County Planning Division has reviewed the submitted application and evidence and has referred the application and evidence to involved reviewing agencies for site inspections, comments, and recommendations; and

WHEREAS, the Planning Division, as the lead agency under CEQA has determined that the project is statutorily exempt from CEQA review pursuant to Section 21080.56 of the CEQA Guidelines, which provides a statutory exemption for certain restoration projects (SERP). A concurrence determination was made by the Director of the California Department of Fish & Wildlife (CDFW) on May 29, 2024 (Concurrence No. 21080.56-2024-051-R1); and

WHEREAS, the Humboldt County Planning Commission held a duly noticed public hearing on April 3, 2025; reviewed, considered, and discussed the application for a Conditional Use Permit; and reviewed and considered all evidence and testimony presented at the hearing.

Now, THEREFORE BE IT RESOLVED, that the Planning Commission makes all the following findings:

- 1. FINDING:** **Project Description:** Conditional Use Permit application for major restoration of Cannibal Island and the surrounding area in the Eel River estuary. Project components will include: removal of an abandoned two-story residential structure; deepening 5,000 linear feet of existing dikes and removal of failed culverts that

currently separate full- and muted-tidal areas; reconnection of full tidal exchange to approximately 500 acres of former tidal marsh habitat and construction of inter-tidal lagoons with tidal marsh ridges and inter-tidal channels to create diverse tidal habitats, inset channel rock grade control will be placed along a 20-foot section of channel at the existing road cross along Senestraro Lane to provide passive management of the tidal prism; construction of a new earthen setback levee approximately 6,000 linear feet long, equipped with up to two gated culverts to separate tidal wetlands from agricultural lands; elevation of the existing road for approximately 2,500 feet and installation of up to four gated culverts; relocation of approximately 200,000 cubic yards of excavated sediment, to be reused within the project area; treatment and removal of Dense-flowered cordgrass; improvement of public access and visitor experience; and all post-construction management to maintain project objectives. The Project will require a Coastal Development Permit from the California Coastal Commission

EVIDENCE: a) Project File: PLN-2023-18855

2. FINDING: **CEQA:** The requirements of the California Environmental Quality Act have been met. The Humboldt County Planning Commission has considered the project and finds the proposed project is statutorily exempt from CEQA review pursuant to Section 21080.56 of the CEQA Guidelines.

EVIDENCE: a) Section 21080.56 applies to projects proposed to conserve, restore, protect, or enhance, and assist in the recovery of California native fish and wildlife, and the habitat upon which they depend.

b) The Statutory Exemption for Restoration Projects (SERP) is a statutory exemption for fish and wildlife restoration projects that meet certain requirements. Being the lead agency for this Conditional Use Permit, CDFW Northern Region Lands Project entered the SERP

consultation process with CDFW. On April 29, 2024, the Director of CDFW concurred with the Northern Region Lands Project determination that the Cannibal Island Restoration Project qualified as a statutorily exempt restoration project under the California Environmental Quality Act (CEQA).

FINDINGS FOR CONDITIONAL USE PERMIT

3. FINDING: The proposed development is in conformance with the Eel River Area Plan.

EVIDENCE: a) The subject properties are planned Agriculture Exclusive and Natural Resources in the Eel River Area Plan. The proposed project is for major restoration of Cannibal Island and the surrounding area in the Eel River estuary. All of the proposed work will require a Coastal Development Permit (CDP) from the California Coastal Commission (CCC). The project will enhance wildlife habitats and protect agricultural lands for long term agricultural use. Approximately 44.4 acres of Prime Agricultural Land exists within project area. Under the Project, these areas would not be converted out of Prime Agricultural Land, rather the agricultural productivity is anticipated to increase in these areas due to the installation of a complementary set-back levee which would reduce flooding and saltwater impaction to these Prime Agricultural Lands. Therefore, despite the defined land conversion, no net loss of agricultural productivity will occur in the project area, and in fact, a net increase is anticipated. For these reasons, the project is consistent with the land use designations of Agriculture Exclusive and Natural Resources.

b) The project is in conformance with the goals and policies of the Housing Element in that the proposal does not involve development of housing and serves to preserve and enhance natural resource areas.

- c) The vast majority of the project area is regularly flooded and comprised of jurisdictional wetlands and other waters. A portion of the slough channel connecting the interior of Cannibal Island with North Bay will be graded to support restoration of the dendritic channel network that once connected the interior salt marsh of Cannibal Island with tidal influence from North Bay. The project does involve Construction activities including the removal of outdated water control structures, excavation of slough channels, the placement of rock, removal of the dike network, raising of Cannibal Island Road. Construction occurs in hazard areas including the 100 year flood zone and within an area of potential liquefaction. Although there will be temporary and permanent impacts, the functional improvement of the tidal marsh will increase substantially through the transition from muted tidal inundation to restored full tidal inundation. Impacts to wetlands will result in a less than significant impact. The project site has a low fire hazard rating according to Fire Hazard map.
- d) An informational note has been included with the Conditions of Approval indicating the steps to be taken should cultural resources and/or human remains be discovered during ground disturbing activities.
- e) Permitting within the Coastal Zone for Humboldt County occurs in compliance with the Eel River Area Plan. The Eel River Area Plan (ERAP) provides specific examples of ESHA within the County coastal zone. Examples of ESHA for this project include:
 - a. *Rivers, creek, and associated riparian habitats;*
 - b. *Estuaries, sloughs, and wetlands;*
 - c. *Rookeries for herons and egrets;*
 - d. *Harbor seal pupping areas;*
 - e. *Critical habitats for rare or endangered species listed on State or Federal Lists.*

The proposed project, including watershed management, fish and wildlife habitat management,

and wetland restoration is consistent with the uses allowed under the ERAP. A Wetland Delineation, Biological Study, Botanical Study, Habitat Conversion Analysis, Soils Analysis, Habitat Conservation Analysis, Agricultural Resource Assessment, and Restoration Plan, have been conducted within the project area over the last several years. Impacts to and mitigation measures to address terrestrial, upland, riparian and aquatic impacts are specified in the Cannibal Island Restoration Project Agricultural Resource Assessment. The proposed Project would not conflict with the ERAP because management for watershed, and management for fish and wildlife habitat are considered compatible with agricultural operations under the ERAP. These impacts of the restoration actions have been determined to be less than significant with the identified mitigation measures implemented.

- f) In the long-term, project improvements would blend into the existing surrounding viewshed of open pasturelands, wetlands and forested areas. The project's proposed additional wetlands, levees, and channels would be consistent with surrounding natural resource and agricultural land and would not impact the quality of character of any Scenic Route views. The proposed project's potential long-term benefits to the scenic vista include the creation of open water, marsh and wetland features that would support a diverse community of vegetation and associated wildlife habitat.

4. FINDING:

The proposed development is consistent with the purposes of the existing zone in which the site is located, and the proposed development conforms to all applicable standards and requirements of these regulations.

EVIDENCE: a)

The proposed project is for major restoration of Cannibal Island and the surrounding area in the Eel River estuary. All of the proposed work will require a

Coastal Development Permit (CDP) from the California Coastal Commission (CCC). The restoration work on NR and AE zones lands requires a Conditional Use Permit (CUP). The primary goal of the Cannibal Island Restoration Project is to restore and expand natural estuarine functions and processes that promote recovery of habitat for native fish, invertebrates, wildlife, and plant species compatible with surrounding working lands and public access. This is consistent with the principal and conditional uses permitted under the NR and AE zones and the associated combining zone designations (see discussion below).

- b) Coastal Wetland Areas (W): The project will ultimately enhance wetlands and restore tidal marsh and riparian floodplain corridors. To avoid impacts to aquatic resources the project proponents have worked closely with the Department of Fish and Game, the Army Corps of Engineers and many other resource protection agencies.
- c) Flood Hazard Areas (F): No structural development is proposed. The ecosystem restoration project will alleviate numerous flooding problems.
- d) Streams and Riparian Corridors Protection (R): Impacts to and mitigation measures to address terrestrial, upland, riparian and aquatic impacts are specified in the Cannibal Island Restoration Project Agricultural Resource Assessment. These impacts have been determined to be less than significant with the identified mitigation measures implemented.
- e) Transitional Agricultural Lands (T): The proposed project will reduce the frequency and duration of inundation areas affecting farmlands. Agricultural operations will continue on lands adjacent to the proposed project area. As documented in the attached Agricultural Resources Assessment, properties within the Project Area are enrolled in Williamson Act contracts, however no Prime Farmland exists within the

Project Study Area (PSA) utilizing NRCS designations, and approximately 44.4 acres of Prime Agricultural Land exists within the eastern portions of the PSA utilizing the Humboldt County General Plan definition. The Project would not result in the conversion of any Prime Agricultural Land. As discussed in the Wetland Fill Memo, implementation of the Project will result in 4.61 acres of wetland fill due to the setback levee, elevation of Cannibal Island Road and installation of the parking lot. However, a total of 7.48 acres of uplands have been identified for wetland creation, resulting in a wetland creation ratio of 1.6 to 1, and no net loss of wetlands.

Supplemental Resource Protection Impact Findings

5. FINDING:

Conditionally Permitted Uses in an AE Zone

The proposed use will not impair the continued agricultural use on the subject property, or on adjacent lands, or the economic viability of agricultural operations on the site.

EVIDENCE: a)

As documented in the attached Agricultural Resources Assessment, properties within the Project Area are enrolled in Williamson Act contracts, however no Prime Farmland exists within the Project Study Area (PSA) utilizing NRCS designations, and approximately 44.4 acres of Prime Agricultural Land exists within the eastern portions of the PSA utilizing the Humboldt County General Plan definition. The Project would not result in the conversion of any Prime Agricultural Land. As discussed in the Wetland Fill Memo, implementation of the Project will result in 4.61 acres of wetland fill due to the setback levee, elevation of Cannibal Island Road and installation of the parking lot. However, a total of 7.48 acres of uplands have been identified for wetland creation, resulting in a wetland creation ratio of 1.6 to 1, and no net loss of wetlands.

6. FINDING:

Anadromous Fish Streams

Minimum stream flows necessary to protect the anadromous stream population will be maintained;

Environmentally sensitive habitat areas will be protected against any significant disruption of habitat values; and

Channelizations, dams, or other substantial alterations of rivers and streams will incorporate the best mitigation measures feasible.

EVIDENCE: a) The project is expected to promote recovery and maintenance of tidal marsh habitats that support native fish, invertebrates, wildlife, and plant species, while also enabling marsh elevations to keep pace with sea level rise. Notably, 60.1 acres of Dense-flowered Cordgrass Marsh, 90.4 acres of Agricultural Pasture primarily dominated by non-native grasses, and 10.1 acres of Ruderal comprised of upland non-native species, will be restored to Coastal Salt Marsh and Brackish Marsh, thereby expanding this valuable habitat type, and shrinking low quality habitat types. Additionally, a net increase (13.7 acres) of Subtidal Channels and Sloughs will create more habitat for existing eelgrass populations to expand and provide additional fish habitat.

7. FINDING: Coastal Streams and Riparian Areas
There are no significant adverse effects on habitat areas;

There is no less environmentally damaging feasible alternative; and

The best mitigation measures feasible have been provided to minimize adverse environmental effects.

EVIDENCE: a) Although there will be wetlands filled, the nature of direct temporary and permanent impacts are entirely for the purpose of habitat restoration and

improvement. Based on the current design, the Project will permanently impact approximately 4.61 acres of three-parameter jurisdictional wetlands to (1) construct the proposed setback levee, (2) increase the footprint of the roadway prism to raise Cannibal Island Road, (3) construct a new parking lot for public recreational access, and (4) due to placement of rock riprap along a 20-foot segment of channel at the existing road crossing in the interior of Cannibal Island Road. The Project will establish approximately 7.48 acres of three-parameter wetlands from existing uplands within the Project Island at Senestraro Lane. The Project will establish approximately 7.48 acres of three-parameter wetlands from existing uplands within the Project.

8. FINDING:

Coastal Transitional Agricultural Land

There is no less environmentally damaging feasible alternative;

The best feasible mitigations are included; and

The functional capacity of the wetland will be maintained.

EVIDENCE: a)

Under the Project, these areas would not be converted out of Prime Agricultural Land, rather the agricultural productivity is anticipated to increase in these areas due to the installation of a complementary set-back levee which would reduce flooding and saltwater impaction to these Prime Agricultural Lands. Collectively, the majority of grazeable acreage under Williamson Act contracts would decrease following Project implementation, however the installation of the set-back levee and tidal marsh restoration would increase the resiliency of agricultural productivity on remaining grazeable lands, are considered complementary to agricultural production.

9. FINDING:

Coastal Vegetation Removal, Major

There is no less environmentally damaging feasible alternative;

The plan includes the best mitigation measures feasible;
and

The vegetation removal will result in no significant adverse impacts to habitat values.

- EVIDENCE:** a) Construction activities associated with the restoration component is expected that the Project will result in a loss of muted tidal habitats (muted Coastal Salt Marsh and Brackish Marsh, and muted Intertidal Channel and Mudflats), which do not host the density of sensitive plant species detected in the Project Area. Additionally, dense-flowered cordgrass marsh was mapped primarily outside of the dikes, in areas of full tidal influence. Dense-flowered cordgrass will be treated during Project implementation, thereby opening the habitat up to be restored to full tidal influence. The proposed Project will restore full tidal influence to a variety of habitat types, and based on modelled changes in topography and elevation in relation to tidal fluctuations within the Project Area, will result in a net increase of full tidal Subtidal Channels and Sloughs (+13.7 acres), Intertidal Channel and Mudflats (+314.7), and Coastal Salt Marsh and Brackish Marsh (+226 acres).

10. FINDING:

Coastal Wetland

There is no less environmentally damaging feasible alternative;

The best mitigation measures feasible have been provided to minimize adverse environmental effects;
and

The required mitigation will maintain or enhance the functional capacity of the wetland or estuary.

- EVIDENCE:** a) The project involves major restoration of Cannibal Island and the surrounding area in the Eel River estuary.

The primary goal of Project is to restore and expand natural estuarine functions and processes that promote recovery of habitat for native fish, invertebrates, wildlife, and plant species compatible with surrounding working lands and public access. The project proposes adequate mitigation to protect valuable resources.

11. FINDING:

Coastal Wetland Buffers

Development will be sited and designed to prevent impacts which would significantly degrade wetland habitat areas, and shall be compatible with the continuance of such habitat areas; and

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms shall be maintained, and where feasible, restored.

EVIDENCE: a)

The project area lands have been managed for livestock grazing, but land subsidence and tide gate failure has reduced the functionality of much of the landscape for agricultural purposes. The project includes wildlife friendly livestock exclusion fencing to protect the 6,000 ft setback levee along the eastern edge of the of the salt marsh. The overall biological productivity within the remaining grazeable area would increase and the resiliency to future flooding would increase.

12. FINDING:

The proposed development and conditions under which it may be operated or maintained will not be detrimental to the public health, safety, or welfare; or materially injurious to property or improvements in the vicinity.

EVIDENCE: a)

All reviewing referral agencies have approved or conditionally approved the proposed development. No detrimental effects to public health, safety and welfare were identified. The proposed development is not expected be detrimental to property values in the vicinity nor pose any kind of public health hazard.

13. FINDING:

The proposed development does not reduce the residential density for any parcel below that utilized by the Department of Housing and Community Development in determining compliance with housing element law.

EVIDENCE: a)

The project does not include any residential development and will not reduce the residential density below that utilized by the Department of Housing and Community Development in determining compliance with housing element law.

Decision

NOW, THEREFORE, based on the above findings and evidence, the Humboldt County Planning Commission does hereby:

- Adopt the findings set forth in this resolution; and
- Approve the California Trout Inc. Conditional Use Permit subject to the conditions of approval attached hereto as Attachment 1A.

Adopted after review and consideration of all the evidence on **April 3, 2025**.

The motion was made by COMMISSIONER Lorna McFarlane and seconded by COMMISSIONER Sarah West and the following vote:

AYES: Commissioners: Lorna McFarlane, Sarah West, Peggy O'Neill, Jerome Qiriaz, Thomas Mulder, Iver Skavdal

NOES: Commissioners:

ABSTAIN: Commissioners:

ABSENT: Commissioners: Noah Levy

DECISION: Motion carried 6/0

I, John H. Ford, Secretary to the Planning Commission of the County of Humboldt, do hereby certify the foregoing to be a true and correct record of the action taken on the above-entitled matter by said Commission at a meeting held on the date noted above.



John H. Ford, Director
Planning and Building Department

CONDITIONS OF APPROVAL
PLN-2023-18855

APPROVAL OF THE CONDITIONAL USE PERMIT IS CONDITIONED ON THE FOLLOWING TERMS AND REQUIREMENTS:

A. General Conditions

1. The project shall be developed in accordance with the Project Description and Project Plans. Minor deviations shall be permitted as provided by Humboldt County Code Section 312-11; however, all other changes shall require modification of this permit.
2. The applicant is responsible for receiving all necessary permits and/or approvals from other State and local agencies.
3. Applicant must apply for and obtain an encroachment permit for all permanent and temporary construction entrances, structural road work to elevate Cannibal Road (C2H095), a County maintained road, installation of four (4) parallel 36" culverts with floodgates, and construction of a parking lot access from the County maintained road. [reference: County Code §411-11 (a)(b)]
4. All temporary construction entrances shall be removed and fences restored for final project sign off. In addition, the land shall be naturalized so that it does not appear that an access road was ever constructed at that location.
5. Encroachment Permit will require that during construction, roadways shall be periodically cleaned of mud, soil, rock, and debris. California Storm Water Quality Association (CASQA) Best Management Practices (BMPs) shall be used to prevent the tracking of material onto County roads. The following BMPs shall be used at a minimum: stone wash pad; rumble racks; sweeping roads on a daily basis.
6. All permanent encroachments shall be paved a minimum of 25 feet back from the edge of the existing road pavement and be flared a minimum of 30 feet at the intersection with the County road. All temporary encroachments with an estimated ADT exceeding 8 may be required to be paved per the above standard. At the time the finalized plans are submitted, the Department will review each permanent and temporary encroachment on an individual basis to determine construction entrance paving requirements.

7. Site visibility must be maintained at the construction entrances in conformance with County Code. All fence or gate structures (pillars) shall be a minimum of 25 feet back from the existing edge of pavement.
8. All fueling, equipment maintenance, staging, and construction management shall be located **outside** the County road right of way.
9. The County roads are not constructed to allow for parking; therefore, all construction and inspection vehicles shall be provided an area outside the County right of way. No construction materials (construction trailers, storage containers, equipment, materials, etc.) or staging activities shall be allowed within County right of way.
10. Prior to relocation, all utility relocations within the County right of way shall be staked and approved by the County.
11. The Applicant shall be responsible for all traffic control and safety at all work locations in a manner satisfactory to the Department of Public Works. Traffic control operations shall conform to **California Manual on Uniform Traffic Control Devices for Streets and Highways** (FHWA's MUTCD 2009 Edition, as amended for use in California), March 30, 2021, or latest edition, and to the satisfaction of the Department of Public Works. Warning and flagging of motorists at work locations shall be conducted **AT ALL TIMES** by properly trained personnel.
12. The Applicant shall use Caltrans 2022 Standard Plan T13 with T9 for a traffic control plan, when applicable, for closing one traffic lane. The Applicant shall use CAMUTCD Figure 6H-6, Titled "Shoulder Work with Minor Encroachment (TA-6)", when applicable, for working outside of the travelway and not affecting normal vehicle traffic.
13. The Applicant shall submit a request to Public Works to seek approval should conditions deviate from Caltrans T13 with T9 or Fig 6H-6 a traffic control plan prepared by a Registered Civil Engineer (or Traffic Engineer).
14. The applicant shall be responsible to correct any involved drainage problems to the County road as a direct result of the project to the satisfaction of PW. Applicant shall minimize the transport of sediment to drainage courses during construction. County Inspector shall be notified by applicant for review and approval of installed erosion control measures within County right of way.

15. No construction materials or debris shall be placed within the County road right of way during the project, unless permitted through an encroachment permit. All fueling, equipment maintenance, staging, and construction management shall be located outside the County road right of way.
16. The Applicant shall keep bridges cleared of all sediment and debris.
17. The Applicant shall comply with the following requirements when working within the gas easement:
 - A. Standby Inspection: A PG&E Gas Transmission Standby Inspector must be present during any demolition or construction activity that comes within 10 feet of the gas pipeline. This includes all grading, trenching, substructure depth verifications (potholes), asphalt or concrete demolition/removal, removal of trees, signs, light poles, etc. This inspection can be coordinated through the Underground Service Alert (USA) service at 811. A minimum notice of 48 hours is required. Ensure the USA markings and notifications are maintained throughout the duration of your work.
 - B. Access: At any time, PG&E may need to access, excavate, and perform work on the gas pipeline. Any construction equipment, materials, or spoils may need to be removed upon notice. Any temporary construction fencing installed within PG&E's easement would also need to be capable of being removed at any time upon notice. Any plans to cut temporary slopes exceeding a 1:4 grade within 10 feet of a gas transmission pipeline need to be approved by PG&E Pipeline Services in writing PRIOR to performing the work.
 - C. Wheel Loads: To prevent damage to the buried gas pipeline, there are weight limits that must be enforced whenever any equipment gets within 10 feet of traversing the pipe.

Ensure a list of the axle weights of all equipment being used is available for PG&E's Standby Inspector. To confirm the depth of cover, the pipeline may need to be potholed by hand in a few areas.

Due to the complex variability of tracked equipment, vibratory compaction equipment, and cranes, PG&E must evaluate those items on a case-by-case basis prior to use over the gas pipeline (provide a list of any proposed equipment of this type noting model numbers and specific attachments).

No equipment may be set up over the gas pipeline while operating. Ensure crane outriggers are at least 10 feet from the centerline of the gas pipeline. Transport trucks must not be parked over the gas pipeline while being loaded or unloaded.

- D. Grading: PG&E requires a minimum of 36 inches of cover over gas pipelines (or existing grade if less) and a maximum of 7 feet of cover at all locations. The graded surface cannot exceed a cross slope of 1:4.
- E. Excavating: Any digging within 2 feet of a gas pipeline must be dug by hand. Note that while the minimum clearance is only 24 inches, any excavation work within 24 inches of the edge of a pipeline must be done with hand tools. So to avoid having to dig a trench entirely with hand tools, the edge of the trench must be over 24 inches away. (Doing the math for a 24-inch-wide trench being dug along a 36 inch pipeline, the centerline of the trench would need to be at least 54 inches [$24/2 + 24 + 36/2 = 54$] away, or be entirely dug by hand.)

Water jetting to assist vacuum excavating must be limited to 1000 psig and directed at a 40° angle to the pipe. All pile driving must be kept a minimum of 3 feet away.

Any plans to expose and support a PG&E gas transmission pipeline across an open excavation need to be approved by PG&E Pipeline Services in writing PRIOR to performing the work.

- F. Boring/Trenchless Installations: PG&E Pipeline Services must review and approve all plans to bore across or parallel to (within 10 feet) a gas transmission pipeline. There are stringent criteria to pothole the gas transmission facility at regular intervals for all parallel bore installations.

For bore paths that cross gas transmission pipelines perpendicularly, the pipeline must be potholed a minimum of 2 feet in the horizontal direction of the bore path and a minimum of 24 inches in the vertical direction from the bottom of the pipe with minimum clearances measured from the edge of the pipe in both directions. Standby personnel must watch the locator trace (and every ream pass) the path of the bore as it approaches the pipeline and visually monitor the pothole (with the exposed transmission pipe) as the bore traverses the pipeline to ensure adequate clearance with the pipeline. The pothole width must account for the inaccuracy of the locating equipment.

- G. Substructures: All utility crossings of a gas pipeline should be made as close to perpendicular as feasible ($90^{\circ} \pm 15^{\circ}$). All utility lines crossing the gas pipeline must have a minimum of 24 inches of separation from the gas pipeline. Parallel utilities, pole bases, water line 'kicker blocks', storm drain inlets, water meters, valves, back pressure devices or other utility substructures are not allowed in the PG&E gas pipeline easement.
- If previously retired PG&E facilities are in conflict with proposed substructures, PG&E must verify they are safe prior to removal. This includes verification testing of the contents of the facilities, as well as environmental testing of the coating and internal surfaces. Timelines for PG&E completion of this verification will vary depending on the type and location of facilities in conflict.
- H. Structures: No structures are to be built within the PG&E gas pipeline easement. This includes buildings, retaining walls, fences, decks, patios, carports, septic tanks, storage sheds, tanks, loading ramps, or any structure that could limit PG&E's ability to access its facilities.
- I. Fencing: Permanent fencing is not allowed within PG&E easements except for perpendicular crossings which must include a 16-foot-wide gate for vehicular access. Gates will be secured with PG&E corporation locks.
- J. Landscaping: Landscaping must be designed to allow PG&E to access the pipeline for maintenance and not interfere with pipeline coatings or other cathodic protection systems. No trees, shrubs, brush, vines, and other vegetation may be planted within the easement area. Only those plants, ground covers, grasses, flowers, and low-growing plants that grow unsupported to a maximum of four feet (4') in height at maturity may be planted within the easement area.
- K. Cathodic Protection: PG&E pipelines are protected from corrosion with an "Impressed Current" cathodic protection system. Any proposed facilities, such as metal conduit, pipes, service lines, ground rods, anodes, wires, etc. that might affect the pipeline cathodic protection system must be reviewed and approved by PG&E Corrosion Engineering.
- L. Pipeline Marker Signs: PG&E needs to maintain pipeline marker signs for gas transmission pipelines in order to ensure public awareness of the presence of the pipelines. With prior written approval from PG&E Pipeline Services, an existing PG&E pipeline marker sign that is in direct conflict with proposed developments may be temporarily relocated to accommodate construction work. The pipeline marker must be moved back once construction is complete.

- M. PG&E is also the provider of distribution facilities throughout many of the areas within the state of California. Therefore, any plans that impact PG&E's facilities must be reviewed and approved by PG&E to ensure that no impact occurs which may endanger the safe operation of its facilities.

18. The Applicant shall comply with the following requirements when working within the electric easement:

- A. Buildings and Other Structures: No buildings or other structures including the footprint and eave of any buildings, swimming pools, wells or similar structures will be permitted within fee strip(s) and/or easement(s) areas. PG&E's transmission easement shall be designated on subdivision/parcel maps as **"RESTRICTED USE AREA – NO BUILDING."**
- B. Grading: Cuts, trenches or excavations may not be made within 25 feet of our towers. Developers must submit grading plans and site development plans (including geotechnical reports if applicable), signed and dated, for PG&E's review. PG&E engineers must review grade changes in the vicinity of our towers. No fills will be allowed which would impair ground-to-conductor clearances. Towers shall not be left on mounds without adequate road access to base of tower or structure.
- C. Fences: Walls, fences, and other structures must be installed at locations that do not affect the safe operation of PG&E's facilities. Heavy equipment access to our facilities must be maintained at all times. Metal fences are to be grounded to PG&E specifications. No wall, fence or other like structure is to be installed within 10 feet of tower footings and unrestricted access must be maintained from a tower structure to the nearest street. Walls, fences and other structures proposed along or within the fee strip(s) and/or easement(s) will require PG&E review; submit plans to PG&E Centralized Review Team for review and comment.
- D. Landscaping: Vegetation may be allowed; subject to review of plans. On overhead electric transmission fee strip(s) and/or easement(s), trees and shrubs are limited to those varieties that do not exceed 10 feet in height at maturity. PG&E must have access to its facilities at all times, including access by heavy equipment. No planting is to occur within the footprint of the tower legs. Greenbelts are encouraged.
- E. Reservoirs, Sumps, Drainage Basins, and Ponds: Prohibited within PG&E's fee strip(s) and/or easement(s) for electric transmission lines.

- F. Automobile Parking: Short term parking of movable passenger vehicles and light trucks (pickups, vans, etc.) is allowed. The lighting within these parking areas will need to be reviewed by PG&E; approval will be on a case by case basis. Heavy equipment access to PG&E facilities is to be maintained at all times. Parking is to clear PG&E structures by at least 10 feet. Protection of PG&E facilities from vehicular traffic is to be provided at developer's expense AND to PG&E specifications. Blocked-up vehicles are not allowed. Carports, canopies, or awnings are not allowed.
- G. Storage of Flammable, Explosive or Corrosive Materials: There shall be no storage of fuel or combustibles and no fueling of vehicles within PG&E's easement. No trash bins or incinerators are allowed.
- H. Streets and Roads: Access to facilities must be maintained at all times. Street lights may be allowed in the fee strip(s) and/or easement(s) but in all cases must be reviewed by PG&E for proper clearance. Roads and utilities should cross the transmission easement as nearly at right angles as possible. Road intersections will not be allowed within the transmission easement.
- I. Pipelines: Pipelines may be allowed provided crossings are held to a minimum and to be as nearly perpendicular as possible. Pipelines within 25 feet of PG&E structures require review by PG&E. Sprinklers systems may be allowed; subject to review. Leach fields and septic tanks are not allowed. Construction plans must be submitted to PG&E for review and approval prior to the commencement of any construction.
- J. Signs: Signs are not allowed except in rare cases subject to individual review by PG&E.
- K. Recreation Areas: Playgrounds, parks, tennis courts, basketball courts, barbecue and light trucks (pickups, vans, etc.) may be allowed; subject to review of plans. Heavy equipment access to PG&E facilities is to be maintained at all times. Parking is to clear PG&E structures by at least 10 feet. Protection of PG&E facilities from vehicular traffic is to be provided at developer's expense AND to PG&E specifications.
- L. Construction Activity: Since construction activity will take place near PG&E's overhead electric lines, please be advised it is the contractor's responsibility to be aware of, and observe the minimum clearances for both workers and equipment operating near high voltage electric lines set out in the High-Voltage Electrical Safety Orders of the California Division of Industrial Safety

(<https://www.dir.ca.gov/Title8/sb5g2.html>), as well as any other safety regulations. Contractors shall comply with California Public Utilities Commission General Order 95 (http://www.cpuc.ca.gov/gos/GO95/go_95_startup_page.html) and all other safety rules. No construction may occur within 25 feet of PG&E's towers. All excavation activities may only commence after 811 protocols has been followed.

Contractor shall ensure the protection of PG&E's towers and poles from vehicular damage by (installing protective barriers) Plans for protection barriers must be approved by PG&E prior to construction.

PG&E is also the owner of distribution facilities throughout many of the areas within the state of California. Therefore, any plans that impact PG&E's facilities must be reviewed and approved by PG&E to ensure that no impact occurs that may endanger the safe and reliable operation of its facilities.

19. The applicant is required to pay for permit processing on a time and material basis as set forth in the schedule of fees and charges as adopted by ordinance of the Humboldt County Board of Supervisors. The Department will provide a bill to the applicant after the decision. Any and all outstanding Planning fees to cover the processing of the application to decision by the Hearing Officer shall be paid to the Humboldt County Planning Division, 3015 "H" Street, Eureka.
20. Prior to project completion, the applicant shall ensure Cannibal Island Road is in the same or superior condition as it was at the start of the project. Time certain photographic evidence of before and after project work shall be submitted to the Planning Department for review.

Informational Notes:

1. This permit shall expire and become null and void at the expiration of two (2) years after all appeal periods have lapsed (see "Effective Date") except where construction under a valid building permit or use in reliance on the permit has commenced prior to such anniversary date. The period within which construction or use must commence may be extended as provided by Section 312-11.3 of the Humboldt County Code.
2. As a reminder, before any digging or excavation occurs, please contact Underground Service Alert (USA) by dialing 811 a minimum of two working days prior to commencing any work. This free and independent service will ensure that all existing underground utilities are identified and marked on-site.

3. If cultural resources are encountered during construction activities, the contractor on site shall cease all work in the immediate area and within a 50-foot buffer of the discovery location. A qualified archaeologist as well as the appropriate Tribal Historic Preservation Officer(s) are to be contacted to evaluate the discovery and, in consultation with the applicant and lead agency, develop a treatment plan in any instance where significant impacts cannot be avoided.

The Native American Heritage Commission (NAHC) can provide information regarding the appropriate Tribal point(s) of contact for a specific area; the NAHC can be reached at 916-653-4082. Prehistoric materials may include obsidian or chert flakes, tools, locally darkened midden soils, groundstone artifacts, shellfish or faunal remains, and human burials. If human remains are found, California Health and Safety Code 7050.5 requires that the County Coroner be contacted immediately at 707-445-7242. If the Coroner determines the remains to be Native American, the NAHC will then be contacted by the Coroner to determine appropriate treatment of the remains pursuant to PRC 5097.98. Violators shall be prosecuted in accordance with PRC Section 5097.99

The applicant is ultimately responsible for ensuring compliance with this condition.



Cannibal Island Restoration Project

Operations and Maintenance Plan

California Trout

September 27, 2023

→ The Power of Commitment



Operations and Maintenance Plan

Cannibal Island Restoration Project

Prepared for:



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1. Introduction

This Operations and Maintenance Plan (Plan) has been developed for the Cannibal Island Restoration Project (Project). The core Project objective is to restore and expand natural estuarine functions and processes that promote recovery of habitat for native fish, invertebrates, wildlife, and plant species compatible with surrounding working agricultural lands. This will be carried out via strategic lowering of dikes along the northern portion of the Project Area, restoring existing slough channel connectivity and historical geometry. Additionally, the Project will improve native flora and fauna via the focused removal of invasive vegetation (particularly dense-flowered cordgrass [*Spartina densiflora*]), provide public access via a 2,000-foot trail and parking lot, and benefit agricultural lands via the installation of an approximately 6,000-foot setback levee and elevating the existing Cannibal Island Road which will protect approximately 54 acres of existing agricultural lands along the eastern extents of the Project Area, and over 50 acres beyond the southern extent, from tidal inundation. Flood gates (culverts equipped with flood gates) are proposed in conjunction with the setback levee to manage flood drainage from the eastern agricultural lands.

To maintain the Project, post construction operations and maintenance actions are anticipated to include dense-flowered cordgrass control efforts, levee and dike management, flood gate maintenance, and trail and parking lot maintenance. These efforts are anticipated to occur following Project construction and continue for the minimum life of the Project, which is typically 20-25 years, to meet long-term Project goals. Portions of the Project are within the Natural Resources Conservation Services (NRCS) Agricultural Conservation Easement Program - Wetland Reserve Easement (ACEP-WRE) program (hereafter referred to as "WRE program"). Maintenance activities may also be required by the ACEP-WRE program beyond the scope of the Project. This Plan does not propose operations and maintenance actions of agricultural lands located outside of the WRE area because those areas are the responsibility of individual landowners. This Plan does include maintenance actions of the setback levee installed as a Project component to protect agricultural lands.

The Plan is limited in scope to the specific aspects discussed. While every attempt is made to be comprehensive in scope, every possible condition or need cannot be foreseen. Monitoring and maintenance actions described in this Plan are covered in the regulatory permits obtained for the Project. However, new, expanded, or unforeseen impacts to regulated habitats, waters, or wetlands may require modifications to permits or new permits in the future. The operations and maintenance activities defined in this Plan are intended to commence upon completion of Project construction.

1.1 Project Location

The Project Area is located three miles west of the town of Loleta, California in the Eel River estuary, within the Cannibal Island USGS 7.5-minute quadrangle (**Appendix A, Figure 1**). The 794-acre Project Area is at the western-most extent of the Eel River delta and estuary approximately one mile inland and northeast of the Eel River mouth. Cannibal Island is located in the northern portion of the Eel River estuary and is bounded by Sevenmile Slough on the north and east, North Bay Slough on the west and Mosley Slough on the southwest (**Appendix A, Figure 2**).

The northern and western portion of the Project Area (approximately 462 acres) is owned by California Department of Fish & Wildlife (CDFW) and managed as part of the Eel River Wildlife Area (ERWA) Cannibal Island Unit (Assessor Parcel Numbers 310-043-001, 310-033-004, 310-021-003, and 310-021-004). The remaining 332 acres are privately owned by Hansen (APNs 310-043-003 and 310-051-001) and Pedrazzini (APNs 310-043-004, -005, and -006). Approximately 220 acres of the private property are held in the WRE program by the NRCS (**Appendix A, Figure 3**).

1.2 Project Description

The proposed Project will enhance (widen and deepen) existing tidal slough channels within the limits of Project disturbance to historical geometry (**Appendix A, Figure 4**). Construction activities will include the removal of outdated water control and conveyance structures, excavation of slough channels to accelerate the formation of high-quality aquatic habitat for listed fish species, and placement of excavated fill in appropriate locations to mimic natural marsh topography (natural levees and hummocks or tidal marsh ridges) and enhance wetland vegetation diversity through removal of invasive dense-flowered cordgrass. Excavated soils from the channels would be placed in low hummocks approximately 2-feet high adjacent to the channels. These hummocks are anticipated to retain wetland parameters as they will not exceed marsh plain elevation and would not constitute conversion to uplands. Much of the existing dike network within the Project Area would be reconfigured or removed. A new setback levee will be constructed to protect agricultural land from tidal inundation as full amplitude is restored, including one newly constructed set-back levee in the eastern portion of the Project Area, and elevating the grade of Cannibal Island Road in the southern portion of the Project Area. Sediment excavated during construction would be beneficially reused within the Project Area and would not be hauled off-site.

1.3 Project and Regulatory Background

This is a restoration Project that is exempt from the requirements of CEQA pursuant to the Statutory Exemption for Restoration Projects (SERP) (Public Resources Code § 21080.56). No National Environmental Policy Act (NEPA) compliance is required because there is no federal nexus with the Project outside of the Clean Water Act and Endangered Species Act where each jurisdictional agency carries out NEPA for their respective actions.

The Project Area includes wetlands within the jurisdiction of the U.S. Army Corps of Engineers (USACE), the North Coast Regional Water Quality Control Board (NCRWQCB), and the California Coastal Commission (CCC), endangered or threatened species habitat within the jurisdiction of the National Marine Fisheries Service (NMFS; also known as the National Oceanic & Atmospheric Administration Restoration Center [NOAA RC]), and the U.S. Fish and Wildlife Service (USFWS), and contains lands regulated by the Humboldt County Planning and Building Department. Required permits and approvals are listed in **Table 1-1**.

Table 1-1 *Permits Required for the Project*

Permit	Agency
Clean Water Act (CWA) Section 404 — Nationwide Permit (NWP) 27	USACE
Endangered Species Act (ESA) Section 7 — Salmonids	NMFS (also known as NOAA RC) Programmatic Biological Opinion (PBO)
ESA Section 7—Tidewater Goby	USFWS PBO
CWA Section 401—Statewide Restoration General Order (SRGO)	NCRWQCB
Individual Coastal Development Permit (CDP)	CCC
Conditional Use Permit	Humboldt County Planning and Building Department
Lake and Streambed Alteration Agreement (LSAA) and California Endangered Species Act (CESA) Compliance	CDFW
Encroachment Permit	Humboldt County Public Works
Lease	State Lands Commission

1.4 Responsible Parties

The CDFW is responsible for monitoring Project components that occur on their property, and Project-related infrastructure that may span parcel boundaries, such as the setback levee, flood gates, and potentially the fence along the setback levee. CDFW will implement or oversee implementation of the maintenance actions described in this Plan. Private landowners may communicate with CDFW regarding potential maintenance needs they observe, however it is not their responsibility to carry out monitoring or maintenance activities of Project components. Based on needs and available resources, each landowner may choose to collaborate with various partners to assist with the monitoring and maintenance .

The WRE program that exists within the Project Area allows for periodic maintenance activities to be planned and implemented under a Compatible Use Authorization (CUA) between the NRCS and landowners. All monitoring and maintenance activities described in this Plan that is within the WRE program area will be completed in accordance with the NRCS CUA process. The eastern boundary of the WRE program across all parcels aligns with the approximate location of the setback levee, therefore the lands to remain under the WRE program will predominantly convert to tidal marsh (see **Appendix A, Figure 3**).

NRCS has a unique monitoring responsibility on the Project Area lands protected by its perpetual conservation easements. All WRE program easements are required by policy to be monitored annually in accordance with the Common Provisions Manual (440-CPM-527-P). Prior to the end of each federal fiscal year, monitoring information collected must be entered into NRCS' easement business tool, and a copy of the completed Annual Monitoring Worksheet (form NRCS-CPA-1251) must be retained for the duration of the easement enrollment according to federal records management requirements. NRCS monitors the easements it administers to ensure the following: that the integrity of the easements is being maintained, the goals and objectives for which the easements were purchased are being met, to identify management or maintenance actions needed, and to maintain a relationship with the landowner and, where applicable, other conservation partners. Monitoring ensures the terms and conditions of the easement deeds are being met and program objectives are being achieved in accordance with statutory and regulatory authorities and requirements. Additionally, the annual reporting allows the easement condition status to be determined in the easement business tool and reported as appropriate in the agency's annual accountability reporting.

2. Overview of Project Components and Long-Term Management Needs

This Plan was developed to support post-construction ongoing management and maintenance activities that may be necessary to support the long-term functions of the Project and operational needs to protect land. NRCS monitoring is primarily focused on easement compliance and will include a review of restoration objectives, management plans, vegetation, and hydrology. Monitoring is primarily focused on whether the Project component is safely and effectively carrying out its intent as designed, or whether repair or replacement is necessary. Maintenance activities will be prioritized and implemented based on both NRCS monitoring outcomes and the monitoring described herein which would generally include observations of physical character to determine whether the Project component is functioning as designed. The impacts associated with the anticipated operational and maintenance activities would be infrequent and short-term in nature. In addition, they are anticipated to be no greater than the traditional maintenance historically performed on these lands under existing conditions and far less than the impacts associated with Project construction as described in Project permitting documentation. Maintenance actions would be implemented in accordance with avoidance measures (listed in **Appendix B**), and best management practices (listed in **Appendix C**).

2.1 Description of Project Components to be Maintained

This section summarizes the functions and potential maintenance needs for the Project components. Following construction, long-term maintenance will be required to ensure that the Project functions as intended. Maintenance needs will be primarily limited to management of dense-flowered cordgrass, the setback levee, gated culverts, trail, parking lot and fencing. Cannibal Island Road will continue to be routinely maintained by the County. See **Appendix A, Figure 4** for locations of Project components described below.

2.1.1 Dense-flowered Cordgrass Management

Vegetation management would include the as-needed removal of invasive vegetation. Through the Regional Eradication Program, which operates in various locations throughout the Eel River estuary, dense-flowered cordgrass is currently being treated using a variety of methods including top-mowing, grinding, tilling, excavation, flaming and application of herbicide. Proposed treatment methods are generally consistent with those outlined in the Humboldt Bay Regional Spartina Eradication Plan (H.T. Harvey 2013). Per the Project's PBO issued by NOAA RC, only U.S. Environmental Protection Agency aquatically approved herbicide may be utilized within 25 feet of a wetland or waterway (see PBO Measure VHDR-6 – General Herbicide Use). Dense-flowered cordgrass control is a planned component of the Project and will occur throughout the documented infested areas during construction, which are located along the western extent of the Project Area. It is possible that focused control techniques of dense-flowered cordgrass would occur in the documented infestation areas prior to construction to prevent the spread of this highly invasive species during construction.

Following construction, qualitative monitoring is recommended at least annually to document and treat dense-flowered cordgrass infestations early with the goal of managing dense-flowered cordgrass before it gets out of control and functionally displaces native vegetation communities. Long-term follow up treatment and maintenance of dense-flowered cordgrass is anticipated. The methods utilized to control dense-flowered cordgrass (listed above) include a series of treatments implemented over time based on seasonality, weather, tides, labor availability, and other factors. The proposed treatment methods are consistent with those outlined in PBO Measures VHDR-6 – General Herbicide Use, VHDR-7 – Herbicide Application Planning, VHDR-8 – Herbicide Application Reporting, and Measure 5.5.1 – NOAA Herbicide Use Protection Measures (see **Appendix B** for the full list of PBO and SRGO avoidance measures). Vegetation management will occur on an as-needed basis and pending available funding.

2.1.2 Setback Levee

An approximate 6,000-foot-long setback levee will be located on the eastern side of the proposed marsh system (located centrally) to protect agricultural lands from tidal inundation. The top of the setback levee would contain a gravel surface to provide site access for vehicles and/or equipment. The setback levee is designed to operate without extensive maintenance.

Monitoring will be qualitative and will include visual inspections performed annually and after major storm and high tide events. Monitoring will look for evidence of obvious flooding and erosion or erosion resulting from wind generated waves. Maintenance of the setback levee will be triggered by observations of the physical character of the levee and dike during monitoring events. If necessary, the setback levee will be mowed annually to discourage growth of woody and invasive vegetation. Repair from erosion or burrowing animals would occur on an as-needed basis. Grading and/or re-graveling portions of the setback levee will occur as necessary.

2.1.3 Flood Gates

The Project proposes six new culverts through the proposed setback levee and Cannibal Island Road, all equipped with flood gates. Up to two flood gates will be installed under the setback levee, and up to four installed under the elevated portion of Cannibal Island Road. The culverts would vary in size and be equipped with side and/or top hinge gates. The gates would prevent tidal and flood inundation landward and would open when the inboard water levels (located east of the gate) are higher relative to outboard (located west of the gate) which would typically occur daily during and following rainfall events, enabling drainage from adjacent agricultural land to the east.

The new flood gates and associated drainage ditches (located on the outboard, west side, of the setback levee) will be monitored annually and following extreme storms to ensure proper functioning. The culvert and ditch elevations will be compared to the elevations on the Record Drawings. If needed, debris and sediment would be removed from culverts and/or ditches consistent with the CUA process to maintain the design function. Sediment removed would be reused throughout the Project Area as part of ongoing agricultural operations or placed in subsided tidal lagoons to increase the pace of salt marsh accretion. Sediment reuse on wetland areas would only occur if wetland function would be unimpacted and the purpose of the reuse is to promote habitat restoration and/or sea level rise resiliency for habitat diversity purposes.

2.1.4 Tidal Wetlands (Channels and Tidal Ridges)

The Project area west of the setback levee will include enhancement of former tidal channels. The re-established channels and connection to the Eel River estuary will increase the tidal prism within the Project Area. The increased tidal prism would increase sediment transport throughout the system and provide habitat variability and increased complexity, promoting sediment accretion in subsided areas through a network of inter-tidal mudflats and habitat ridges. The mudflats would passively evolve into inter-tidal salt marshes with sediment accretion from the Eel River over time. The tidal wetland system of channels, ridges and mudflats have been designed in equilibrium with the restored tidal prism.

2.1.5 Trail

The Project proposes approximately 2,000 feet of publicly accessible trail located atop an existing dike on the west side of the Project Area. The trail will be graded, surfaced with gravel and will be wide enough to serve as an accessway for vehicles and other equipment. The trail will be located adjacent to Mosley Slough, and drainage in this location will remain unchanged. Monitoring of the trail would occur annually or after extreme storms and include visual observation. Anticipated routine maintenance includes vegetation trimming, removal or mowing. Grading and/or re-graveling portions of the trail would occur as necessary .

2.1.6 Parking Lot

A parking lot is proposed under the Project to provide parking for trail users. The parking lot will be gravelled and therefore will manage stormwater onsite due to its permeability. Monitoring of the parking lot will occur annually or after extreme storm events to observe areas of potential damage, instability or unsafe conditions. Grading and/or re-graveling portions of the parking lot would occur as necessary .

2.1.7 Fencing

Fencing on the eastern side of the setback levee and along both sides of the County Road adjacent to the elevated portions of Cannibal Island Road would occur under the Project. Monitoring of the fencing will occur annually or after extreme storm events to observe areas of potential damage, instability, or unsafe conditions. Repairs of the fencing will occur following extreme storm events, if damage occurs and as funding allows, or once approximately every 10-15 years.

3. Monitoring

In general, the tidal marsh restoration portion of the Project is expected to be self-maintaining and dynamic over the long term, and marsh plain habitat is expected to be restored. The result of restoration is a net increase of full tidal subtidal channels and sloughs, intertidal channel and mudflats, and coastal salt marsh and brackish marsh. The Project will enhance native plant communities and promote expansion of rare plant habitat through the treatment and control of non-native dense-flowered cordgrass.

Given the current Project partnerships and nature of maintenance activities this Plan has defined three types of post-construction monitoring including 1) NRCS Performance Monitoring in Easement Areas, 2) Non-regulatory Performance Monitoring, and 3) Maintenance Monitoring. Non-regulatory performance monitoring will occur throughout the restored portions of the Project Area and will be used to track Project evolution and efficacy beyond the scope of regulatory monitoring. Maintenance monitoring will occur throughout the entire Project Area to ensure the long-term operation of the Project is successful, consistent with the overall goals of the Project. Post-construction regulatory monitoring, which includes the monitoring that is required under Project permits primarily associated with documentation of wetland re-establishment, is not included in this Plan. Regulatory monitoring (required under Project permits) is described in the Wetlands & Habitat Restoration Plan. Each of the three types of monitoring are further described below.

3.1 NRCS Performance Monitoring in Easement Areas

Performance monitoring will be conducted annually by NRCS for areas under the WRE program in accordance with existing statute, regulation, and policy. Data will be collected using the Annual Monitoring Worksheet (form NRCS-CPA-1251) (link to information below). Performance monitoring is intended to observe, document and track the outcomes of the Project site restoration and its long-term stewardship. Monitoring results will contribute to informing Project performance and efficacy. Performance monitoring activities will include onsite monitoring and review of conservation planning documents. The Annual Monitoring Worksheet can be found here: [https://www.nrcs.usda.gov/sites/default/files/2022-10/NRCS-CPA-1251%20Annual%20Monitoring%20Worksheet%20%2810-18%29 Revised 12-18 for WV.pdf](https://www.nrcs.usda.gov/sites/default/files/2022-10/NRCS-CPA-1251%20Annual%20Monitoring%20Worksheet%20%2810-18%29%20Revised%2012-18%20for%20WV.pdf)

3.2 Non-Regulatory Performance Monitoring

Voluntary monitoring (that is not required by regulatory agencies) may take place to observe, document and track the outcomes of the Project beyond what is required in regulatory permits (which is discussed in the Wetlands & Habitat Restoration Plan). It is expected that the Project would be monitored for up to five years following construction, or as funding is available. Non-regulatory monitoring may include the following:

- Topography – Topographical surveys would be conducted at the five- and ten-year marks, or as funding is available. The topographical surveys would monitor the geomorphic evolution of the restoration components within the Project site. At a minimum, topographic changes would be monitored at established (monumented) channel cross-sections and longitudinal (thalweg) profile surveys. Topographic surveys would be conducted with a Total Station or GPS system. Photo-points would be established at each monumented cross-section at a minimum.
- Surface Water Hydrology – As funding is available, surface water level loggers would be installed within the downstream portion of channels that do not completely dry out during low tide, and discharge estimates would be determined.
- Fish Monitoring – The purpose of fish monitoring will be to characterize the fish assemblage and document species presence and distribution throughout the restored Project Area. Monitoring fish use of the restoration area is expected to occur for five years after the tidal restoration project is complete, with annual reports provided in each year in which monitoring occurs. Monitoring may occur on a

monthly basis to determine seasonal trends in habitat use and occupancy, but may be limited to quarterly monitoring (spring, summer, fall, winter) based on funding and staff constraints. Monitoring techniques will rely on seining (beach and/or pole) and trapping (fyke, channel net, minnow traps). As funding and equipment become available, other methods including eDNA/water samples and passive integrated transponder (PIT) and/or acoustic tags may be utilized to determine presence and occupancy of select species. Sampling will occur at 5-15 sites throughout the Project Area and locations will be stratified by habitat type to characterize fish assemblages in a variety of habitats (i.e., channels of varying size, intertidal mud pans, deep water habitats etc.). Fish monitoring will be conducted in compliance with all avoidance and minimization measures required within the NOAA and USFWS PBOs and all other pertinent permits.

- **Water Quality** – Water quality measurements would be taken concurrently at each fish monitoring location for a duration of up to five years or as funding is available. Data measurement may include temperature, salinity and dissolved oxygen sampling. A series of water quality data loggers may be deployed following Project implementation that would record pH, conductivity, and temperature. The locations of the water quality data loggers would be determined following Project implementation.
- **Photographic Monitoring** – Photo monitoring points will be established at key locations that can be revisited over the course of the restoration project to document conditions before and after construction. Photo monitoring points will be selected to provide coverage of the project extent and representation of the major project elements. The GPS coordinates and bearing for each photo point will be recorded. Photos will be taken annually for five years beginning just prior to construction.
- If monitoring occurs, a monitoring report would be developed annually when data is collected and would include monitoring data from the pertinent categories mentioned above. It would be made available to funders, regulatory agencies and/or other entities as requested. Year one would begin following construction of the Project. Due to the Project potentially being constructed over two seasons, the temporal label of "Year one", "Year two", may be staggered throughout the Project Area.

3.3 Maintenance Monitoring

Maintenance monitoring will assess the above-described Project components and will be used to inform the timing and extent of maintenance actions. Maintenance monitoring will be completed by CDFW throughout the Project Area. In addition, the NRCS will monitor easement areas as part of its annual monitoring and site inspection. Neighboring landowners are anticipated to take an active role in maintenance monitoring of their properties adjacent to the restored Project Area as part of their ongoing land stewardship and to protect their interest in the integrity and success of the Project. Maintenance monitoring is intended to support decision making and justification to conduct maintenance actions. The monitoring and maintenance activities defined in this Plan would commence upon completion of Project construction and would be monitored for the minimum Project life and consistent with typical CDFW Wildlife Area maintenance. Areas within the WRE program would be monitored as required by the WRE program. Described below are the proposed maintenance monitoring methods and frequencies with corresponding maintenance triggers and actions.

4. Maintenance Monitoring, Triggers and Actions

This section defines the maintenance monitoring (type and frequency), triggers, and corresponding actions that support achievement of the Project goals. The maintenance monitoring is focused primarily on visual observations to assess and document physically observable trends. Some observations may result in the need to increase monitoring frequency, while others may result in the need to take action. This will be determined

through the evaluation of visual triggers. Maintenance triggers define the specific point or a range of values where monitoring data indicate that the Project may be developing along an unexpected or unfavorable trajectory and where maintenance actions are necessary to ensure that the Project goals are achieved.

Once a maintenance trigger is activated, there are a range of possible maintenance options. For example, 1) it may be determined that no maintenance action is indicated or that additional (or modified) monitoring may be required to make a decision on whether or not maintenance action is required, or 2) monitoring results indicate that a maintenance action is required. Once maintenance needs are identified, potential actions identified in Table 4-1 will be implemented as funding is available. Parameters required for potential maintenance actions are included in **Appendix C (Table C-1)** and include location, work window, work duration, anticipated frequency, equipment and methods to be used, quantities and materials, and impact avoidance measures. Impact avoidance measures are consistent with the accepted best management practices under the Project's SERP documentation and anticipated regulatory requirements under the Project's permits.

Potential maintenance actions listed in Table 4-1 are not intended to be an exhaustive list. Rather, they represent a likely range of options given the current knowledge of the system and anticipated maintenance actions. Actual actions may deviate from this list given unforeseen monitoring results and/or site performance and would be implemented under required permits (as applicable). Additionally, the details on the timing and degree of each of these actions are equally dependent upon the monitoring results. For significant maintenance actions that may have implications for adjacent landowners, such landowners will be consulted. In addition, where appropriate, regulatory agencies and NRCS may be consulted to ensure compliance with existing permits and WREs.

Table 4-1 Summary of Potential Maintenance Actions Resulting from Maintenance Monitoring

Project Component	Monitoring Method & Frequency	Maintenance Trigger	Potential Maintenance Actions ¹ (Subject to NRCS Wetland Reserve Easement)
Dense-flowered Cordgrass Management	Visual inspection annually (at a minimum) of vegetation composition relative to past year and trends. Visual inspection to occur at specific locations to be determined by landowners and/or NRCS.	Invasive vegetation dominates observed area, and the actual or potential spread threatens critical native habitat.	Weed management/and or invasive species control via US EPA aquatically approved herbicide (within 25 feet of a wetland or waterway), in accordance with PBO Measure VHDR-6 – General Herbicide Use, and top-mowing or grinding techniques. Increased frequency of monitoring until infestation is under control.
Setback Levee	Visual inspection annually and following extreme events to observe evidence of obvious flooding, erosion, settling or cracking of the setback levee, to ensure that these potential actions are not compromising the stability of the levee, designed intent of the levee to protect adjacent agricultural land, or use of the levee as an accessway.	Evidence of erosion, cracking, slumping, or animal borrowing holes. Woody vegetation establishment.	Repair eroded sections and employ erosion control measures (protecting bare soil, stabilizing banks, dissipating concentrated flows). Raise or lower height of setback levee. Maintain or repair road surface atop levee. Remove woody and/or weedy vegetation via mowing or hand tools.
Gated Culverts	Visual inspection annually and following extreme events to observe evidence of obvious changes compromising flood gates or drainage channel function from design intent or as-built conditions.	Gate flap is not operating correctly (i.e., not fully closing, lodged open). Culverts and drainage channels are partially obstructed, fully plugged, damaged or are not conveying flow as designed.	Replace or repair damaged flood gates. Remove debris from obstructed flood gates. Excavate plugged culverts, or replace or enlarge culverts as needed. Implement site specific erosion control BMPs to protect culvert functions while minimizing channel and wetland habitat benefits such as revegetating bare or eroding areas near culverts.
Tidal Wetlands (Channels and Habitat Ridges)	Visual inspection annually and following extreme events, supplemented as needed with topo/bathy survey cross-sections and longitudinal profiles to observe change in channel geometry, marsh plain elevation, tidal ridge geometry and vegetation cover.	Channel geometry has been reduced or enlarged compared to as-built conditions. Erosion of tidal ridge. Increase or decrease in tidal circulation relative to design conditions. Vegetation composition varies from analogous estuarine habitats,	Follow up assessment of rates/causes of erosion or sedimentation, evaluation of effects relating to structure and function of tidal wetland. Remove sediment / debris jams. Apply erosion control fabrics, coconut fiber rolls, or other BMPs to redirect or reduce the energy of flows over erosion area. Regrade tidal channels, ridges and mudflats to improve tidal wetland function.

Project Component	Monitoring Method & Frequency	Maintenance Trigger	Potential Maintenance Actions ¹ (Subject to NRCS Wetland Reserve Easement)
Trail	Visual inspection annually and following extreme events to observe evidence of obvious flooding, erosion, settling or cracking of the trail surface to ensure that these potential actions are not compromising the trail stability, design or safety for use as a public accessway.	Evidence of trail erosion, cracking, slumping, or animal borrowing holes. Woody vegetation establishment. Gravel missing from overwash events and presence of bare soil.	Repair eroded sections and employ erosion control measures (protection of bare soil, bank stabilization, dissipation of concentrated flows). Remove woody and/or weedy vegetation via mowing or hand tools. Maintain or repair trail surface atop via placement of gravel or other finishing product.
Parking Lot	Visual inspection annually and following extreme events to observe evidence of obvious flooding, cracking or loss of gravel from the parking lot to determine whether these potential actions are compromising function and safety of the parking lot.	Evidence of parking lot flooding, cracking, or substantial loss of gravel/finishing agent. Establishment of woody or herbaceous vegetation. Pooling of water.	Repair areas of parking lot where cracking or settlement has occurred. Replace gravel. Removal of woody or herbaceous vegetation. Grading of parking lot to remove depressions which cause water to pool.
Fencing	Visual inspection annually and following extreme events to observe evidence of downed fence lines or posts, vegetation caught on fence lines, burrowing or other obvious pathway under fences which could compromise the fence integrity.	Evidence of a downed fence line or post, vegetation hung on fence line. Evidence of potential fence post failure (such as animal burrow adjacent to the fence post).	Repair or replace fence line or post. Removal of vegetation hung on fence line. Filling in of burrow or hole that could lead to fence post failure.

¹ – See Table C-1 in Appendix C for specific maintenance actions and corresponding impact avoidance measures

4.1 Emergency Repairs

Unique circumstances may arise that require emergency maintenance actions. The threshold for determining if these actions should occur include these questions:

- Does the delay threaten human life or safety?
- Does the delay threaten property or risk other imminent liabilities?
- Would the delay trigger endangered species or other environmental enforcement actions?
- Emergency actions are also those actions that meet the CEQA definition of emergency:

Section 21060.3. EMERGENCY

"Emergency" means a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. "Emergency" includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage.

CEQA Emergency Project Exemptions (Section 15269)

The following emergency projects are exempt from the requirements of CEQA.

- a) Projects to maintain, repair, restore, demolish, or replace property or facilities damaged or destroyed as a result of a disaster in a disaster-stricken area in which a state of emergency has been proclaimed by the Governor pursuant to the California Emergency Services Act, commencing with Section 8550 of the Government Code. This includes projects that will remove, destroy, or significantly alter an historical resource when that resource represents an imminent threat to the public of bodily harm or of damage to adjacent property or when the project has received a determination by the State Office of Historic Preservation pursuant to Section 5028(b) of Public Resources Code*
- b) Emergency repairs to publicly or privately owned service facilities necessary to maintain service essential to the public health, safety or welfare. Emergency repairs include those that require a reasonable amount of planning to address an anticipated emergency.*
- c) Specific actions necessary to prevent or mitigate an emergency. This does not include long-term projects undertaken for the purpose of preventing or mitigating a situation that has a low probability of occurrence in the short-term but this exclusion does not apply (i) if the anticipated period of time to conduct an environmental review of such a long-term project would create a risk to public health, safety or welfare, or (ii) if activities (such as fire or catastrophic risk mitigation or modifications to improve facility integrity) are proposed for existing facilities in response to an emergency at a similar existing facility.*
- d) Projects undertaken, carried out, or approved by a public agency to maintain, repair, or restore an existing highway damaged by fire, flood, storm, earthquake, land subsidence, gradual earth movement, or landslide, provided that the project is within the existing right of way of that highway and is initiated within one year of the damage occurring. This exemption does not apply to highways designated as official state scenic highways, nor any project undertaken, carried out, or approved by a public agency to expand or widen a highway damaged by fire, flood, storm, earthquake, land subsidence, gradual earth movement, or landslide.*
- e) Seismic work on highways and bridges pursuant to Section 180.2 of the Streets and Highways Code, Section 180 et Seq.*

If an emergency occurs within a wetland or tidal slough channel, this would be considered under the jurisdiction of the U.S. Army Corps of Engineers (USACE), which defines an emergency separately from CEQA and states:

An emergency situation is present where there is a clear, sudden, unexpected, and imminent threat to life or property demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property or

essential public services (i.e., a situation that could potentially result in an unacceptable hazard to life or a significant loss of property if corrective action requiring a permit is not undertaken immediately).

Emergency actions / repairs shall be implemented on an as-needed basis using the best judgement of the property owners. If repair of maintenance activities are needed in response to an emergency or to avoid an emergency, regulatory agencies should be contacted as soon possible for emergency permit authorization steps.

5. Reporting and Documentation

Reporting and documentation for each of the three types of post-construction monitoring is summarized below.

5.1.1 NRCS WRE Performance

For areas under easement, outcomes from performance monitoring will be documented by NRCS in accordance with the Annual Monitoring Worksheet (form NRCS-CPA-1251). Reporting associated with performance monitoring will be shared with property owners and any other party identified in the specific funding agreement, if any.

5.1.2 Non-regulatory Performance

Non-regulatory performance monitoring will be conducted on a voluntary basis for up to five years following construction, or as funding is available. If monitoring occurs, a monitoring report would be developed annually when data is collected and would include monitoring data from the pertinent categories mentioned above. It would be made available to funders, regulatory agencies and/or other entities as requested.

Regulatory monitoring, i.e. monitoring that is required by permits, will be conducted in accordance with Project permits and is anticipated to be required annually for five years.

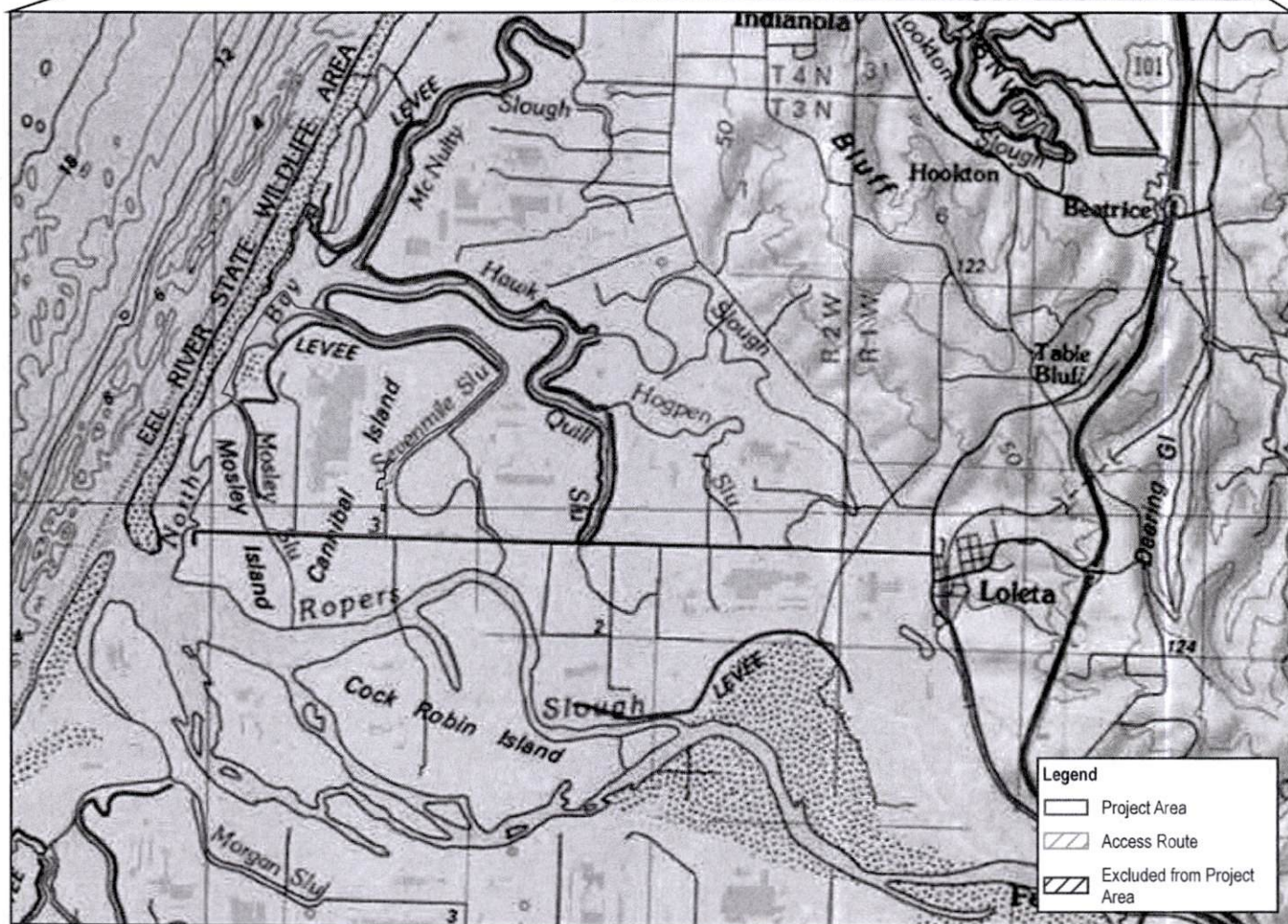
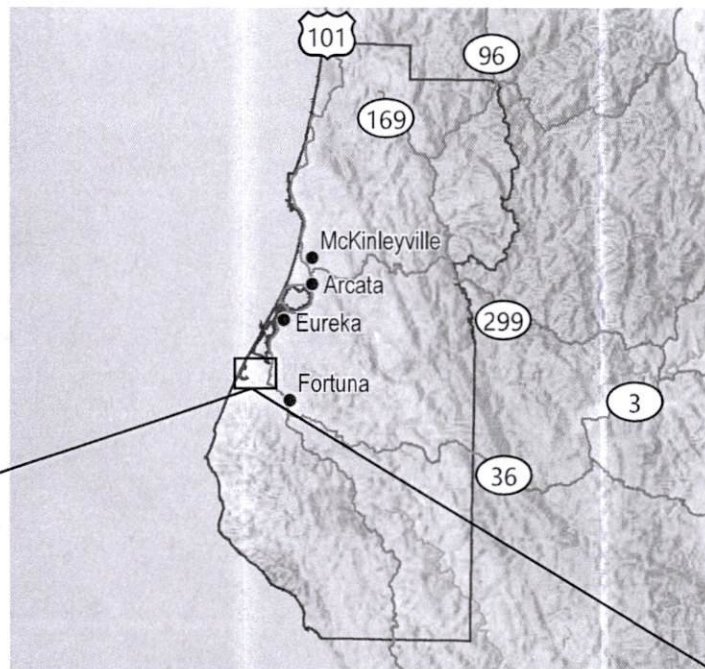
5.1.3 Maintenance

CDFW will carry out maintenance activities that are typical of and consistent with CDFW Wildlife Area maintenance plans. Significant maintenance actions, i.e., maintenance activities that differ from typical CDFW Wildlife Area maintenance activities, would be annually documented by CDFW. If significant maintenance activities are performed, documentation will include pre- and post-maintenance photographs with captions, identification of maintenance action location(s), and a description of the maintenance action taken, referencing potential maintenance actions included in **Appendix C, Table C-1**. Reporting will include documentation of conformity with criteria in **Appendix C, Table C-1**, including work window, work duration, description of equipment and methods, materials used, and avoidance measures implemented. Documentation of significant maintenance activities will be retained by CDFW for record keeping and shared with jurisdictional agencies to the extent required under Project permits.

Appendices

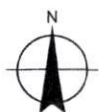
Appendix A

Figures



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Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



CalTrout
Cannibal Island Restoration Project

Project No. 11206383
Revision No. -
Date 21 Nov 2022

Vicinity Map

FIGURE 1



Paper Size ANSI A
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 Map Projection: Lambert Conformal Conic
 Horizontal Datum: North American 1983
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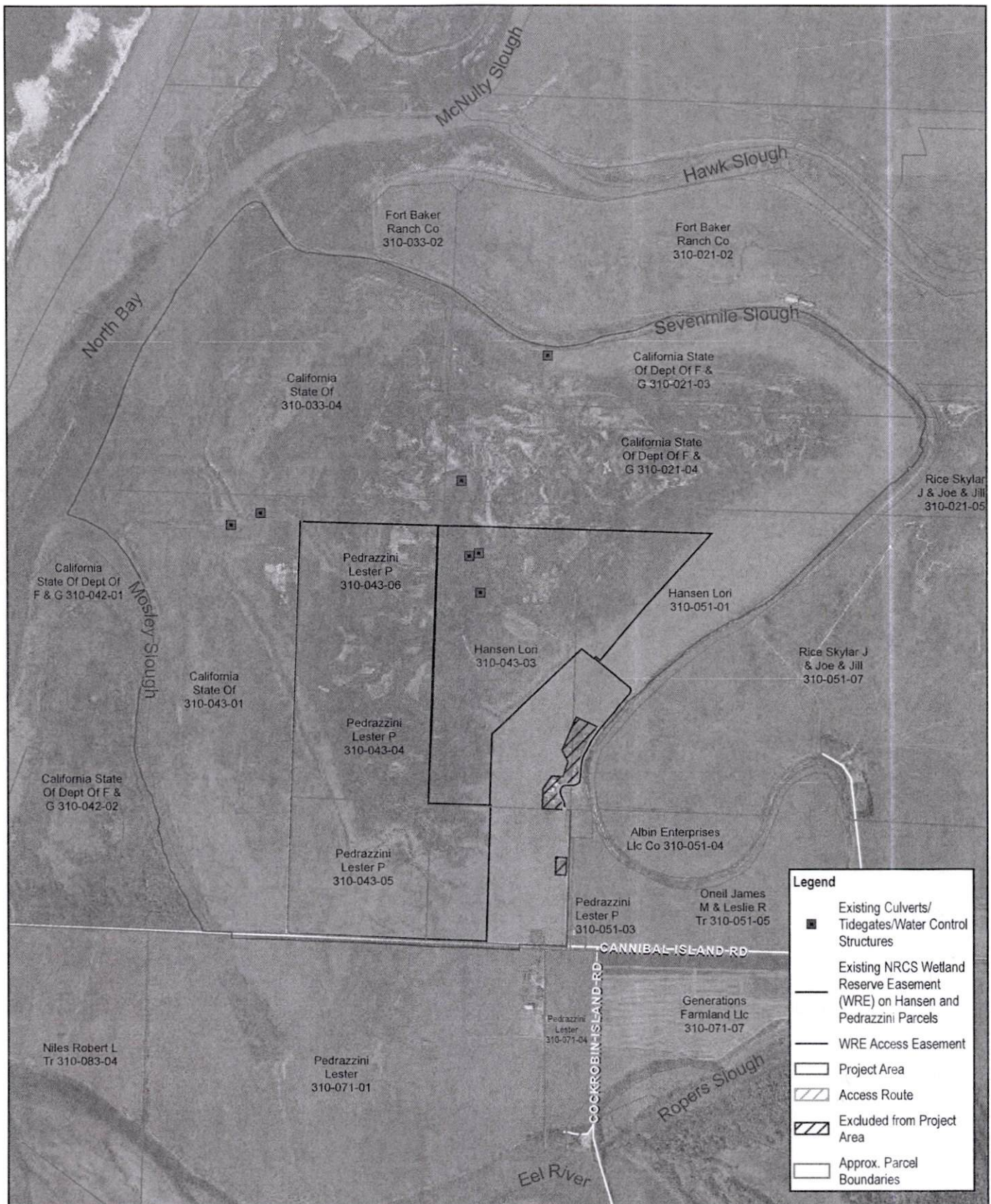


CalTrout
 Cannibal Island Restoration Project

Project No. 11206383
 Revision No. -
 Date Nov 2022

Project Area

FIGURE 2



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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

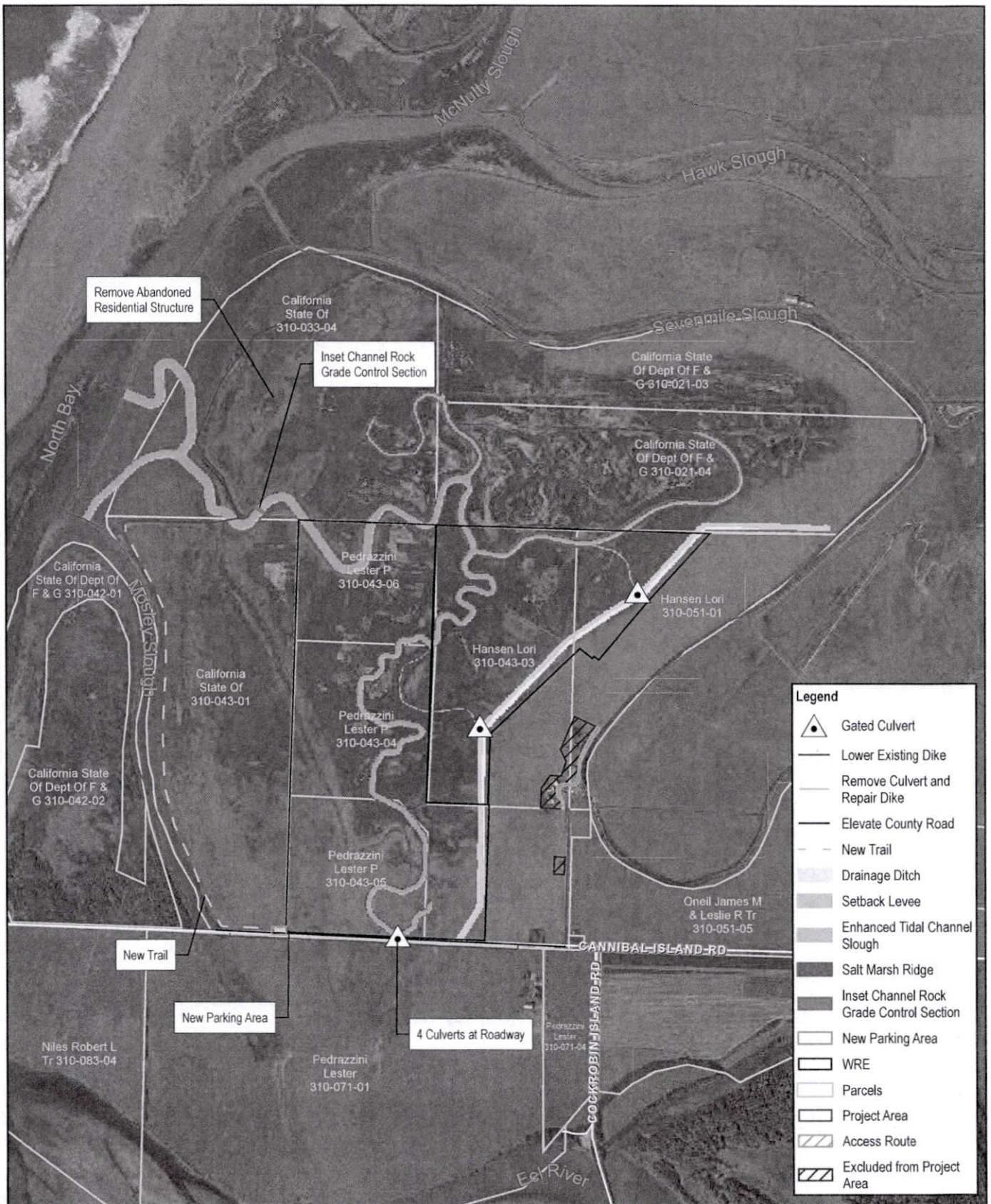


CalTrout
Cannibal Island Restoration Project

Project No. 11206383
Revision No. -
Date Nov 2022

Ownership Boundaries

FIGURE 3



Paper Size ANSI A
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Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet



CalTrout
Cannibal Island Restoration Project

Project No. 11206383
Revision No. -
Date Aug 2023

Project Area and Components

FIGURE 4

Appendix B

**Programmatic Biological Opinion (PBO)
and State Restoration General Order
(SRGO) Avoidance and Minimization
Measures**



Avoidance and Minimization Measures for Coverage by USFWS and NMFS PBO

Avoidance and Minimization Measures for Coverage by USFWS and NMFS PBO

California Trout

4 October 2023



Avoidance and Minimization Measures

Cannibal Island Restoration Project

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1. Introduction

The Cannibal Island Restoration Project (hereafter "Project") will be implemented under Endangered Species Act (ESA) Section 7 coverage Programmatic Biological Opinions (PBOs) for listed fish species. This memorandum includes minimization measures required within the PBOs administered by 1) the National Oceanic and Atmospheric Administration Restoration Center (NOAA RC) and U.S. Army USACE of Engineers (USACE) for covered salmonids and green sturgeon (NMFS 2022), and 2) the United States Fish and Wildlife Service (USFWS) for Tidewater Goby (USFWS 2022).

2. Reporting

The applicant (California Trout) is responsible for conducting all applicable Project monitoring and reporting requirements prior to, during, and after Project construction (e.g., revegetation monitoring, species rescue, and relocation reporting). Separate reporting procedures are required by the NOAA RC and USACE for covered salmonids, and the USFWS for Tidewater Goby.

2.1.1 NOAA Reporting

By April 1 of the year following completion of construction of a Project, the applicant will submit a completion report (RC Arcata Office Programmatic Biological Opinion Post-Project Monitoring Form) to the NOAA RC and the USACE that includes Project as-built plans, and photo documentation of pre-Project conditions and post-construction conditions (taken immediately after Project construction). For Projects including fish relocation, the report will also include all fisheries data collected by a qualified fisheries biologist, including the number of listed salmonids killed or injured during the proposed action, the number and age class of listed salmonids captured and removed, and any effects of the proposed action on listed salmonids not previously considered.

2.1.2 USFWS Reporting

The applicant must submit to the applicable USFWS Field Office and Lead Action Agency their Project specific Post-Construction Report Form (Appendix B in USFWS PBO; USFWS 2022). Applicants will provide the information requested in the Post-Construction Report Form to the respective USFWS Field Office (and copy the Action Agency) by December 1. If there is ongoing revegetation or species monitoring beyond the report due date, a report will be provided annually on December 1 until success criteria have been met or monitoring has ceased. Per General Protection Measure (GPM): Vegetation/Habitat Disturbance and Revegetation (VHDR-5), Revegetation Monitoring and Reporting, the standard for revegetation success (within the Action Area) is 60 percent (%) absolute cover compared to pre-Project conditions at the Project site or at least 60% cover compared to an intact, local reference site. If an appropriate reference site or pre-Project conditions cannot be identified, success criteria will be developed for review and approval on a Project-by-Project basis, based on the specific habitat impacted and known recovery times for that habitat and geography.

The Project is expected to be self-maintaining post-construction, and proposes not to conduct vegetation monitoring as a condition of permit agreements. The Project will conduct pre- and post-construction photo monitoring.

2.2 Incidental Take

2.2.1 USFWS Incidental Take Protocols

The applicant will use the Endangered Species Act (ESA) Section 7(a)(2) Review Form (Appendix A in the USFWS PBO; USFWS 2022) to document metrics needed to calculate estimated incidental take so the USFWS Field Office can identify the incidental take expected from the Project and enter that estimate into a USFWS maintained internal tracking tool. The applicant will report all injury or mortality of listed species to the USFWS Field Office within 48 hours.

The Post-Construction Report Form will be used to document actual incidental take from the Project. No more than 10% of all Tidewater Goby individuals captured and relocated may be injured or killed per Project.

Upon locating a dead, injured, or sick endangered or threatened species specimen, this must be reported to the USFWS Resident Agent in Charge (Sacramento 916-569-8444 or Los Angeles 310-328-1516), and prompt notification must be made to the nearest USFWS Field Office. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed. The

USFWS is to be notified in writing within 48 hours of the accidental death of, or injury to, a threatened or endangered species, or of the finding of any dead or injured specimen during implementation of the proposed action. Notification must include the date, time, and location (including GPS location information in UTM, NAD 83) of the incident or discovery, as well as any pertinent information on circumstances surrounding the incident or discovery. Care should be taken in handling sick or injured specimens to ensure effective treatment and care, or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered or threatened species or preservation of biological materials, the finder has the responsibility to carry out instructions provided by USFWS Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

2.2.2 NOAA Incidental Take Protocols

To be exempt from the prohibitions of the ESA, the Federal action agency must ensure that any applicant complies with the following terms and conditions:

1. Minimize the amount or extent of incidental take of listed salmonids resulting from field activities in support of the Program.
2. NOAA RC shall contact NMFS within 48 hours if injuries or mortality at any restoration Project or monitoring site on any given day exceed three percent of the number of captured fish for any listed species. Fish capture and/or relocation will cease at the Project site until NMFS is contacted. NMFS will review the activities resulting in take and determine if modified methods or additional protective measures are required before fish handling at the site may resume.

3. Project Summary

The Cannibal Island Restoration Project (Project) is approximately 795.2 acres of agricultural bottoms and tidal saltmarsh in the Eel River Delta, 3 miles west of the town of Loleta, Humboldt County, CA. The Project Area is at the western-most extent of the Eel River delta and estuary approximately one mile inland and northeast of the Eel River mouth. The Project is within the Cannibal Island U.S. Geological Survey (USGS) 7.5-minute quadrangle, bounded by Cannibal Island Road to the south, the North Bay of the Eel River Delta and Mosley Slough to the west, and Sevenmile Slough to the north and northeast.

The northern and western portion of the Project Area (approximately 462 acres) is owned by CDFW and managed as part of the Eel River Wildlife Area (ERWA) Cannibal Island Unit (APNs 310-043-001, 310-033-004, and 310-021-003, 310-021-004). The remaining 332 acres are privately owned by Hansen (APNs 310-043-003 and 310-051-001) and Pedrazzini (APNs 310-043-004, -005, -006). Approximately 220 acres of the private property are held in Wetland Conservation Easements by the Natural Resources Conservation Service (NRCS) Wetlands Reserve Easement Program (WRP).

The Project will restore a landscape of mostly diked agricultural land to a mosaic of pasture and natural habitats, including estuarine and tidal slough channels, brackish ponds, freshwater ponds, and agricultural pastures. Restoration of the natural tidal inundation range and hydraulics as well as fluvial and tidal sediment deposition to

restore wetland functions is critical to achieve Project objectives. Increased tidal exchange and connectivity between historical tidal wetland areas and North Bay will support broader native plant, fish, wildlife, and benthic infauna diversity within estuarine and freshwater marsh habitats, and in wetland-ecotones. Improvement of tidal channel networks will accommodate physical processes such as sediment transport and marsh plain sediment accretion. The Project will enhance and reconnect full tidal exchange to approximately 500 acres of former tidal marsh habitat and construct inter-tidal lagoons with tidal marsh features.

Construction activities will include the removal of outdated water control structures, excavation of slough channels to accelerate the formation of high-quality aquatic habitat for listed fish species, and placement of excavated fill in appropriate locations to mimic natural marsh topography (natural levees and hummocks or tidal marsh ridges) and enhance wetland vegetation diversity through removal of invasive dense-flowered cordgrass. Excavated soils from the channels would be placed in low hummocks approximately 2-feet high adjacent to the channels. These hummocks are anticipated to retain wetland parameters as they will not exceed marsh plain elevation and would not constitute conversion to uplands. Placement of ¼ ton rock will occur along a section of channel to provide inset channel grade control to manage the tidal prism. This grade control is anticipated to be beneficial to manage tidal prism until the site elevations increase to be representative of a system with full tidal amplitude, which is expected to occur over 10-20 years. The rock would be placed over a 20-foot-long section where a former road crossing is located and failing culvert is proposed for removal. This area is a suitable location for the inset channel grade control because it likely already contains compacted sediment (from previous infrastructure), and will be disturbed via the road crossing and culvert removal anyway. Much of the existing dike network within the Project Area would be reconfigured or removed. A new setback levee will be constructed to protect agricultural land from tidal inundation as full amplitude is restored, including one newly constructed set-back levee in the eastern portion of the Project Area, and raising of Cannibal Island Road in the southern portion of the Project Area. Sediment excavated during construction would be beneficially reused within the Project Area and would not be hauled off-site. The Project would result in enhanced tidal channels and salt marsh, and full tidal range restoration is expected to promote recovery and maintenance of tidal marsh habitats that support a variety of native fish, invertebrates, wildlife, and plant species.

See Project Description in application attachments for a detailed description of Project activities and accompanying figures.

4. Summary of Construction Activities for Project

The following are general details of the proposed Project's construction, operation, and maintenance activities.

Construction Timing:

Project construction will be phased into one to two construction seasons based on available funding, site conditions, and sequencing for earthwork with construction water management and County Road construction. Under the PBOs, the general construction season will be from June 15 to November 1. Restoration, construction, fish relocation, and dewatering activities within any wetted and/or flowing creek channel shall only occur within this period. Extensions to this work season can be granted if: 1. There is less than a 50% chance of 1.5 inches of rain predicted over any 24-hour period during the granted time extension, and 2. The RC determines, and National Marine Fisheries Service (NMFS) confirms, that an extension will not result in effects that go beyond those analysed during the ESA consultation on the Program, either in type or magnitude. Construction will be limited to daylight hours absent prior approval from NMFS RC and USFWS.

Construction Materials:

Multiple sediment reuse areas coupled with the extent of Project excavation are anticipated to necessitate multiple staging areas within the Project footprint.

Equipment Types anticipated for Project construction include:

- Excavators (Conventional and/or Amphibious)
- Scrapers
- Dozers

Loaders
Dump Trucks
Small Tractors
Compactors
Graders
Water Trucks
Pumps

Site Access & Staging:

A temporary construction entrance shall be placed at the intersection of the Cannibal Island County Road and Senestraro Lane. Cannibal Island Road is a two-lane paved County road. Senestraro Lane is a single lane dirt road extending north from Cannibal Island Road and located on CDFW property. Plans include a public access parking lot near this intersection which will be used for construction staging. The CDFW access road (Senestraro Lane) will be the primary entrance and exit for construction activities within the site. Another temporary construction entrance will be placed at the intersection of Cannibal Island Road and the Hansen/Pedrazzini private driveway to provide a route along the eastern boundary of the Hansen residence and follow the perimeter dike to and past Sevenmile Slough as needed to access the eastern and northern portion of the site. Construction equipment and materials will be transported to the work areas via these ingress and egress locations.

Construction Activities:

The proposed Project will enhance (widen and deepen) existing tidal slough channels within the limits of Project disturbance. In addition to the slough channel work, various culverts will be removed within the Project boundaries. During excavation, management of surface water will be required through the construction period. Surface water management will be required to reduce nuisance water within the active work area. Inflow management will also reduce the moisture content in excavated soils and prevent aquatic and non-aquatic organisms from entering the construction area. Cofferdams will be used to isolate instream work areas that will be dewatered.

Constructed Facilities (Natural and Artificial Infrastructure) and Operations and Maintenance to those Facilities:

Ongoing management and maintenance activities may be necessary to assure the long-term hydraulic and ecological functions of the Project. The following maintenance actions are anticipated after the Project is constructed:

- Setback Levee
 - Observations of physical character (annually and following extreme storms)
 - Mowing to discourage growth of woody vegetation and invasives species (annually)
 - Repair from erosion or burrowing animal damage (as needed)
- Grading and/or resurfacing portions of the access roads (as needed)
- Cleaning debris and sediment from channels, drainage ditches and tide gates (as needed annually and following extreme storms)
- Removing invasive vegetation and re-planting native species (as needed)

5. Avoidance and Minimization Measures

General avoidance and minimization measures from the USFWS PBO (USFWS 2022) and NOAA PBO (NMFS 2022) are presented first, followed by measures focused on water quality and general measures for all covered species. Additionally, vegetation and habitat avoidance and minimization measures are detailed.

There is overlap between the language and intent of the general measures included in both PBOs, and all measures detailed below will be implemented and satisfy requirements for coverage by both the USFWS and NOAA PBOs.

Measures listed in the USFWS PBO are distinguished in this document by "USFWS" listed before the measure (e.g., "USFWS GPM-1"), and measures from the NOAA PBO are distinguished similarly by "NOAA" listed before the measure.

A separate Dewatering and Fish Relocation Plan (GHD 2023, included as separate attachment in application package) has been developed to detail protection measures implemented for the Project in relation to dewatering activities and species-specific handling and relocation protection measures.

5.1 General Measures

A number of conservation measures have been incorporated into the proposed action. The purpose of conservation measures is to incorporate design refinements and best practices into the proposed action to avoid and/or minimize potential effects. The rationale behind including these commitments is that the Program's Project applicant(s) will undertake and implement the applicable and necessary measures below as part of any proposed Project. Although these best practices are required for restoration Projects authorized under the Program, specific measures may be altered, added, or removed on an individual Project basis with the approval of the NOAA RC and USACE, in coordination with NMFS West Coast Region, or with approval by the USFWS Field Office (as applicable). The following GPM are consistent across both NMFS PBO (NMFS 2022) and USFWS PBO (USFWS 2022).

USFWS GPM-1: Receipt and Copies of All Permits and Authorizations

Work will not begin until all necessary permits and authorizations have been issued (e.g., USACE, USFWS, NMFS, State and/or Regional Boards, or California Department of Fish and Wildlife [CDFW]). The applicant will ensure that a readily available copy of the applicable agency permits and authorizations (e.g., USFWS PBO, NMFS PBO, or Section 404 permit) is maintained by the construction foreperson/manager on the Project site for the duration of Project activities.

Notification to NOAA RC

Work shall not begin until: (a) the USACE and/or NOAA RC has notified the applicant that NMFS has not objected to incorporating the Project into the Program (i.e., the requirements of the ESA have been satisfied), and (b) all other necessary permits and authorizations are finalized.

USFWS GPM-2 & GPM-3: Construction Work Windows & Construction Hours

Construction work windows may be required, depending on whether the Project involves in-water construction and/or whether Covered Species have the potential to occur in the Project area. Covered Species work windows are provided in Section 2.1.5.3, *Guild- and Species-Specific Protection Measures*.

Construction activities will generally be limited to daylight hours, to the extent practicable. If nighttime construction is necessary, including in tidally influenced waters where tides may limit daylight access and work schedules, all Project lighting (e.g., staging areas, equipment storage sites, roadway, and construction footprint) will be selectively placed and directed onto the roadway or construction site and away from sensitive habitats. Light glare shields will be used to reduce the extent of illumination into sensitive habitats. If the work area is near surface waters, the lighting will be shielded so that it does not shine directly into the water.

USFWS GPM-6: Work Area and Speed Limits

Construction work and materials staging will be restricted to the smallest area practicable in designated work areas, routes, staging areas, temporary interior roads, or the limits of existing roadways.

Prior to initiating construction or grading activities, brightly colored fencing or flagging or other practical means will be erected to demarcate the limits of the Project activities, including the boundaries of designated staging areas; ingress and egress corridors; stockpile areas for spoils disposal, soil, and materials; and equipment exclusion zones. Flagging or fencing will be maintained in good repair for the duration of Project activities.

Posted speed limits on public roadways will be adhered to and speeds will be limited to 20 miles per hour (mph) in the Project area on unpaved surfaces and unpaved roads (to reduce dust and soil erosion), or in areas where Covered Species have the potential to occur. Speeds greater than 20 mph may be permitted in the Project area where Covered Species are not expected to occur (e.g., in areas where Covered Species have been excluded) and there is no risk of

generating excessive dust (e.g., surfaces are paved, saturated, or have been treated with other measures to prevent dust).

USFWS GPM-8: Prevent Spread of Invasive Species

The spread or introduction of nonnative, invasive plant and animal species will be avoided. When practicable, nonnative invasive plants in the Project areas will be removed and properly disposed of in a manner that will not promote their spread. Equipment will be cleaned of any sediment or vegetation at designated wash stations before entering or leaving the Project area, to avoid spreading pathogens or nonnative invasive species. Activities that create new habitat for nonnative invasive species will be avoided. Isolated infestations of nonnative invasive species identified in the Project area will be treated with weed management methods at an appropriate time, to prevent further formation of seed and destroy viable plant parts and seed. Wash sites must be in confined areas that limit runoff to any surrounding habitat, and on a flat grade. Upland areas will use rice straw or invasive species-free local slash/mulch for erosion control; the remainder of the Project area will use certified, weed-free erosion control materials. Mulch must be certified weed-free. Construction supervisors and managers will be educated on weed identification and the importance of controlling and preventing the spread of invasive weeds.

Guidelines within the Aquatic Invasive Species Disinfection/Decontamination Protocols (CDFW 2016) include:

- If decontamination is not done on site, transport contaminated equipment in sealed plastic bags and keep separate from clean gear.
- Gear may be dedicated for a specific field site but should be left on site and be cleaned when moved off site.
- Sets of field gear may be rotated in and out of field per cleaning cycle.
- When practical, begin work upstream and work downstream. This avoids transporting aquatic invasive species to non-infested upstream areas.

Disinfectant methods include:

- Place used gear in a freezer, thawing, immersing gear in saltwater solution for 10 minutes, rinsing, and hanging to dry.
- Submerge gear within a quat solution for at least 10 minutes and rinse.

USFWS GPM-9: Practices to Prevent Pathogen Contamination

The applicant will review and implement restoration design considerations and best management practices (BMPs) to help prevent pathogen contamination, as published by the "Working Group for Phytophthoras in Native Habitats" (www.calphytos.org), when there is a risk of introduction and spread of plant pathogens in site plantings. The applicant will review and implement decontamination protocols to prevent the spread of pathogens among amphibians or other aquatic animals when working in aquatic habitats that may support native amphibians. Gear and equipment that may contact water will be cleaned and decontaminated to prevent the spread of chytrid fungus.

USFWS GPM-10: Equipment Maintenance and Materials Storage

Vehicle traffic will be confined to existing roads and the proposed access route(s). All machinery must be in good working condition, showing no signs of fuel or oil leaks. Oil, grease, or other fluids will be washed off at designated wash stations prior to entering the construction site. Inspection and evaluation for the potential for fluid leakage will be performed daily during construction. All fuel and chemical storage, servicing, and refueling will be done in an upland staging area or other suitable location (e.g., barges) with secondary containment to prevent spills from traveling to surface water or drains. The applicant will establish staging areas for equipment storage and maintenance, construction materials, fuels, lubricants, solvents, and other possible contaminants in coordination with resource agencies. Staging areas will have a stabilized entrance and exit and will be at least 100 feet from waterbodies, unless site-specific circumstances do not provide such a setback; in such cases, the maximum setback possible will be used. Fluids will be stored in appropriate containers with covers and will be properly recycled or disposed of off-site. Machinery stored on site will have pans or absorbent mats placed underneath potential leak areas.

Construction equipment such as portable equipment, vehicles, and supplies, including chemicals, shall be stored at designated construction staging areas or on barges, exclusive of any riparian or wetland areas. Any equipment that may leak shall be stored over impermeable surfaces, if available, and drip pans (or any other type of impermeable

containment measure) will be placed under parked machinery and checked and replaced, when necessary, to prevent drips and leaks from entering the environment.

USFWS WQHM-2: Storm Water Pollution Prevention Plan, & WQHM-3: Erosion Control

The contractor/applicant to the Program shall inspect, maintain, and repair all erosion control materials and devices prior to and after any storm event, at 24-hour intervals during extended storm events, and a minimum of every two weeks until all erosion control measures are no longer needed.

Immediately after Project completion and before the close of the seasonal work window, all exposed soil shall be stabilized with erosion control measures such as mulch, seeding, and/or placement of erosion control blankets. Where straw, mulch, or slash is used on bare mineral soil, the minimum coverage shall be 95 percent with two-inch minimum depth.

All Projects that are required to obtain coverage under the National Pollutant Discharge Elimination system (NPDES) General Order for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Order) will prepare and implement a site-specific storm water pollution prevention plan (SWPPP), as required by the Construction General Order.

For Projects that do not require coverage under an NPDES permit, the Project Proponent will include appropriate BMPs, and a rain even action plan if seasonal rain during the construction period might occur, to reduce the potential release of water quality pollutants to receiving waters. BMPs may include the following measures:

- Install erosion control measures, such as straw bales, silt fences, fiber rolls, or equally effective measures, at riparian areas adjacent to stream channels, drainage canals, and wetlands, as needed. Erosion control measures will be monitored during and after each storm event for effectiveness. Modifications, repairs, and improvements to erosion control measures will be made as needed to protect water quality.
- Erosion control products that include synthetic or plastic monofilament or cross-joints in the netting that are bound/stitched (e.g., straw wattles, fiber rolls, or erosion control blankets) and could trap snakes, amphibians, and other wildlife will not be used.

USFWS GPM-11: Material Disposal

All refuse, debris, unused materials, and supplies that cannot reasonably be secured will be removed daily from the Project work area and deposited at an appropriate disposal or storage site. All construction debris will be removed from the work area immediately on Project completion.

USFWS GPM-12: Fugitive Dust Reduction

To reduce dust, construction vehicles will be speed-restricted to 20 mph when traveling on nonpaved surfaces. Stockpiled materials susceptible to wind-blown dispersal will be covered with plastic sheeting or other suitable material to prevent movement of the material. During construction, water (e.g., trucks, and portable pumps with hoses) or other approved methods will be used to control fugitive dust. Dust suppression activities must not result in a discharge to waterbodies.

USFWS GPM-13: Trash Removed Daily

During Project activities all trash, especially food-related refuse that may attract potential predators or scavengers, will be properly contained in sealed containers, removed from the work site, and disposed of daily.

USFWS GPM-14: Project Cleanup after Completion

Work pads, temporary falsework, and other construction items will be removed from the 100-year floodplain by the end of the construction window. Removal of materials must not result in discharge to waterbodies.

USFWS GPM-15: Revegetate Disturbed Areas

All temporarily disturbed areas will be decompacted and seeded/planted with an assemblage of native riparian, wetland, and/or upland plant species suitable for the area. The applicant will develop a revegetation plan. Plants for revegetation will come primarily from active seeding and planting, or from natural recruitment where applicable. Plants imported to the restoration areas will come from local stock. Only native plants (genera) will be used for restoration

efforts. Certified weed-free native mixes and mulch will be used for any restoration planting or seeding. Revegetation activities in and adjacent to waterbodies and other aquatic habitat suitable for Covered Species will commence after construction activities at a site are complete.

5.2 In-Water and Water Quality Measures

USFWS WQHM-1: Staging Areas and Stockpiling of Materials and Equipment

Staging, storage, and stockpile areas must be outside of habitat suitable for Covered Species unless necessary for Project implementation and approved by the Action Agency and the USFWS Field Office. Where feasible, staging will occur on access roads or other previously disturbed upland areas, such as developed areas, paved areas, parking lots, areas with bare ground or gravel, and areas clear of vegetation, to avoid sensitive habitats and limit disturbance to surrounding habitats. Similarly, all maintenance equipment and materials (e.g., road rock and Project spoil) will be restricted to the existing service roads, paved roads, or other determined designated staging areas. See GPM-10, Equipment Maintenance and Materials Storage, for more details regarding protection measures for materials storage. Staging areas will be established for equipment storage and maintenance, construction materials, fuels, lubricants, solvents, and other possible contaminants. Staging areas will have a stabilized entrance and exit and will be at least 100 feet from bodies of water, unless site-specific circumstances do not provide such a setback; in such cases, the maximum setback possible will be used. See also IWW-2, In-Water Vehicle Selection and Work Access; and IWW-4, In-Water Staging Areas, and Use of Barges. If an off-road staging area is chosen and if Covered Species are potentially present, the Qualified Biologist will survey the selected site to verify that no sensitive resources would be disturbed by staging activities.

Stockpiling of materials, portable equipment, vehicles, and supplies (e.g., chemicals), will be restricted to the designated construction staging areas. If rain is predicted in the forecast during the dry season, and stockpiled soils will remain exposed and unworked for more than 7 days, then erosion and sediment control measures must be used. If there is a high-wind scenario, then soil will be covered at all times. During the wet season, no stockpiled soils will remain exposed, unless properly installed and maintained erosion controls are in place on and around the stockpile. Temporary stockpiling of material onsite will be minimized. Stockpiled material will be placed in upland areas far enough away from Covered Species habitat that these materials cannot discharge to waters of the United States. Additional species-specific erosion control measures may also be necessary because of the potential for listed species at the Project site. More detail is provided in Section 2.1.5.3, Guild and Species-Specific Protection Measures.

NOAA Materials In or Near Water

All materials placed in or over streams, rivers or other waters shall be nontoxic. Any combination of wood, plastic, cured concrete, steel pilings, or other materials used for in-channel structures shall not contain coatings or treatments or consist of substances toxic (e.g., copper, other metals, or pesticides, petroleum-based products, etc.) to aquatic organisms that may leach into the surrounding environment in amounts harmful to aquatic organisms.

NOAA Water Filtration

Water containing mud or silt from construction activities shall be treated by filtration or retention in a settling pond to avoid draining sediment-laden water back to the stream channel. Alternatively, an infiltration area may be created and used within the regular Project footprint or in upland areas if the soil composition of the area adequately supports infiltration back into the system.

USFWS WQHM-4: Hazardous Materials Management and Spill Response

As part of the Stormwater Pollution Prevention Plan (SWPPP) or Project Specific Water Pollution Control Plan, the applicant will prepare and implement a hazardous materials management and spill response plan. The applicant will ensure that any hazardous materials are stored at the staging area(s) with an impermeable membrane between the ground and hazardous material, and that the staging area is designed to prevent the discharge of pollutants to groundwater and runoff water. The applicant will use and store hazardous materials, such as vehicle fuels and lubricants, in designated staging areas away from stream channels and wetlands, unless otherwise approved in the ESA Section 7(a)(2) Review Form, according to local, state, and federal regulations. The applicant will notify

regulatory agencies within 24 hours of any leaks or spills and will properly contain and dispose of any unused or leftover hazardous products off site.

USFWS IWW-1: Appropriate In-Water Materials

Selection and use of gravels, cobble, boulders, and instream woody materials in streams, and other materials (e.g., oyster shells, other substrates) for reef/bed restoration will be performed to avoid and/or minimize adverse impacts to aquatic Covered Species and their habitats. On-site gravels will be screened and sorted; Gravels imported from a commercial source will be clean-washed and of appropriate size. As necessary to protect Covered Species, placement will be overseen by a Qualified Biologist; implementation timing will be determined based on the least amount of overlap (or impact on) all sensitive biological resources that may be affected, and the timing of their use of the receiving area. Imported gravel from outside the Project watershed will not be from a source known to contain historical hydraulic gold mine tailings, dredger tailings, or mercury mine waste or tailings. Materials that may foul or degrade spawning gravels (e.g., sand or soil eroding from sandbag or earthen dams) will be managed to avoid release and exposure in salmonid streams. Oyster shells or other substrates for reef/bed restoration will be cured and inspected to be free of pathogens and/or nonnative species.

USFWS IWW-2: In-Water Vehicle Selection and Work Access

If work requires that equipment enter wetlands or below the banks of a Water of the US, equipment with low ground pressure will be used to minimize soil compaction. Low-ground-pressure heavy equipment mats will be used, if needed, to lessen soil compaction. Hydraulic fluids in mechanical equipment working in the waters of the United States or any other aquatic habitat suitable for Covered Species will not contain organophosphate esters. The amount of time this equipment is stationed, working, or traveling in the waters of the United States or other aquatic habitat suitable for Covered Species will be minimized. All equipment will be removed from the aquatic feature within the Action Area during nonwork hours or returned to the staging area.

USFWS IWW-3: In-Water Placement of Materials, Structures, and Operation of Equipment

Material used for bank stabilization or in-water restoration will minimize discharge sediment or other forms of waste to waters of the United States or other aquatic habitat suitable for Covered Species. Construction will occur from the top of the stream bank, on a ground protection mat underlain with filter fabric, or a barge. All materials placed in streams, rivers, or other waters will be nontoxic. Any combination of wood, plastic, cured concrete, steel pilings, or other materials used for in-channel structures will not contain coatings or treatments, or consist of substances toxic to aquatic organisms (e.g., zinc, arsenic, creosote, copper, other metals, pesticides, or petroleum-based products) that may leach into the surrounding environment in amounts harmful to aquatic organisms. Except for the following conditions, equipment must not be operated in standing or flowing waters without site-specific approval from the USFWS Field Office:

- All construction activities must be effectively isolated from water flows, to minimize the potential for runoff. This may be accomplished by working in the dry season or dewatering the work area in the wet season.
- When work in standing or flowing water is required, structures for isolating the in-water work area and/or diverting the water flow must not be removed until all disturbed areas are cleaned and stabilized. The diverted water flow must not be contaminated by construction activities.
- All open-flow temporary diversion channels must be lined with filter fabric or other appropriate liner material to prevent erosion. Structures used to isolate the in-water work area and/or divert the water flow (e.g., cofferdam or geotextile silt curtain) must not be removed until all disturbed areas are stabilized.

5.3 All Species Measures

USFWS ASP-2: Preconstruction Surveys for Tidewater Goby

A Qualified Biologist will conduct visual preconstruction surveys and implement additional protection measures within 5 days prior to beginning work to protect the species and habitat from avoidable construction-related disturbance. The intent of the survey is to assess current species habitat and species use locations in the Project area immediately prior

to construction. The preconstruction survey is not intended to be a presence/absence or protocol-level survey; the potential for species presence would have already been evaluated prior to Project approval. Pre-construction surveys may be phased across a construction site if construction in different areas will occur at different times; only areas where disturbance is imminent need to be surveyed. If construction activities at a given location cease for more than 5 consecutive days, and there is potential for Covered Species to reoccupy habitat at that site, the Qualified Biologist will resurvey the Project area prior to resuming construction and implement applicable protection measures.

USFWS GPM-4: Environmental Awareness Training

For Projects occurring where Covered Species are likely to be present, prior to engaging existing or new personnel in construction activities, new construction personnel will participate in environmental awareness training conducted by a Qualified Biologist. Construction personnel will be informed regarding the identification, potential presence, habitat requirements, legal protections, avoidance and minimization measures, and applicable protection measures for Covered Species with the potential to occur in or immediately adjacent to the Project site. Construction personnel will be informed of the procedures to follow should a Covered Species be encountered during construction activities. For Projects where the Qualified Biologist is not regularly on the Project site, training may be provided in an online/virtual meeting. For Projects that may continue over an extended duration and require excessive training events, a training video developed under the supervision of the Qualified Biologist may be used to train new personnel, as long as a Qualified Biologist is available by phone to answer questions about the training or to answer questions that may arise during construction.

USFWS GPM-5: Environmental Monitoring

Where appropriate and based on Project-specific requirements, a Qualified Biologist(s) will perform site clearance at the beginning of each day and will monitor construction activities throughout the day in, or immediately adjacent to, sensitive resources and/or Covered Species habitat (including critical habitat as applicable), as necessary. The Qualified Biologist will confirm that all applicable protection measures are implemented during Project construction. The Qualified Biologist will have the authority to stop any work if they determine that any permit requirement is not fully implemented or if it is necessary to protect Covered Species. The Qualified Biologist will prepare and maintain a biological monitoring log of construction site conditions and observations, which will be kept on file.

USFWS ASP-3: Species Capture, Handling, and Translocation

Tidewater Goby capture, handling, and translocation will only be conducted by a USFWS-Approved Biologist(s). The applicant will prepare a Covered Species translocation plan to be reviewed and approved by the USFWS Field Office as part of the ESA Section 7(a)(2) Review Form. The plan will include capture and translocation methods, translocation site, and post translocation monitoring, if applicable.

USFWS Self-Imposed Annual Take Limits

No more than 10% of all Tidewater Goby individuals captured and relocated may be injured or killed per Project.

NOAA Salmonid Relocation

For salmonid relocations, the qualified biologist shall submit qualifications to the NOAA RC for approval prior to fish relocation activities.

5.4 Dewatering Activities and Fish Relocation Protection Measures

All dewatering, General Fish Protection Measures, and fish relocation measures from both the NOAA and USFWS PBOs are included in a separate document (Dewatering and Relocation Plan; GHD 2023). This document includes information on dewatering measures, cofferdam construction, limits on area of disturbance for stream dewatering, fish relocation measures, and biologist qualifications.

In addition to the General Fish Protection Measures, several GPMs, as applicable, are important to protect these species per USFWS and NOAA PBO guidance. These GPMs are outlined in this document and the Dewatering and

Relocation Plan, and include: GPM 2, Construction Work Windows; GPM 4, Environmental Awareness Training; GPM 5, Environmental Monitoring; ASP 1, Qualifications of the Qualified Biologist and USFWS-Approved Biologist; ASP 2, Preconstruction Surveys; ASP-3, Species Capture, Handling, and Translocation; WQHM 3, Erosion Control Plans; WQHM 4, Hazardous Materials Management and Spill Response Plan; IWW 1 through IWW 13 (In-Water Work, as applicable to the Project); VHDR 6 and VHDR 7 (for herbicide use); and VHDR 8 (for herbicide reporting).

5.5 Vegetation/Habitat Disturbance Protection Measures

The following protection measures apply to all Projects where vegetation/habitat disturbance occurs:

USFWS GPM-7: Environmentally Sensitive Areas and/or Wildlife Exclusion.

Where appropriate, fencing, flagging, or biological monitoring will be used to minimize disturbance to environmentally sensitive areas and Covered Species habitat. If the Project site is suitable for fencing, prior to the start of construction, environmentally sensitive area fencing (ESAF) and/or Wildlife Exclusion Fencing (WEF) will be installed between the active work area(s) and any suitable terrestrial habitat where Covered Species could enter the site. When fencing is not practicable due to Project size, topography, soils, or other factors, monitoring by a Qualified Biologist during construction activities can be used to minimize impacts (see GPM-5, Environmental Monitoring).

- The Qualified Biologist will determine the location of the ESAF and/or WEF prior to the start of construction.
- WEF specifications (e.g., height, installation requirement, or materials) will be determined based on the species the fencing is intended to exclude. ESAF does not require such specifications and may include flagging or monitoring (see GPM-5, Environmental Monitoring).
- The ESAF and/or WEF will remain in place throughout the duration of the construction activities and will be inspected and maintained regularly by the Qualified Biologist until completion of the Project. Repairs to the ESAF and/or WEF will be made within 24 hours of discovery. The fencing will be removed only when all construction equipment is removed from the site, the area is cleared of debris and trash, and the area is returned to natural conditions.

USFWS VHDR-1: Avoidance of Vegetation Disturbance

The applicant will minimize the amount of soil, terrestrial vegetation, emergent vegetation, and submerged vegetation (e.g., eelgrass and kelp in marine areas, or submerged aquatic vegetation in freshwater areas) disturbed during Project construction and completion by using methods creating the least disturbance to vegetation. Disturbed areas will be revegetated with plant species appropriate to the site. Existing native vegetation will be retained as practicable, emphasizing the retention of shade-producing and bank-stabilizing trees and brush with greater than 6-inch-diameter branches or trunks. Disturbance to existing grades and native vegetation, the number of access routes, the size of staging areas, and the total area disturbed by the Project will be limited to the extent of all temporary and permanent impacts, as defined by the final Project design. All roads, staging areas, and other facilities will be placed to avoid and limit disturbance to aquatic habitat suitable for Covered Species (e.g., streambank or stream channel, and riparian habitat). Existing ingress or egress points will be used and/or work will be performed either from the top of the banks, from barges on the waterside of the stream or levee bank, or from dry gravel beds. Existing native vegetation will be retained as practicable, emphasizing the retention of shade-producing and bank-stabilizing trees and brush with greater than 6-inch-diameter branches or trunks. Vegetation disturbance and soil compaction will be minimized by using low-ground-pressure equipment that has a greater reach than or exerts less pressure per square inch on the ground than other equipment.

USFWS VHDR-2: Native and Invasive Vegetation Removal Materials and Methods

- All invasive plant species (e.g., those rated as invasive by the Cal-IPC, or local problem species) will be removed from the Project site as practicable, using locally and routinely accepted management practices. Invasive plant material will be destroyed using approved protocols and disposed of at an appropriate upland disposal or compost area. Invasive plant materials stockpiled at sites known to experience flash flooding outside the flood season will be removed within 15 days of the initial creation of the stockpile, to contain the potential spread of

invasive plant material. Stockpiling of invasive plant materials is prohibited during the flood season (typically November to April).

- When practicable, nonnative plants will be removed when flowers or seeds are not present. If flowers or seeds are present and have the potential for seed to be widely dispersed during removal (e.g., Spanish broom [*Spartium junceum*] and eupatory [*Ageratina adenophora*]), the flowering head will be removed and placed in a container for disposal prior to removal.
- Whenever practicable, nontarget vegetation will be protected in order to minimize the creation of exposed ground and potential for re-colonization of nonnative plants. A botanist will be consulted prior to any restoration implementation and during preparation of restoration plans.
- Where appropriate, barriers will be installed to limit illegal off-highway vehicle activity following removal of nonnative vegetation along roadways. Examples of barriers are large rocks, soil berms, and cut vegetation.
- To the extent practicable, crews in known or assumed occupied habitat for Covered Species will minimize multiple stream crossings for nonnative plant removal from both streambanks simultaneously (e.g., during a work period, an individual will conduct activities along one streambank for the entire stretch before initiating activities on the opposing bank). Stream crossings will use existing features such as bridges and boulders to avoid boots in the water, as much as feasible. Habitat will be assumed occupied when suitable habitat is present within the current range of the species and their absence has not been determined by a negative finding using protocol level surveys.

USFWS VHDR-3: Revegetation Materials and Methods (See also GPM-15: Revegetate Disturbed Areas)

On completion of work, site contours will be returned to preconstruction conditions or designed to provide increased biological and hydrological functions. Where disturbed, topsoil will be conserved for reuse during restoration, to the extent practicable. Native plant species comprising a diverse community structure (plantings of both woody and herbaceous species if both are present). Revegetation through natural recruitment is also allowed (e.g., in tidal and managed wetlands and working landscapes where disturbed areas typically revegetate more quickly through natural recruitment than through seeding).

Any area barren of vegetation as a result of Project implementation will be restored to a natural state by mulching, seeding, planting, or other means, with native trees, shrubs, willow stakes, erosion control native grass seed mixes, or herbaceous plant species, following completion of Project construction. Restoration planning for these areas should include steps to prevent colonization by nonnative species, including recolonization by any nonnative plant species that occupied the site prior to Project implementation. Irrigation may also be required to ensure survival of containerized shrubs or trees or other vegetation, depending on rainfall. If irrigation is used, all irrigation materials will be removed once no longer needed. Soils that have been compacted by heavy equipment will be decompacted by shallow or deep ripping, if necessary to allow for revegetation at Project completion as heavy equipment exits the construction area.

USFWS VHDR4: Revegetation Erosion Control Materials and Methods

If erosion control fabrics are used in revegetated areas, they will be slit in appropriate locations to allow for plant root growth. Only non-monofilament, wildlife-safe fabrics will be used. All exclusion netting/caging placed around plantings will be removed after 2 years or sooner.

USFWS VHDR-5: Revegetation Monitoring and Reporting

If removal of vegetation is required within Project access or staging areas, the disturbed areas shall be replanted with native species, and the area will be maintained and monitored for a period of two years after replanting is complete to ensure the revegetation effort is successful. The standard for success is 60% survival of plantings or 80% ground cover for broadcast planting of seed, after a period of two years.

No reporting of vegetation monitoring is proposed by the Project.

USFWS VHDR-6: General Herbicide Use (modified from original text, see below)

To maximize the efficacy of invasive plant control, herbicide treatment of dense-flowered cordgrass will be implemented as part of an Integrated Pest Management (IPM) strategy including mowing, grinding, tilling, excavation and flaming (see Project Description). When appropriate within the context of the IPM strategy, the herbicide imazapyr will be applied primarily using backpack sprayers, but may also include spray equipment mounted on ATVs, boats, amphibious tracked vehicles, or aerial drones. The target treatment area is located within an extensive tidal wetland and slough complex. Aerial drones will be used where they offer greater application access and/or reduced environmental impacts to the marsh habitat. Specific herbicide applications and methodologies will be prescribed by a certified Pest Control Advisor based on field conditions and will be applied by or under the supervision of a Licensed Applicator in accordance with the manufacturers label and all pertinent state and local permits. Prescriptions will aim to apply the lowest legal effective application rate and will target the minimum area necessary for effective control. Imazapyr is an aquatic herbicide approved by the U.S. EPA and the State of California for use in sensitive estuarine environments (H.T. Harvey & Associates and GHD, 2013), which breaks down rapidly in water and when applied according to the label is not toxic to aquatic animals. Therefore, consistent with the Programmatic EIR for the Humboldt Bay Regional Spartina Eradication Plan (H.T. Harvey & Associates and GHD, 2013) we propose not to use application buffers for Waters of the U.S., but rather, applications will occur at a low or receding tide, which increases efficacy by maximizing drying times and reduces total amount of herbicide needed.

The licensed Applicator will follow recommendations for all California restrictions, including wind speed, rainfall, temperature inversion, and ground moisture for each herbicide used. In addition, herbicides will not be applied when rain is forecast to occur within 24 hours, or during a rain event or other adverse weather conditions (e.g., snow, fog).

Herbicide adjuvants are limited to water or nontoxic or practically nontoxic vegetable oils and agriculturally registered, food grade colorants (e.g., Dynamark U.V. [red or blue], Aquamark blue, or Hi-Light blue) to be used to detect drift or other unintended exposure to waterways.

Any herbicides will be transported to and from the worksite in tightly sealed waterproof carrying containers. The licensed Applicator will carry a spill cleanup kit. Should a spill occur, people will be kept away from affected areas until clean-up is complete. Herbicides will be mixed more than 150 feet, as practicable, from any water of the state to minimize the risk of an accidental discharge. Impervious material will be placed beneath mixing areas in such a manner as to contain any spills associated with mixing/refilling.

USFWS VHDR-7: Herbicide Application Planning

Written chemical application, monitoring, and reporting prescriptions will be provided to each Project Proponent from a certified Pest Control Advisor (PCA) (CEPA 2011). The PCA will ensure that legal, appropriate, and effective chemicals are used, with appropriate methodologies. Field scouting must be done before application; the licensed Applicator (CEPA 2011) must be on site to lead all applications and will adhere to the PCA prescription and standard protection measures for application. Prior to field scouting or application, the PCA should receive Environmental Awareness Training (see GPM-4, Environmental Awareness Training) for the Project so that they are aware of Covered Species and habitats present at the Project site. The PCA monitoring prescription should address timing necessary to evaluate and report target species efficacy as well as any nontarget plant and animal effects. As applicable, Best Management Practices for Wildland Stewardship: Protecting Wildlife When Using Herbicides for Invasive Plant Management (Cal-IPC 2015 or the most recent version) will be followed. If the guidance cannot be followed as applicable, then a Project specific IPM Plan will also be submitted with the ESA Section 7(a)(2) Review Form.

USFWS VHDR-8: Herbicide Application Reporting

The licensed applicator will keep a record of all plants/areas treated; amounts and types of herbicides used; and dates of application as well as other monitoring elements prescribed by the PCA in VHDR-7; pesticide application reports must be completed within 24 hours of application and submitted to the applicable agencies for review. Wind and other weather data will be monitored and reported for all application reports.

Below is a description of the known toxicity of herbicides proposed for use under this programmatic. If other herbicides are proposed for use by a Project Proponent, a complete effects analysis must be submitted along with the ESA Section 7(a)(2) Review Form to allow USFWS to determine if application of the herbicide(s) can be covered under the PBO.

5.5.1 NOAA Herbicide Use Protection Measures

The following protection measures apply to all Projects where herbicide application is anticipated as a Project activity.

- Whenever feasible, reduce vegetation biomass by mowing, cutting, or grubbing it before applying herbicide to reduce the amount of herbicide needed.
- Chemical control of invasive plants and animals will only be used when other methods are determined to be ineffective or infeasible. Herbicide use will be evaluated on a Project-by-Project basis with consideration of (and preference given toward) integrated pest management (IPM) strategies wherever possible. See University of California statewide IPM Program for guidance documents (<http://ipm.ucanr.edu/index.html>). Chemical use is restricted in accordance with approved application methods and BMPs designed to prevent exposure to non-target areas and organisms. Any chemical considered for control of invasive species must adhere to all regulations, be approved for use in California, its application must adhere to all regulations per the California Environmental Protection Agency, and it must be applied by a licensed applicator under all necessary state and local permits. Use herbicides only in a context where all treatments are considered, and various methods are used individually or in concert to maximize the benefits while reducing undesirable effects and applying the lowest legal effective application rate, unless site-specific analysis determines a lower rate is needed to reduce non-target impacts. Treat only the minimum area necessary for effective control. Soil-activated herbicides can be applied as long as directions on the label are followed. NOAA RC will recommend Project proponents seek the advice of a PCA if they are unfamiliar with the best chemical choices and combinations for their Project, even if they are only planning to use the choices put forward in this biological assessment. If the Project proponent is experienced with the use of certain chemicals and chemical mixtures, this extra step may not be necessary.
- To limit the opportunity for surface water contamination with herbicide use, all Projects will have a minimum buffer for ground-based broadcast application of 100 feet, and the minimum buffer with a backpack sprayer is 15 feet (aerial application is not included in the proposed action).
- The licensed Applicator will follow recommendations for all California restrictions, including wind speed, rainfall, temperature inversion, and ground moisture for each herbicide used. In addition, herbicides will not be applied when rain is forecast to occur within 24 hours, or during a rain event or other adverse weather conditions (e.g., snow, fog).
- Herbicide adjuvants are limited to water or nontoxic or practically nontoxic vegetable oils and agriculturally registered, food grade colorants (e.g. Dynamark U.V. (red or blue), Aquamark blue or Hi-Light blue) to be used to detect drift or other unintended exposure to waterways.
- Any herbicides will be transported to and from the worksite in tightly sealed waterproof carrying containers. The licensed Applicator will carry a spill cleanup kit. Should a spill occur, people will be kept away from affected areas until clean-up is complete. Herbicides will be mixed more than 150 feet, as practicable, from any water of the state to minimize the risk of an accidental discharge. Impervious material will be placed beneath mixing areas in such a manner as to contain any spills associated with mixing/refilling.
- The licensed pesticide applicator will keep a record of all plants/areas treated, amounts and types of herbicide used, and dates of application, and pesticide application reports must be completed within 24 hours of application and submitted to applicable agencies for review. Wind and other weather data will be monitored and reported for all pesticide application reports.

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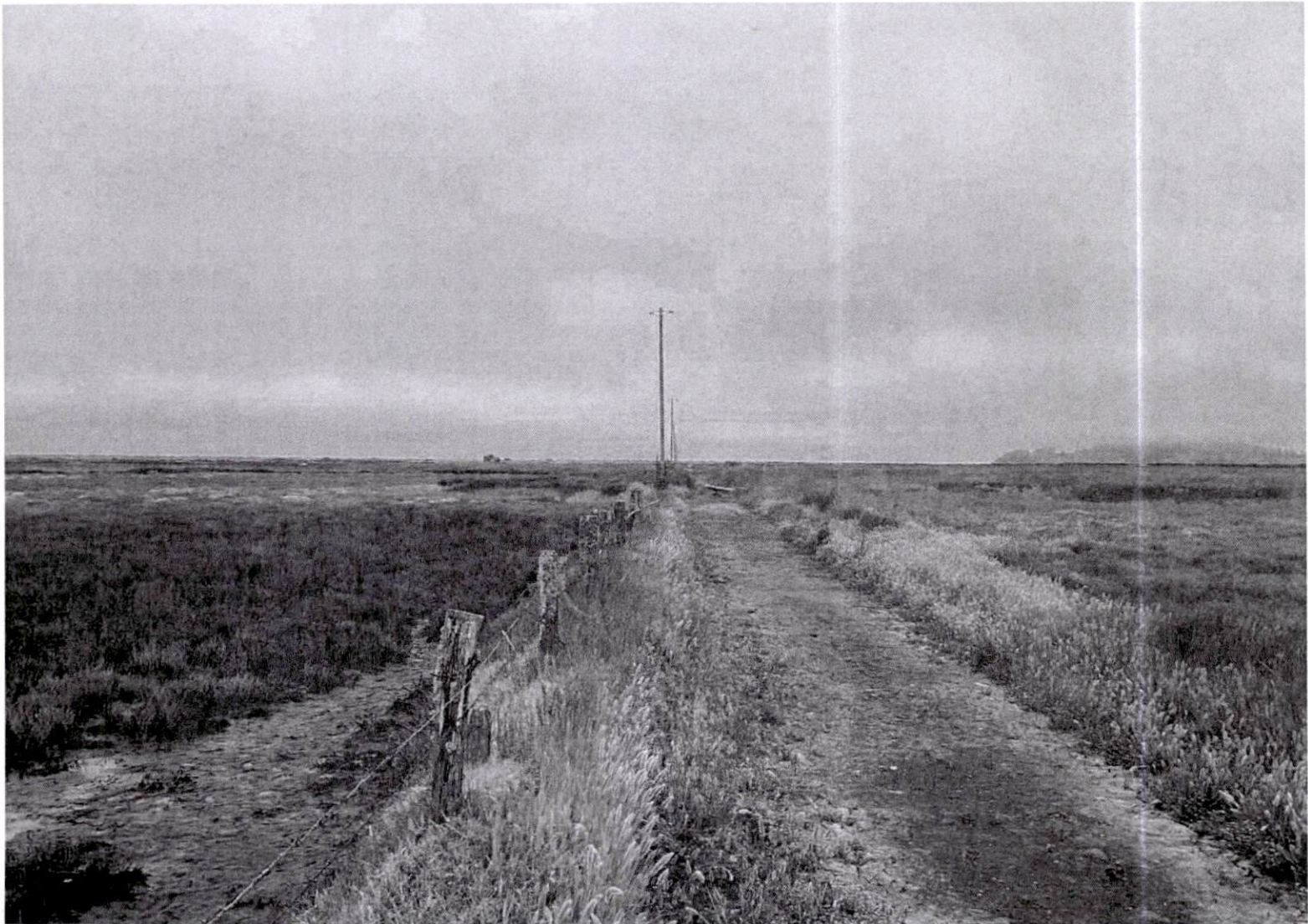


Cannibal Island Restoration Project

Avoidance and Minimization Measures for Certification Under the Statewide Restoration General Order (SRGO)

California Trout

27 September 2023



Avoidance and Minimization Measures

Cannibal Island Restoration Project

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1. Introduction

Statewide Restoration General Order (SRGO) Notice of Intent (NOI) Application Requirements

The following documentation supports the Projects Waste Discharge Requirements and Clean Water Act (CWA) Section 401 Certification through the State Water Resources Control Boards Final Statewide Restoration General Order (SRGO, hereafter "Order") (WQ 2022-0048-DWQ). Information contained herein supports enrollment in the Order through submittal of a Notice of Intent (NOI), and addresses the following to fulfill pre-application requirements outlined in the Order Attachment B, Notice of Intent Form (SWRCB 2022):

In addition to relevant information discussed at the pre-application consultation, the NOI must include:

-Project design steps taken to first avoid, and then minimize, impacts to waters of the state.

See **Section 4**, Avoidance and Minimization Measures

-Applicable General Protection Measures (GPMs listed in the Final Order, Attachment A—Description and Eligibility) to be implemented for the project.

See **Section 5**, General Protection Measures

-Mitigation Measures (per CEQA considerations) to be implemented for the project.

The project is exempt from CEQA consideration through the California Department of Fish and Wildlife (CDFW) Statutory Exemption for Restoration Projects (SERP) (Public Resources Code § 21080.56).

-Proof of the Sacred Lands Search and proof of tribal notification (and opportunity to comment) regarding the proposed project.

See **Section 6**, Cultural Resources Investigation

2. Project Summary

The Cannibal Island Restoration Project (Project) is approximately 794 acres of agricultural bottoms and tidal saltmarsh in the Eel River Delta, three miles west of the town of Loleta, Humboldt County, CA. The Project Area is at the western-most extent of the Eel River delta and estuary approximately one mile inland and northeast of the Eel River mouth. The Project is within the Cannibal Island U.S. Geological Survey (USGS) 7.5-minute quadrangle, bounded by Cannibal Island Road to the south, the North Bay of the Eel River Delta and Mosley Slough to the west, and Sevenmile Slough to the north and northeast.

The northern and western portion of the Project Area (approximately 462 acres) is owned by California Department of Fish & Wildlife (CDFW) and managed as part of the of the Eel River Wildlife Area (ERWA) Cannibal Island Unit (APN 310-043-001, 310-033-004, and 310-021-003, 310-021-004). The remaining 332 acres are privately owned by Hansen (APN 310-043-003 and 310-051-001) and Pedrazzini (APN 310-043-004,-005, -006). Approximately 220 acres of the private property are held in Wetland Conservation Easements by the Natural Resources Conservation Service (NRCS) Wetlands Reserve Easement Program (WRP).

The Project will restore a landscape of mostly diked agricultural land to a mosaic of pasture and natural habitats, including estuarine and tidal slough channels, brackish ponds, freshwater ponds, and agricultural pastures. Restoration of the natural tidal inundation range and hydraulics as well as fluvial and tidal sediment deposition to restore wetland functions is critical to achieve Project objectives. Increased tidal exchange and connectivity between historical tidal wetland areas and North Bay will support broader native plant, fish, wildlife, and benthic infauna diversity within estuarine and freshwater marsh habitats, and in wetland-ecotones.

Improvement of tidal channel networks will accommodate physical processes such as sediment transport and marsh plain sediment accretion. The Project will enhance and reconnect full tidal exchange to approximately 500 acres of former tidal marsh habitat and construct inter-tidal lagoons with tidal marsh features.

The Project will enhance (widen and deepen) existing tidal slough channels within the limits of Project disturbance. Construction activities will include the removal of outdated water control structures, excavation of slough channels to accelerate the formation of high-quality aquatic habitat for listed fish species, and placement of excavated fill in appropriate locations to mimic natural marsh topography (natural levees and hummocks or tidal marsh ridges) and enhance wetland vegetation diversity through removal of invasive dense-flowered cordgrass. Excavated soils from the channels would be placed in low hummocks approximately 2-feet high adjacent to the channels. These hummocks are anticipated to retain wetland parameters as they will not exceed marsh plain elevation and would not constitute conversion to uplands. Placement of ¼ ton rock will occur along a section of channel to provide inset channel grade control to manage the tidal prism. This grade control is anticipated to be beneficial to manage tidal prism until the site elevations increase to be representative of a system with full tidal amplitude, which is expected to occur over 10-20 years. The rock would be placed over a 20-foot-long section where a former road crossing is located and failing culvert is proposed for removal. This area is a suitable location for the inset channel grade control because it likely already contains compacted sediment (from previous infrastructure), and will be disturbed via the road crossing and culvert removal anyway. Much of the existing dike network within the Project Area would be reconfigured or removed. A new setback levee will be constructed to protect agricultural land from tidal inundation as full amplitude is restored, including one newly constructed set-back levee in the eastern portion of the Project Area, and raising of Cannibal Island Road in the southern portion of the Project Area. Sediment excavated during construction would be beneficially reused within the Project Area and would not be hauled off-site.

See **Attachment 5 of the SRGO application package** for the Project Description and details of project activities and accompanying figures.

3. Summary of Construction Activities for Project

The following are general details of the proposed Project's construction, operation, and maintenance activities.

Construction Timing:

Project construction will be phased into one to two construction seasons based on available funding, site conditions, and sequencing for earthwork and County Road construction. Each season will span approximately June through the end of October, as feasible with dry weather and allowable permitting windows.

Construction Materials:

Multiple sediment reuse areas coupled with the extent of Project excavation are anticipated to necessitate multiple staging areas within the Project footprint.

Equipment Types anticipated for Project construction include:

- Excavators (Conventional and/or Amphibious)
- Scrapers
- Dozers
- Loaders
- Dump Trucks
- Small Tractors
- Compactors
- Graders

Water Trucks
Pumps

Site Access & Staging:

A temporary construction entrance shall be placed at the intersection of the Cannibal Island County Road and Senestraro Lane. Cannibal Island Road is a two-lane paved County road. Senestraro Lane is a single lane dirt road extending north from Cannibal Island Road and located on CDFW property. Plans include a public access parking lot near this intersection which will be used for construction staging. The CDFW access road (Senestraro Lane) will be the primary entrance and exit for construction activities within the site. Another temporary construction entrance will be placed at the intersection of Cannibal Island Road and the Hansen/Pedrazzini private driveway to provide a route along the eastern boundary of the Hansen residence and follow the perimeter dike to and past Sevenmile Slough as needed to access the eastern and northern portion of the site. Construction equipment and materials will be transported to the work areas via these ingress and egress locations.

See **Attachment 11 of the SRGO application package** for the Project 65% Design Plans

Construction Activities:

See **Attachment 5 of the SRGO application package** for details of Project construction activities, and **Attachment 5, Appendix A, Figure 2-8**, for the location of proposed Project activities.

Constructed Facilities (Natural and Artificial Infrastructure) and Operations and Maintenance to those Facilities:

Ongoing management and maintenance activities may be necessary to ensure the long-term hydraulic and ecological functions of the Project.

Maintenance actions are anticipated after the Project is constructed, and are described in the Project Operations and Maintenance Plan (**Attachment 9 of the SRGO application package**).

- Setback Levee
 - Observations of physical character (annually and following extreme storms)
 - Mowing to discourage growth of woody vegetation and invasives species (annually)
 - Repair from erosion or burrowing animal damage (as needed)
- Grading and/or resurfacing portions of the access roads (as needed)
- Cleaning debris and sediment from channels, drainage ditches and floodgates (as needed)
- Removing invasive vegetation and re-seeding with native seed mixes, as necessary

Surface Water and Groundwater Management

During excavation, management of surface water will be required through the construction period. Surface water management will be required to reduce nuisance water within the active work area. Inflow management will also reduce the moisture content in excavated soils and prevent aquatic and non-aquatic organisms from entering the construction area. Cofferdams will be used to isolate instream work areas that will be dewatered.

The cofferdam(s) will be either an aqua dam, or will be comprised of native material or washed gravel encased with an impermeable geotextile or visqueen liner in combination with ecology blocks and/or temporary sheet piles pushed into the subsurface. Cofferdam(s) will be installed during low tide, when the least amount of water is within the work area(s). Once the cofferdam is securely installed and the work area is isolated, the isolated area would be seined (or similar) to relocate special status fish and other special status aquatic species to nearby suitable habitat; common species will be relocated to suitable habitat as is feasible. Once the area is free of special status fish species, surface water would be pumped or routed via gravity flow out of the active

work area to an adjacent area to settle. Due to the expansive marsh plain, pumping surface water to an area of uplands to infiltrate is not feasible.

After initial surface dewatering, groundwater dewatering is expected to be necessary within work area(s) due to the low elevation of the marsh plain and high water table. Groundwater dewatering will involve pumping water out of the work area to a nearby area to infiltrate. As mentioned above, it is not feasible to pump water to areas of uplands for infiltration. Discharge of turbid water directly to receiving waters (i.e. Mosley Slough, Sevenmile Slough, or North Bay) will not occur. The cofferdam(s) will be removed on an incoming tide so that loose sediment is deposited on the marsh plain, as opposed to entrained into receiving waters.

Excavation of the tidal channel network to connect with North Bay will occur using excavators and dump trucks.

Equipment will use the remnant dikes to access the channel excavation area. A temporary road will be used to allow equipment access over the salt marsh, where an excavator will offload sediment to dump trucks for disposal throughout the Project Area. Portions of the channel may need to be excavated with an amphibious excavator. Silt curtains may be installed to limit the delivery of turbid water outside the immediate work area, if feasible.

4. Avoidance and Minimization Measures

The Project is receiving permits/approvals from various agencies for sensitive fish species documented or potentially present in the Project Area. Included in this document are General Protection Measures (GPM) applicable to the Project per SRGO Attachment A criteria. Additional avoidance and minimization measures for the Project include minimization measures required within the Programmatic Biological Opinions (PBO) administered by 1) the National Oceanic and Atmospheric Administration Restoration Center (NOAA RC) and U.S. Army USACE of Engineers (USACE) for covered salmonids (NMFS 2022), and 2) the United States Fish and Wildlife Service (USFWS) for Tidewater Goby (USFWS 2022). These documents are attached to the SRGO application package, and include extensive avoidance and minimization measures for protection of water quality.

A summary of avoidance and minimization measures is described below. The Contractor shall be responsible for the installation of piping, pumps, fish screens, erosion control measures, cofferdams, and the proposed culverts in collaboration with and under the direction of a qualified biologist and engineer.

Erosion Control Measures and Best Management Practices

The Contractor will employ Best Management Practices (BMPs) during construction including the following BMPs from the current California Stormwater BMP Handbook for Construction (CASQA 2022):

- EC-1: Scheduling
- EC-2: Preservation of Existing Vegetation
- NS-2: Dewatering Operations
- NS-9: Vehicle Equipment and Fueling
- NS-10: Vehicle & Equipment Maintenance
- WM-2: Material Use
- WM-4: Spill Prevention and Control

Additionally, the Contractor(s) will be responsible for minimizing erosion and preventing the transport of sediment to sensitive areas utilizing the following approaches:

- Installation of temporary fiber rolls, as needed.
- Silt fence surrounding newly constructed public access parking (proposed construction staging area).

- Seed mix applied to all disturbed areas above elevation 7.5 ft (revegetation design is included in the Project's design plans).
 - A variety of seed mixes will be applied to edges and slopes of newly constructed setback levee, Cannibal Island Road, the newly constructed parking lot, recreation trail, and temporarily disturbed access and staging areas, based on elevation.

Additional Erosion Control Measures include:

- Sufficient erosion control supplies will be always maintained on site, available for prompt use in areas susceptible to erosion during rain events;
- Disturbance of existing vegetation will be minimized to only that which is necessary to complete the work;
- The Contractor(s) will make adequate preparations, including training and providing equipment, to contain oil and/or other hazardous materials spills;
- Dewatering operations will be conducted where needed from the work location and stored or disposed of appropriately;
- Vehicle and equipment maintenance should be performed off-site whenever practical;
- Contractor(s) shall ensure that the site is prepared with BMPs prior to the onset of any storm;
- All erosion and sediment control measures shall be maintained in accordance with their respective BMP fact sheet until disturbed areas are stabilized;

This plan may not cover all the situations that arise during construction due to unanticipated field conditions.

Variations may be made to the plan in the field subject to the approval of or at the direction of the Project Manager.

Water Quality Control Measures

Avoidance and minimization measures to protect water quality include the following:

- Construction equipment shall not be stored in inundation areas or in sloughs.
- The Contractor(s) will ensure that any liquid fuel pumps used on-site (for dewatering, etc.) shall be placed on absorbent pads and containment implements. The Contractor(s) shall have spill containment materials located at the site, with operators trained in spill control procedures. All staging shall be within the limits of disturbance, and the Contractor(s) shall not unnecessarily disturb aquatic habitat and wetlands. At the close of construction, the Contractor(s) shall restore staging areas and temporary haul roads to pre-project conditions (de-compacted and naturalized as needed).
- Following implementation of a diversion system and isolation of the project reach, standing water remaining within the Project reach will be pumped to a sufficient level to allow a qualified biologist to relocate aquatic organisms. Given the Project area is primarily wetlands, following completion of relocation activities, the remaining water will be pumped to surrounding wetlands and allowed to infiltrate or into temporary holding/filter tanks and allowed to settle. Following dewatering and relocation, equipment will then be permitted within the channel.
- During excavation, management of surface water will be required through the construction period. Surface water management will be required to reduce nuisance water within the active work area. Inflow management will also reduce the moisture content in excavated soils and prevent aquatic and non-aquatic organisms from entering the construction area. Cofferdams will be used to isolate instream work areas that will be dewatered, and stream flow bypassed downstream.
- Following construction, the contractor will demobilize and remove equipment, supplies, and construction materials. The disturbed areas above the salt marsh plain will be restored to pre-

construction conditions or stabilized with a combination of native herb and grass seed (broadcast or hydroseed), straw mulch, or other plantings/revegetation.

5. General Protection Measures

All applicable GPMs that may be incorporated into the proposed Project are listed below, sourced from Attachment A of the Order (SWRCB 2022). There have been no GPMs specific to the proposed Project that cannot be implemented (there are some GPMs that do not apply to the proposed Project).

Sourced from Appendix A of the Order– General Protection Measures

General Protection Measures

GPM-1: Receipt and Copies of All Permits and Authorizations

Work will not begin until all necessary permits and authorizations have been received (e.g., USACE, USFWS, NMFS, State and Regional Boards, CDFW). The project proponent will ensure that a readily available copy of the applicable agency permits and authorizations (e.g., USFWS Biological Opinion, NMFS Biological Opinion, Section 404 permit, etc.) is maintained by the construction foreman/manager on the project site for the duration of project activities.

GPM-2: Construction Work Windows

Construction work windows may be required in order to avoid impacts to aquatic resources and associated beneficial uses during the wet season. Project proponents must also follow the applicable Regional Board's construction work windows, unless otherwise approved.

GPM-3: Construction Hours

Construction activities will generally be limited to daylight hours, to the extent feasible. If nighttime construction is necessary, including in tidally influenced waters where tides may limit daylight access and work schedules, all project lighting (e.g., staging areas, equipment storage sites, roadway, and construction footprint) will be selectively placed and directed onto the roadway or construction site and away from aquatic habitats. Light glare shields will be used to reduce the extent of illumination into aquatic habitats. If the work area is near surface waters, the lighting will be shielded so that it does not shine directly into the water.

GPM-4: Environmental Awareness Training

For projects occurring in aquatic resources (e.g., wetlands, riparian areas, etc.), prior to engaging existing or new personnel in construction activities, new construction personnel will participate in environmental awareness training conducted by an agency-approved biologist or resource specialist. 9 Construction personnel will be informed regarding the identification, potential presence, legal protections, avoidance and minimization measures, and applicable general protection measures for all aquatic resources with the potential to occur within or immediately adjacent to the project site. Construction personnel will be informed of the procedures to follow should aquatic resources be disturbed during construction activities. For projects where the agency-approved biologist or resource specialist is not regularly on the project site, training may be provided via online/web-based meeting with an interactive portion (e.g., web-based or in-person discussion) to be included during remote training sessions. For projects that may continue over an extended duration and require excessive training events, a training video developed under the supervision of the FWS-approved biologist or resource specialist may be used to train new personnel, as long as an FWS-approved biologist or resource specialist is available via phone to answer questions about the training or that may arise during construction.

GPM-5: Environmental Monitoring

As required in the NOA, a resource specialist will ensure that all applicable protective measures are implemented during project construction. The resource specialist will have authority to stop any work if they

determine that any permit requirement is not fully implemented. The resource specialist will prepare and maintain a monitoring log of construction site conditions and observations, which will be kept on file.

GPM-6: Work Area and Speed Limits

Construction work and materials staging will be restricted to designated work areas, routes, staging areas, temporary interior roads, or the limits of existing roadways. Prior to initiating construction or grading activities, brightly colored fencing or flagging or other practical means will be erected to demarcate the limits of the project activities, including the boundaries of designated staging areas; ingress and egress corridors; stockpile areas for spoils disposal, soil, and materials; and equipment exclusion zones. Flagging or fencing will be maintained in good repair for the duration of project activities. Vehicles will obey posted speed limits on public roadways and will limit speeds to 20 miles per hour (mph) within the project area on unpaved surfaces and unpaved roads (to reduce dust and soil erosion) or in areas where special status species have the potential to occur. Speeds greater than 20 mph may be permitted in the project area where special-status species are not expected to occur (e.g., within areas from which special-status species have been excluded) and where there is no risk of generating excessive dust (e.g., surfaces are paved, saturated, or have been treated with other measures to prevent dust).

GPM-7: Environmentally Sensitive Areas

Monitoring, flagging, or fencing will be used, where appropriate, to minimize disturbance to environmentally sensitive areas (e.g., waters and wetlands). If fencing is used:

- Fencing used must be approved by CDFW and/or USFWS for compatibility with species under their jurisdiction, as applicable, that may occur on site.
- The agency-approved biologist or resource specialist will determine the location of fencing prior to the start of construction (e.g., between active work area(s) and sensitive resources).
- Fencing will remain in place throughout the duration of the construction activities and will be inspected and maintained regularly by the agency approved biologist or resource specialist until completion of the project.
- Repairs to the fencing will be made within 24 hours of discovering any failure.
- Fencing will be removed when all construction equipment is removed from the site, the area is cleared of debris and trash, and the area is returned to natural conditions.

GPM-8: Prevent Spread of Invasive Exotic Plants

The spread or introduction of invasive exotic plant species by arriving vehicles, equipment, imported gravel, and other materials, will be avoided to the maximum extent possible. When practicable, invasive exotic plants in the project areas will be removed and properly disposed of in a manner that will not promote their spread. Equipment will be cleaned of any sediment or vegetation at designated wash stations before entering or leaving the project area to avoid spreading pathogens or exotic/invasive species. Isolated infestations of noxious weeds identified in the project area will be treated with approved eradication methods at an appropriate time to prevent further formation of seed and destroy viable plant parts and seed. Wash sites must be in confined areas that limit run-off to any surrounding habitat and on a flat grade. Upland areas will use rice straw or invasive species-free local slash/mulch for erosion control, while the remainder of the project area will use certified, weed-free erosion control materials. Mulch must be certified weed free. The project proponent will follow the guidelines in the CDFW's California Aquatic Invasive Species Management Plan (CDFW 2008) and Aquatic Invasive Species Disinfection/Decontamination Protocols (CDFW 2016), where relevant. Construction supervisors and managers will be educated on weed identification and the importance of controlling and preventing the spread of noxious weeds. The project proponent will follow any applicable local guidance to prevent the spread of invasive animal species. Construction supervisors and managers will be responsible for the implementation of appropriate protocols (e.g., disinfection of equipment and footwear) to prevent the spread of invasive animals.

GPM-9: Practices to Prevent Pathogen Contamination

The project proponent will review and implement restoration design considerations and best management practices as published by the Working Group for Phytophthoras in Native Habitats (www.calphytos.org), when there is a risk of introduction and spread of plant pathogens in site plantings. (<http://www.suddenoakdeath.org/welcome-to-calphytos-org-phytophthoras-in-native-habitats/resources/#restoration>.)

GPM-10: Equipment Maintenance and Materials Storage

Vehicle traffic will be confined to existing roads and the proposed access route(s). All machinery must be in good working condition, showing no signs of fuel or oil leaks. Oil, grease, or other fluids will be washed off at designated wash stations prior to equipment entering the construction site. Inspection and evaluation for the potential for fluid leakage will be performed daily during construction. Where possible, and where it would not result in greater impact to aquatic resources, no equipment refueling, or fuel storage will take place within 100 feet of a body of water. All fuel and chemical storage, servicing, and refueling will be done in an upland staging area or other suitable location (e.g., barges) with secondary containment to prevent spills from traveling to surface water or drains. Project proponents will establish staging areas for equipment storage and maintenance, construction materials, fuels, lubricants, solvents, and other possible contaminants in coordination with resource agencies. Staging areas will have a stabilized entrance and exit and will be located in upland areas to the extent possible and at least 100 feet from bodies of water unless site-specific circumstances do not provide such a setback or would result in further damage to sensitive resources, in which case the maximum setback possible will be used. Fluids will be stored in appropriate containers with covers and properly recycled or disposed of offsite. Machinery stored on site will have pans or absorbent mats placed underneath potential leak areas as a precautionary measure to further reduce the potential for impact from an unintended or previously undetectable leak.

GPM-11: Material Disposal

All refuse, debris, unused materials, and supplies that cannot reasonably be secured will be removed daily from the project work area and deposited at an appropriate disposal or storage site. All construction debris will be removed from the project work area immediately upon project completion. The Water Quality and Hazardous Materials measures (below) will be implemented as applicable to ensure proper handling and disposal of hazardous materials.

GPM-12: Fugitive Dust Reduction

To reduce dust, construction vehicles will be speed restricted as described in GPM-6, Work Area and Speed Limits when traveling on non-paved surfaces. Stockpiled materials susceptible to wind-blown dispersal will be covered with plastic sheeting or other suitable material to prevent movement of the material. During construction, water (e.g., trucks and portable pumps with hoses) or other approved methods will be used to control fugitive dust, as necessary. Dust suppression activities must not result in a discharge to waters of the state unless such discharges are approved by the State or Regional Board.

GPM-13: Trash Removed Daily

During project activities all trash will be properly contained within sealed containers and removed from the work site and disposed of as necessary to maintain a trash-free work area (e.g., trash containers will not be used beyond capacity and fully close/seal).

GPM-14: Project Cleanup after Completion

Work pads, temporary falsework, and other construction items will be removed from the 100-year floodplain by the end of the construction window. Removal of materials must not result in discharge to waterbodies.

GPM-15: Revegetate Disturbed Areas

All temporarily disturbed areas will be de-compacted and seeded/planted with an assemblage of native riparian, wetland, and/or upland plant species suitable for the area. The project proponent will develop a revegetation plan, including (as applicable) a schedule; plans for grading of disturbed areas to pre-project contours; planting palette with plant species native to the project area; invasive species management; performance standards;

success criteria; and maintenance requirements (e.g., watering, weeding, and replanting). Plants for revegetation will come primarily from active seeding and planting; natural recruitment may also be proposed if site conditions allow for natural recruitment to reestablish vegetation and avoid potential negative risks associated with erosion and impacts to water quality. Plants imported to the restoration areas will come from local stock, and to the extent possible, local nurseries. Only native plants (genera) will be used for restoration efforts. Certified weed-free native mixes and mulch will be used for restoration planting or seeding. Revegetation activities within and adjacent to Waters of the State will commence as soon as is practicable after construction activities at a site are complete.

6. Cultural Resources Investigation

A cultural resources study was conducted in 2020 for a majority of the Project area, with an addendum of the Project in 2022 to investigate a small area added to the Project south of the Cannibal Island Road (GHD 2020). The investigations included written correspondence regarding the investigation sent to the Native American Heritage Commission (NAHC) along with a request to search the Sacred Lands Inventory File. Proof of this correspondence is provided in **Attachment 10 of the SRGO application package**, Cannibal Island Restoration Project Cultural Resources Investigation Report and Addendum—these documents do not contain confidential information and are therefore attached, and no California Register of Historical Resources eligible historic resources or cultural resources were identified. Requirements for inadvertent discovery protocols will be incorporated into construction documents prior to bidding and ground disturbance. Inadvertent discovery protocols will include tribal notification.

7. Citations

California Stormwater Quality Association (CASQA). 2022. Construction BMP Handbook. Subscription.
<https://www.casqa.org/resources/bmp-handbooks>

National Marine Fisheries Service (NMFS). 2022. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response. NOAA Restoration Center and U.S. Army Corps of Engineers. National Marine Fisheries Service, West Coast Region, USA.

State Water Resource Control Board (SWRCB). 2022. Clean Water Act Section 401 – Certification and Wetlands Program, Statewide Restoration General Order.
https://www.waterboards.ca.gov/water_issues/programs/cwa401/generalordersunderdev.html

U.S. Fish and Wildlife Service (USFWS). 2022. Programmatic Biological Opinion and Conference Opinion – California Statewide Programmatic Restoration Effort. U.S. Fish and Wildlife Service, Pacific Southwest Regional Office, Sacramento, California, USA.

Appendix C

**Potential Management Actions, Impact
Avoidance and Minimization Measures, and
Best Management Practices**

Table C-1 Potential Maintenance Actions and Best Management Practices to Reduce or Avoid Impacts

POTENTIAL MAINTENANCE ACTIONS ¹	LOCATION	WORK WINDOW ²	WORK DURATION	ANTICIPATED FREQUENCY ³	DESCRIPTION OF EQUIPMENT / METHODS	DESCRIPTION OF QUANTITIES ⁴ / MATERIAL PER YEAR	IMPACT AVOIDANCE & MINIMIZATION MEASURES ⁵ AND BEST MANAGEMENT PRACTICES ⁶
1 Implement site specific erosion control BMPs such as soil bioengineering and vegetative revegetations	Project-wide	June 15 – November 1	0-120 days	Moderate	Heavy equipment and hand crews	0-10 acres of erosion control BMPs using vegetation, soil bioengineering	Measures: - GPM-15: Revegetate Disturbed Areas BMPs: a, b, g, h, k, l a. Utilize onsite native soil to the extent practical b. Design techniques and standards shall be similar to those in project plans g. Avoid permanent placement of fill in wetlands h. Removal of vegetation will be limited to excavation areas k. Conduct pre-construction surveys performed by a qualified biologist l. Upon completion of ground disturbance activities and prior to the onset of the rainy season, all bare soil areas above 7.5 ft elevation shall be seeded in compliance with native seed mix.
2 Repair eroded sections of levee or dike and employ erosion control measures (protecting bare soil, stabilizing banks, armoring, geotechnical bank protection, dissipating concentrated flows)	Project-wide	June 15 – November 1	0-120 days	Moderate	Heavy equipment and hand crews	0-1,000 cy of rock fill 0-10,000 cy of grading/excavation	BMPs: a, b, g, h, k, l a. Utilize onsite native soil to the extent practical b. Design techniques and standards shall be similar to those in project plans g. Avoid permanent placement of fill in wetlands h. Removal of vegetation will be limited to excavation areas k. Conduct pre-construction surveys performed by a qualified biologist l. Upon completion of ground disturbance activities and prior to the onset of the rainy season, all bare soil areas above 7.5 ft elevation shall be seeded in compliance with native seed mix.
3 Remove channel obstructions if deemed necessary to maintain habitat and hydrologic function	Project-wide	June 15 – November 1	0-60 days	Frequent	Heavy equipment and hand crews	0-50 obstructions including debris jams, driftwood, sediment plugs (0-10,000 cy)	Measures: - IWW-1: Appropriate In-water Materials - IWW-2: In-water Vehicle Selection and Work Access - IWW-3: In-water Placement of Materials, Structures, and Operation of Equipment BMPs: c, d, k c. Chip debris and utilize for onsite mulch to the extent practical d. Dispose in uplands k. Conduct pre-construction surveys performed by a qualified biologist
4 Additional dike lowering or breaches	Northern Project boundary	June 15 – November 1	0-60 days	Infrequent	Heavy equipment for grading and excavation	0-5,000 cy of Excavation	BMPs: k k. Conduct pre-construction surveys performed by a qualified biologist
5 Excavate plugged culverts or associated drainage channels, and conduct maintenance on gated culverts. Replace or enlarge culverts and gates as needed	Within 100 feet of existing culverts	June 15 – November 1	0-30 days	Moderate	Heavy equipment and hand crews	0-10 culverts 0-1,000 cy excavation/grading/crossing 0-500 cy rock fill/crossing	Measures: - IWW-1: Appropriate In-water Materials - IWW-2: In-water Vehicle Selection and Work Access - IWW-3: In-water Placement of Materials, Structures, and Operation of Equipment

POTENTIAL MAINTENANCE ACTIONS ¹	LOCATION	WORK WINDOW ²	WORK DURATION	ANTICIPATED FREQUENCY ³	DESCRIPTION OF EQUIPMENT / METHODS	DESCRIPTION OF QUANTITIES ⁴ / MATERIAL PER YEAR	IMPACT AVOIDANCE & MINIMIZATION MEASURES ⁵ AND BEST MANAGEMENT PRACTICES ⁶
							BMPs: d, f, g, k d. Dispose in uplands f. Avoid removal of mature (>10 year) riparian vegetation g. Avoid permanent placement of fill in wetlands k. Conduct pre-construction surveys performed by a qualified biologist
6. Raise height of dike or levee (including trail) without expanding footprint and/or filling wetlands	Existing dike, and levee locations only	June 15 - November 1	0-120 days	Infrequent	Heavy equipment for grading	0-9,000 lf of dike or levee	BMPs: k, l g. Avoid permanent placement of fill in wetlands k. Conduct pre-construction surveys performed by a qualified biologist l. Upon completion of ground disturbance activities and prior to the onset of the rainy season, all bare soil areas above 7.5 ft. elevation shall be seeded in compliance with native seed mix.
7. Maintain or repair (as-built) access roads and road atop dike and levee	Existing dike and levee locations and other access road ramps	June 15 - November 1	0-60 days	Moderate	Heavy equipment for grading and repairs	0-1,000 cy of road base 0-1,000 cy of grading	Measures: - WQHM-3: Erosion Control (and WQHM-2: Stormwater Pollution Prevention Plan) BMPs: d, k, l d. Dispose in uplands k. Conduct pre-construction surveys performed by a qualified biologist l. Upon completion of ground disturbance activities and prior to the onset of the rainy season, all bare soil areas above 7.5 ft. elevation shall be seeded in compliance with native seed mix.
8. Provide additional revegetation with native plants	Project-wide	Year-round	0-60 days	Moderate	Hand tools and possibly small augering devices/light equipment	0-5,000 plants	Measures: - GPM-15: Revegetate Disturbed Areas - VHDR-3: Revegetation Materials and Methods - VHDR-4: Revegetation Erosion Control Materials and Methods BMP: k k. Conduct pre-construction surveys performed by a qualified biologist
9. Apply/place excavated sediment on Agricultural Lands	Agricultural lands east of the setback levee	April 1 - Nov. 30	0-120 days	Moderate	Heavy/farm equipment	0-100,000 cy of sediment	BMP: d d. Dispose in uplands
10. Mow, trim, thin or remove vegetation and/or invasive vegetation as necessary to maintain function per Project design plans	Atop dike and setback levee to retain access	Year-round, with the exception of the bird breeding and nesting season between March 15 and August 15.	0-120 days	Frequent	Herbicides, hand pruning tools and possibly chainsaws and brush cutter/mowing or other light equipment. Flash grazing may be utilized in conformance with the WRE program easement conditions.	0-10 acres Trees no larger than 6" dbh	Measure: - VHDR-2: Native and Invasive Vegetation Removal Materials and Methods - VHDR-6: General Herbicide Use - VHDR-7: Herbicide Application Planning - VHDR-8: Herbicide Application Reporting - Measure 5.5.1: NOAA Herbicide Use Protection Measures
	Removal of non-native species Project-Wide, i.e. dense-flowered cordgrass	Year-round exception of the bird breeding and nesting	0-120 days	Frequent		0-500 acres	BMPs: c, k, l, m, n c. Chip debris and utilize for onsite mulch to the extent practical

POTENTIAL MAINTENANCE ACTIONS ¹	LOCATION	WORK WINDOW ²	WORK DURATION	ANTICIPATED FREQUENCY ³	DESCRIPTION OF EQUIPMENT / METHODS	DESCRIPTION OF QUANTITIES ⁴ / MATERIAL PER YEAR	IMPACT AVOIDANCE & MINIMIZATION MEASURES ⁵ AND BEST MANAGEMENT PRACTICES ⁶
		season between March 15 and August 15.					k. Conduct pre-construction surveys performed by a qualified biologist. l. Upon completion of ground disturbance activities and prior to the onset of the rainy season, all bare soil areas above 7.5 ft. elevation shall be seeded in compliance with native seed mix. m. Survey results must indicate that no nesting habitat for any bird species is present in the area. n. Pre-construction rare plant surveys shall be conducted in suitable rare plant habitat.

¹ Potential Maintenance Actions subject to NRCS WRE program easement.

² Work window subject to the agency requirements and expanded if necessary for "Emergency" conditions.

³ Anticipated Frequency categories include: Frequent (every 1-2 years), Moderate (every 2-5 years), Infrequent (every 5-15 years), and Rare (15+ years, or not at all).

⁴ Quantities given and a maximum, not-to-exceed value for any given year. Quantities beyond what is specified here would require additional regulatory review/approval.

⁵ Impact Avoidance & Minimization Measures sourced from the Programmatic Biological Opinion (PBO) and State Restoration General Order (SRGO) used for the Project (see Appendix B).

⁶ BMP Notes

a – Utilize onsite native soil to the extent practical

b – Design techniques and standards shall be similar to those in project plans

c – Chip debris and utilize for onsite mulch to the extent practical

d – Dispose in uplands

e – Under the direction of a qualified biologist

f – Avoid removal of mature (>10 year) riparian vegetation

g – Avoid permanent placement of fill in wetlands

h – Removal of vegetation will be limited to excavation areas

i – Per local invasive removal plans (e.g. Spartina Eradication Plan)

j – Shall not block public access

k – Conduct pre-construction surveys performed by a qualified biologist

l – Upon completion of ground disturbance activities and prior to the onset of the rainy season, all bare soil areas above 7.5 ft elevation shall be seeded with either the agricultural or one-parameter wetland native seed mix as described in the Wetlands and Habitat Restoration Plan.

m – Survey results must indicate that no nesting habitat for any bird species is present in the area

n – Pre-construction rare plant surveys shall be conducted in suitable rare plant habitat



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➔ **The Power of Commitment**

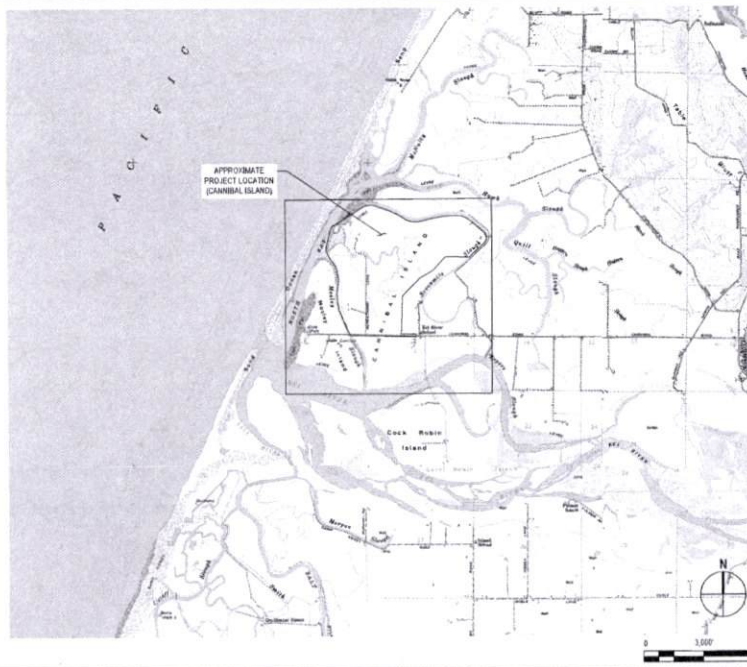


CALIFORNIA TROUT INC. CANNIBAL ISLAND RESTORATION PROJECT SEPTEMBER 2023

AREA MAP



LOCATION MAP



PROJECT COLLABORATORS

CALIFORNIA DEPARTMENT OF FISH & WILDLIFE
USDA - NATURAL RESOURCES
CONSERVATION SERVICES
LORI HANSEN
LESTER PEDRAZZINI
COUNTY OF HUMBOLDT

APPROVALS

CALIFORNIA TROUT INC:

SIGNED _____ DATE _____

ENGINEER: GHD INC.
JEREMY SHANE SVEHLA
PCE 072169
CIVIL ENGINEER

SIGNED _____ DATE _____

PRELIMINARY 65% DESIGN

Rev.	Issue	Checked	Approved	Date
1	Author: P. DUB	Design Check: B. VINYAN	Project Manager: JB	
2	Designer: P. DUB	Design Check: B. VINYAN	Project Director: JS	

Print Date: 28 September 2023 11:12 AM Printed By: P. Dub

Bar is one inch on
original size sheet
0 1"



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Client: CALTROUT
Project: CANNIBAL ISLAND RESTORATION
PROJECT

Project No.: 11206383
Date: 2023-09-29
Scale: AS SHOWN

Title: COVER SHEET

Sheet: G-001

Scale: 1" = 100'

ABBREVIATIONS

NOTE: CONTACT ENGINEER FOR ABBREVIATIONS NOT LISTED.

AB

AGGREGATE BASE

AC

ASPHALT CONCRETE

ACP

ASBESTOS CONCRETE PIPE

AGG

AGGREGATE

APPROX

APPROXIMATE

B

BERM

BMPs

BEST MANAGEMENT PRACTICES

CBC

CALIFORNIA BUILDING CODE

CL, C

CENTER LINE

CLR

CLEAR

CM

CONSTRUCTION MANAGER

CMP

CORRUGATED METAL PIPE

CONC

CONCRETE

CONT'D

CONTINUED

COORD

COORDINATE

COR

CONTRACTING OFFICER'S REPRESENTATIVE

COR

CORNER

CPP

CORRUGATED PLASTIC PIPE

CU

CUBIC

CY

CUBIC YARD

DIA

DIAMETER

DTL

DETAIL

DI

DROP (DRAINAGE) INLET

DI

DUCTILE IRON

DWG

DRAWING

E

EAST

(E)

EXISTING

EA

EACH

EC

END CURVE

EF

EACH FACE

EL, ELEV

ELEVATION

EG

EXISTING GRADE

ENGR

ENGINEER

EP

EDGE PAVING

EQ

EQUAL

ER

EDGE ROAD

EVC

END VERTICAL CURVE

EW

EACH WAY

FG

FINISH GRADE

FIN

FINISH

FL, F

FLOW LINE

FS

FINISH SURFACE

FT

FOOT OR FEET

G

GAS

GALV

GALVANIZED

GB

GRADE BREAK

GR

GRADE

GRD

GROUND

H, HORZ

HORIZONTAL

HMMP

HABITAT MITIGATION AND MONITORING PLAN

HYD

FIRE HYDRANT

INV/E

INVERT ELEVATION

INTX

INTERSECTION

IR

IRRIGATION

JCT

JUNCTION

L

LENGTH

LF

LINEAR FOOT/FEET

LP

LOW POINT

LT

LEFT

LWD

LARGE WOOD
OR LARGE WOODY DEBRIS

MAX

MAXIMUM

MIN

MINIMUM

MISC

MISCELLANEOUS

N

NORTHING

NO.

NUMBER

(N)

NEW

NIC

NOT IN CONTRACT

NTS

NOT TO SCALE

OC

ON CENTER

OD

OUTSIDE DIAMETER

OHE

OVERHEAD ELECTRIC

PE

POLYETHYLENE

PI

POINT OF INTERSECTION

PL, P

PROPERTY LINE

PLCS

PLACES

POC

POINT OF CONNECTION

PP

POWER POLE

PT

POINT OF TANGENT

PVC

POLYVINYL CHLORIDE

PVI

POINT OF VERTICAL INTERSECTION

R

RIGHT

REQ'D

REQUIRED

RCP

REINFORCED CONCRETE PIPE

RSP

ROCK SLOPE PROTECTION

RT

RIGHT

R/W

RIGHT OF WAY

SCHED

SCHEDULE

SF

SQUARE FOOT/FEET

SHT

SHEET

SIM

SIMILAR

SS

SANITARY SEWER

SSFM

SANITARY SEWER FORCE
MAIN

SST

STAINLESS STEEL

STA

STATION

STL

STEEL

SWPPP

STORM WATER POLLUTION PREVENTION PLAN

SY

SQUARE YARD

T

TELEPHONE

TBD

TO BE DETERMINED

TBM

TEMPORARY BENCH MARK

TYP

TYPICAL

UNO

UNLESS NOTED OTHERWISE

V, VERT

VERTICAL

W/

WITH

W

WIDE

W

WEST

WM

WATER MAIN

WV

WATER VALVE

XS

CROSS SECTION

YD

YARD

PLAN SYMBOLS

GENERAL

±

APPROXIMATE

@

AT

∅

DIAMETER

Δ

DELTA

WATER SURFACE

CENTERLINE

37

HORIZONTAL
CONTROL
POINT

SECTION VIEW DIRECTION

SECTION OR DETAIL DESIGNATION (LETTER
INDICATES SECTION, NO. INDICATES DETAIL)

SHEET WHERE SECTION OR DETAIL OCCURS

SHEET FROM WHICH SECTION OR DETAIL WAS TAKEN

SITE/TOPOGRAPHIC/UTILITY

NEW

EXISTING

AC PAVEMENT

FENCE

GATE

MAJOR CONTOUR
MINOR CONTOUR

100+00

PROPOSED ALIGNMENT AND STATION

PROPERTY BOUNDARY

TREE/VEGETATION

HABITAT FILL AREA (SEE NOTE 1)

UPLAND AREA TO BE GRADED TO ADJACENT MARSH ELEVATION

FILL AREA

SENSITIVE SPECIES AVOIDANCE AREA (SEE NOTE 2)

SALT MARSH RIDGE

GRAVEL TRAIL, ACCESS ROAD, SHOULDER

ROCK SLOPE PROTECTION

PAVING

UTILITIES:

WATER MAIN

OVERHEAD ELECTRICAL LINE

LIMITS OF DISTURBANCE

LIMITS OF GRADING

SHEET INDEX

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5	C-001	SITE PLAN - EXISTING CONDITIONS AND SITE ACCESS
6	C-002	SITE PLAN - INVASIVE SPARTINA REMOVAL
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24	C-301	TYPICAL X-SECTIONS
25	C-501	CIVIL DETAILS (1 OF 3)
26	C-502	CIVIL DETAILS (2 OF 3)

TIDAL DATUM TABLE

EEL RIVER ESTUARY TIDAL DATUM

ELEVATION FT - NAVD 1988

MEAN HIGHER HIGH WATER (MHHW)	6.9
MEAN LOWER LOW WATER (MLLW)	1.2




SOURCE: AECOM, INC. OCEAN RANCH HYDRAULIC STUDY REPORT MAY 3, 2019.

APPROX. EARTHWORK QUANTITIES

EARTHWORK QUANTITIES




EARTHWORK LOCATION/TYPE	CUT (CY)	FILL (CY)
ENHANCE TIDAL CHANNELS	145,902	28,297
LOWER EXISTING DIKES AND UPLANDS	27,024	819
NEW SET-BACK LEVEE AND DRAINAGE DITCH	8,085	24,567
FILL EXISTING DRAINAGE DITCHES	-	3,705
TIDAL MARSH PLAIN FILLS (BALANCE CUT/FILL)	-	124,442
ROAD AND PARKING LOT (IMPORTED FILL)	-	12,205
TOTAL	181,011	193,216

PRELIMINARY 65% DESIGN

										Bar is one inch on original size sheet <div><div></div><div>01"</div></div>																				 <div>GHD Inc. 718 Third Street Eureka California 95501 USA T 1 707 443 8326 F 1 707 444 8330</div>										 <div>www.ghd.com</div>										Client CALTROUT										Title LEGEND, ABBREVIATIONS, AND SHEET INDEX										Size ANSI 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GENERAL AND GRADING NOTES		UTILITY NOTES		DEWATERING NOTES	
<div><div>1.</div><div>PROJECT REQUIRES A CLASS A GENERAL ENGINEERING CONTRACTOR'S LICENSE IN THE STATE OF CALIFORNIA.</div></div> <div><div>2.</div><div>CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SITE CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK AND REPORT ANY DISCREPANCIES TO THE CONSTRUCTION MANAGER. SHOULD EXISTING CONDITIONS DIFFER FROM THOSE SHOWN OR INDICATED, OR IF IT APPEARS THAT THESE PLANS DO NOT ADEQUATELY DETAIL THE WORK TO BE DONE, CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER PRIOR TO CONTINUING WITH ANY RELATED WORK. NO ALLOWANCE WILL BE MADE ON CONTRACTOR'S BEHALF FOR ANY EXTRA EXPENSE RESULTING FROM FAILURE OR NEGLECT IN DETERMINING THE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. NOTED DIMENSIONS TAKE PRECEDENCE OVER SCALE.</div></div> <div><div>3.</div><div>QUANTITIES OF ITEMS, LENGTH OF PROJECT, AND SITE CONDITIONS SHOWN IN THE PLANS ARE APPROXIMATE. ALL MATERIALS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.</div></div> <div><div>4.</div><div>CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER, GHD, AND THEIR REPRESENTATIVES HARMLESS FROM ANY AND ALL LIABILITY, REAL AND/OR ALLEGED, IN CONJUNCTION WITH THE PERFORMANCE OF THIS PROJECT.</div></div> <div><div>5.</div><div>CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY AND ALL DAMAGES TO EXISTING STRUCTURES, ROADS, AND UTILITIES DURING CONSTRUCTION. ALL DAMAGE SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE.</div></div> <div><div>6.</div><div>A SET OF SIGNED CONTRACT DOCUMENTS (PLANS AND SPECIFICATIONS) WILL BE KEPT AT ALL TIMES AT THE JOB SITE ON WHICH ALL CHANGES OR VARIATIONS IN THE WORK ARE TO BE RECORDED AND/OR CORRECTED DAILY AND SUBMITTED TO THE OWNER WHEN THE WORK TO BE DONE IS COMPLETED.</div></div> <div><div>7.</div><div>CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER AT LEAST 72 HOURS IN ADVANCE OF COMMENCEMENT OF ANY PART OF THE WORK AND SHALL COORDINATE CONSTRUCTION SCHEDULE UPDATES ACCORDINGLY.</div></div> <div><div>8.</div><div>THE DESIGN FEATURES SHOWN ON THESE DESIGN PLANS SHALL NOT BE ALTERED OR MODIFIED IN ANY WAY DURING CONSTRUCTION WITHOUT THE EXPRESSED, WRITTEN DIRECTION AND APPROVAL OF THE CONSTRUCTION MANAGER.</div></div> <div><div>9.</div><div>ANY INFORMATION DERIVED FROM THE MAPS, PLANS, SPECIFICATIONS, PROFILES, DRAWINGS OR FROM THE CONSTRUCTION MANAGER WILL NOT RELIEVE THE CONTRACTOR FROM ANY RISK OR FROM FULFILLING THE TERMS OF THE CONTRACT.</div></div> <div><div>10.</div><div>NO WORK SHALL BE PERFORMED OUTSIDE OF THE DESIGNATED AREAS WITHOUT THE APPROVAL OF THE CONSTRUCTION MANAGER.</div></div> <div><div>11.</div><div>THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ADDITIONAL STAGING AREAS WITH THE OWNER BEYOND WHAT IS SHOWN ON THE PLANS.</div></div> <div><div>12.</div><div>UPON COMPLETION OF THE CONSTRUCTION PROJECT, THE CONTRACTOR SHALL LEAVE THE PROJECT AREA FREE OF DEBRIS AND UNUSED MATERIAL U.N.O. ALL DAMAGE CAUSED BY THE CONTRACTOR SHALL BE RESTORED TO AN "AS GOOD OR BETTER" CONDITION.</div></div> <div><div>13.</div><div>THE CONTRACTOR SHALL PROTECT EXISTING SURVEY MONUMENTS WITHIN WORK LIMITS. ANY MONUMENT DAMAGED BY THE CONTRACTOR SHALL BE RESET IN ACCORDANCE WITH THE CALIFORNIA PROFESSIONAL LAND SURVEYORS ACT.</div></div> <div><div>14.</div><div>THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER UPON DISCOVERING DISCREPANCIES, ERRORS OR OMISSIONS IN THE PLANS. PRIOR TO PROCEEDING, THE DISCREPANCY SHALL BE RESOLVED TO THE SATISFACTION OF THE CONSTRUCTION MANAGER.</div></div> <div><div>15.</div><div>HOURS OF WORK: THE CONTRACTOR SHALL CONDUCT ALL WORK BETWEEN THE HOURS OF 7:00 A.M. AND 7:00 P.M., MONDAY THROUGH FRIDAY. A WORKING DAY IS DEFINED AS MONDAY THROUGH FRIDAY EXCLUDING WEEKENDS AND HOLIDAYS. WEEKEND AND HOLIDAY WORK WILL ONLY BE CONDUCTED AFTER PRIOR AUTHORIZATION FROM THE OWNER. IF WEEKEND/HOLIDAY WORK IS AUTHORIZED, IT SHALL BE LIMITED TO 9:00 A.M. - 6 P.M. EQUIPMENT DELIVERY SHALL BE DURING HOURS OF WORK.</div></div> <div><div>16.</div><div>CONTRACTOR SHALL MAINTAIN DAILY COMMUNICATIONS WITH THE CONSTRUCTION MANAGER TO DISCUSS DETAILS OF IMPLEMENTATION, ORDER OF WORK, METHODS OF MINIMIZING ENVIRONMENTAL IMPACTS AND OTHER RELEVANT COMPONENTS OF CONSTRUCTION. CONTRACTOR AND OWNER SHALL MEET DAILY ON-SITE TO DISCUSS PROJECT DETAILS.</div></div> <div><div>17.</div><div>ANY MODIFICATIONS FROM PLANS NEED TO BE COMPLETED AND/OR APPROVED BY THE CONSTRUCTION MANAGER PRIOR TO IMPLEMENTATION.</div></div> <div><div>18.</div><div>THE CONTRACTOR SHALL COMPLETELY REVIEW, BE FAMILIAR WITH, AND ADHERE TO THE TERMS OF ALL PERMITS AND AGENCY APPROVALS FOR THIS PROJECT. THE OWNER WILL BE RESPONSIBLE FOR SECURING AND PROVIDING TO THE CONTRACTOR COPIES OF ALL PERMITS, CERTIFICATIONS, OR AUTHORIZATIONS UNLESS NOTED OTHERWISE, FROM THE FOLLOWING AGENCIES INCLUDING, BUT NOT LIMITED TO: COUNTY OF HUMBOLDT, U.S. ARMY CORPS OF ENGINEERS, THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SECTION 401, THE U.S. FISH AND WILDLIFE SERVICE, THE NATIONAL MARINE FISHERIES SERVICE, CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, AND THE CALIFORNIA COASTAL COMMISSION. COPIES OF ALL PERMITS WILL BE AVAILABLE UPON REQUEST AND SHALL REMAIN ONSITE THROUGHOUT THE DURATION OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP).</div></div> <div><div>19.</div><div>PROJECT PERMITS SHALL REMAIN ON SITE AT ALL TIMES.</div></div> <div><div>20.</div><div>EXISTING CONTOUR INTERVALS AND DESIGN CONTOUR INTERVAL ARE 1'.</div></div> <div><div>21.</div><div>NO SHUTDOWN OF THE PROJECT SITE IS ANTICIPATED. HOWEVER, UNFORESEEABLE CONDITIONS INCLUDING BUT NOT LIMITED TO FIRE, GEO-HAZARD CONDITIONS, OR RAINS COULD REQUIRE THE CONSTRUCTION MANAGER TO SUSPEND CONSTRUCTION ACTIVITIES AT ALL OR PART OF THE SITE FOR SAFETY REASONS AT NO COST TO THE OWNER OR THEIR REPRESENTATIVES.</div></div>	<div><div>22.</div><div>PERFORM GRADING IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE AND APPLICABLE HUMBOLDT COUNTY REGULATIONS.</div></div> <div><div>23.</div><div>THE CONTRACTOR SHALL BE AWARE OF THE SOFT AND SATURATED SOIL CONDITION THAT MAY BE ENCOUNTERED DURING THE CONSTRUCTION. SEE GEOTECHNICAL REPORT.</div></div> <div><div>24.</div><div>IN THE EVENT CULTURAL RESOURCES (I.E., HISTORICAL, ARCHAEOLOGICAL, AND PALEONTOLOGICAL RESOURCES, AND HUMAN REMAINS) ARE DISCOVERED DURING CONSTRUCTION ACTIVITIES, WORK SHALL BE HALTED. A QUALIFIED ARCHEOLOGIST SHALL BE CONSULTED FOR AN ON-SITE EVALUATION. IF HUMAN BURIALS OR HUMAN REMAINS ARE ENCOUNTERED, THE CONTRACTOR SHALL ALSO NOTIFY THE COUNTY CORONER.</div></div> <div><div>25.</div><div>SHOULD GRADING OPERATIONS ENCOUNTER HAZARDOUS MATERIALS, OR WHAT APPEAR TO BE HAZARDOUS MATERIALS, STOP WORK IN THE AFFECTED AREA IMMEDIATELY AND CONTACT THE CONSTRUCTION MANAGER AND THE APPROPRIATE AGENCY FOR FURTHER INSTRUCTION.</div></div> <div><div>26.</div><div>ALL CONSTRUCTION SITES AND HAUL ROADS SHALL BE MAINTAINED, AS NECESSARY, TO MINIMIZE THE EMISSION OF DUST AND PREVENT CREATION OF NUISANCE TO ADJACENT PROPERTIES.</div></div> <div><div>27.</div><div>CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL CONSTRUCTION. ADEQUATE SHORING, BRACING, TIES, AND SUPPORTS SHALL BE USED TO PROVIDE PROPER TEMPORARY INTEGRITY DURING ALL PHASES OF CONSTRUCTION.</div></div> <div><div>28.</div><div>ALL EXISTING PASTURE AND STAGING/STOCKPILE AREAS WHICH ARE DISTURBED BY CONSTRUCTION OR EARTHWORK OPERATIONS SHALL BE RETURNED TO ORIGINAL EXISTING CONDITIONS OR BETTER.</div></div> <div><div>29.</div><div>ALL DITCHES, SWALES, CULVERTS, ETC. SHOULD BE CONSIDERED ACTIVE STORM CONVEYANCES UNLESS OTHERWISE INDICATED. CONTRACTOR IS RESPONSIBLE FOR ADDRESSING STORM WATER DRAINAGE AND DEWATERING OF WORK AREAS DURING CONSTRUCTION.</div></div> <div><div>30.</div><div>DURING WET WEATHER PERIODS, CONTRACTOR IS RESPONSIBLE FOR SEQUENCING CONSTRUCTION IN A MANNER TO MINIMIZE IMPACT ON OPEN EARTHWORK AND COMPACTION OPERATIONS.</div></div> <div><div>31.</div><div>THE OWNER'S REPRESENTATIVE WILL PROVIDE GRADING INSPECTION PER HUMBOLDT COUNTY CODE SECTION 331-14 H.5 AND UPON COMPLETION OF WORK THE OWNER WILL PROVIDE REPORT PER HUMBOLDT COUNTY CODE SECTION 331-14 I.1.</div></div> <div><div>32.</div><div>ANY MATERIAL NOT UTILIZED ON SITE SHALL BE REMOVED FROM SITE AND DISPOSED OF IN A LEGAL MANNER CONSISTENT WITH APPLICABLE REGULATIONS SUCH AS COUNTY GRADING ORDINANCES AND PROJECT PERMITS. CONTRACTOR IS RESPONSIBLE FOR PROPER LEGAL DISPOSAL OF ALL MATERIALS TAKEN FROM SITE.</div></div> <div><div>33.</div><div>EXISTING VEGETATION SHALL BE PROTECTED AND LEFT UNDISTURBED AS MUCH AS PRACTICAL. EXISTING NATIVE PLANTS IN AREAS TO BE DISTURBED WILL BE FLAGGED BY PROJECT BOTANIST FOR SALVAGE AND STORAGE IN TEMPORARY NURSERY TO BE REPLANTED AFTER FINAL GRADING HAS OCCURRED.</div></div> <div><div>34.</div><div>THE CONTRACTOR SHALL NOTE THAT PREHISTORIC MATERIALS THAT COULD BE ENCOUNTERED INCLUDE: OBSIDIAN AND CHERT FLAKES OR CHIPPED STONE TOOLS, GRINDING IMPLEMENTS, (E.G., PESTLES, HANDSTONES, MORTARS, SLABS), BEDROCK OUTCROPS AND BOULDERS WITH MORTAR CUPS, LOCALLY DARKENED MIDDEN, DEPOSITS OF SHELL, DIETARY BONE, AND HUMAN BURIALS. HISTORIC MATERIALS THAT COULD BE ENCOUNTERED INCLUDE: CERAMICS/POTTERY, GLASS, METAL, CAN AND BOTTLE DUMPS, CUT BONE, BARBED WIRE FENCES, BUILDING PADS, STRUCTURES, ETC. IN THE EVENT CULTURAL RESOURCES (I.E., HISTORICAL, ARCHAEOLOGICAL, AND PALEONTOLOGICAL RESOURCES, AND HUMAN REMAINS) ARE DISCOVERED DURING GRADING OR OTHER CONSTRUCTION ACTIVITIES, WORK SHALL BE HALTED WITHIN A 100 FOOT RADIUS OF THE FIND. A QUALIFIED ARCHEOLOGIST SHALL BE CONSULTED FOR AN ON-SITE EVALUATION. ADDITIONAL MITIGATION MAY BE REQUIRED BY THE COUNTY PER THE ARCHEOLOGIST'S RECOMMENDATIONS. IF HUMAN BURIALS OR HUMAN REMAINS ARE ENCOUNTERED, THE CONTRACTOR SHALL ALSO NOTIFY THE COUNTY CORONER.</div></div> <div><div>35.</div><div>THE CONTRACTOR SHALL SUBMIT A DUST CONTROL PLAN FOR REVIEW AND APPROVAL BY CALTROUT AND THE CONSTRUCTION MANAGER. THE DUST CONTROL PLAN SHALL INCLUDE CASQA BMPs.</div></div> <div><div>36.</div><div>BIOLOGICAL RESTRICTIONS - WILDLIFE: PRIOR TO START OF CONSTRUCTION, THE ENVIRONMENTAL MONITOR OR REPRESENTATIVES WILL GIVE CONTRACTOR'S STAFF A PRESENTATION REGARDING SPECIAL STATUS SPECIES AND RESTRICTIONS REQUIRED IN TERMS OF CONSTRUCTION START CLEARANCE SURVEYS; AND CONSTRUCTION MONITORING. BECAUSE OF THE HIGH NUMBER OF SPECIAL STATUS SPECIES THAT OCCUR IN THE AREA, MOST, IF NOT ALL, ELEMENTS MAY NOT BE IMPLEMENTED UNTIL AFTER CERTAIN DATES AND AFTER CONSTRUCTION CLEARANCE SURVEYS HAVE BEEN PERFORMED AND COMPLETED.</div></div> <div><div>37.</div><div>REQUIRED CLEARANCE SURVEYS: IF SPECIAL STATUS SPECIES ARE LOCATED DURING CLEARANCE SURVEYS, REQUIRED ACTIONS COULD INCLUDE, BUT ARE NOT LIMITED TO: 1) TEMPORARY DELAY IN CONSTRUCTION WHILE SPECIES ARE RELOCATED BY QUALIFIED BIOLOGISTS; OR 2) DELAY OF CONSTRUCTION UNTIL PREDETERMINED DATE A OF BREEDING SEASON WITH NO CONSTRUCTION OCCURRING WITHIN A BUFFER ZONE AROUND THE AREA WHERE SPECIES WERE FOUND.</div></div> <div><div>38.</div><div>SCHEDULING OF REQUIRED CLEARANCE SURVEYS: AT THE START OF CONSTRUCTION, THE CONTRACTOR WILL BE REQUIRED TO PROVIDE A CONSTRUCTION SCHEDULE. ON A WEEKLY BASIS, THE CONTRACTOR, CONSTRUCTION MANAGER, AND ENVIRONMENTAL MONITOR WILL MEET AND DISCUSS THE STATUS OF THE PROJECT AND UPDATES TO SCHEDULES. CLEARANCE SURVEYS WILL BE SCHEDULED WITH THE BASIS OF THIS REVISED WEEKLY SCHEDULE. THE CONTRACTOR WILL NOT BE ALLOWED TO START CONSTRUCTION UNTIL ALL THE APPROVED CLEARANCE SURVEYS HAVE BEEN PERFORMED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE THE ENVIRONMENTAL MONITOR AND UPDATED SCHEDULE THAT ALLOW FOR ADEQUATE TIME TO SCHEDULE THE CLEARANCE SURVEYOR SURVEYS REQUIRED.</div></div>	<div><div>1.</div><div>THE LOCATION FOR UTILITIES ON THESES PLANS IS APPROXIMATE ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY LOCATION, DEPTH AND HEIGHT. THEIR VERIFICATION SHALL BE COORDINATED BY THE CONTRACTOR WITH THE APPROPRIATE UTILITY COMPANY; A MINIMUM OF SEVENTY-TWO HOURS BEFORE BEGINING IN ANY AREA. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT NORTH (USA), AT 1-800-227-2600, TO DETERMINE LOCATIONS OF EXISTING UTILITIES. THE CONTRACTOR SHALL COOPERATE WITH UTILITY OWNERS TO EXPEDITE THE RELOCATION OR ADJUSTMENT OF THEIR UTILITIES TO MINIMIZE INTERRUPTION OF SERVICE AND DUPLICATION OF WORK. THE CONTRACTOR SHALL EXERCISE CARE WHEN WORKING NEAR EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGE, BREAKS, AND/OR LEAKS. IF DAMAGE OCCURS, THE CONTRACTOR SHALL REPAIR UTILITY AT NO ADDITIONAL EXPENSE TO THE HCRCD.</div></div> <div><div>2.</div><div>PRIOR TO RELOCATION, ALL UTILITIES TO BE RELOCATED WITHIN THE COUNTY RIGHT OF WAY SHALL BE STAKED AND APPROVED BY THE COUNTY, IF NEEDED.</div></div> <div><div>3.</div><div>LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE PLOTTED FROM RECORD INTERPOLATION OF PHYSICAL EVIDENCE ON THE SITE AND ARE SUBJECT TO FIELD VERIFICATION BY THE CONTRACTOR.</div></div> <div><div>4.</div><div>CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES, FEATURES, AND STRUCTURES LOCATED ON THE SITE. LOCATE, PROTECT, AND AVOID DISRUPTION OF ALL ABOVE AND BELOW GRADE UTILITIES DURING CONSTRUCTION.</div></div> <div><div>5.</div><div>CONSTRUCTION ACTIVITY WILL TAKE PLACE IN THE VICINITY OF ELECTRIC LINES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE AWARE OF, AND OBSERVE, THE MINIMUM CLEARANCES FOR WORKERS AND EQUIPMENT OPERATING NEAR HIGH VOLTAGE ELECTRIC LINES AS SET OUT IN THE HIGH VOLTAGE SAFETY ORDERS OF THE CALIFORNIA DIVISION OF INDUSTRIAL SAFETY AS WELL AS OTHER APPLICABLE SAFETY REGULATIONS.</div></div>	<div><div>1.</div><div>ALL IN-STREAM CONSTRUCTION ACTIVITIES, INCLUDING CHANNEL EXCAVATION AND DEWATERING, MAY BE CONDUCTED BETWEEN 15 JUNE AND 15 OCTOBER AND IN ACCORDANCE TO ALL PROJECT PERMITS AND RELATED CONDITIONS OF APPROVAL.</div></div> <div><div>2.</div><div>WHERE DEWATERING IS REQUIRED, A DEWATERING PLAN SHALL BE DEVELOPED BY THE CONTRACTOR AND SUBMITTED FOR APPROVAL BY THE CONSTRUCTION MANAGER TO MINIMIZE IMPACTS TO WATER QUALITY OF AQUATIC HABITATS IN THE PROJECT AREA. IN GENERAL, COFFER DAMS AND/OR SHEET PILING ARE REQUIRED IN AREAS WHERE FULL DEWATERING WILL BE CONDUCTED, WITH ADDITIONAL MEASURES TO REDUCE WATER QUALITY IMPACTS DURING CONSTRUCTION DEWATERING. INSTALLATION OF SILT FENCING AND TURBIDITY CURTAINS MAY ALSO BE REQUIRED TO CONTROL SEDIMENT. AT THE END OF CONSTRUCTION, THE CONTRACTOR SHALL REMOVE ALL BYPASSES, COFFER DAMS, SHEET PILING, TURBIDITY CURTAINS, AND SILT FENCING AND RESTORE THE SLOUGH CHANNEL BOTTOM IN THOSE LOCATIONS TO ITS PRE-CONSTRUCTION CONTOURS UNLESS OTHERWISE DESIGNATED BY THE CONSTRUCTION MANAGER.</div></div> <div><div>3.</div><div>IN SCHEDULING DEWATERING ACTIVITIES, THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER A MINIMUM OF TEN (10) DAYS PRIOR TO PLANNED DEWATERING ACTIVITY TO ENSURE THAT THE ENVIRONMENTAL MONITOR CAN SCHEDULE THE APPROPRIATE STAFF FOR CLEARANCE SURVEYS, MONITORING, AND RELOCATION OF NATIVE AQUATIC VERTEBRATES AND LARGE INVERTEBRATES TO NEARBY SUITABLE HABITAT PRIOR TO IMPLEMENTATION OF CONSTRUCTION.</div></div> <div><div>4.</div><div>COFFER DAMS AND FISH SCREENS MUST BE INSTALLED AND FISH REMOVED FROM THE PROJECT AREA. CONTRACTOR SHALL COORDINATE WITH CDFW FISHERIES BIOLOGIST RESPONSIBLE FOR REMOVING FISH FOR SCHEDULING PLACEMENT OF FISH SCREENS, COFFER DAM AND DEWATERING PLAN. CDFW FISHERIES BIOLOGIST IS RESPONSIBLE FOR SITING THE BEST LOCATION FOR FISH SCREENS.</div></div> <div><div>5.</div><div>ANY PUMPS USED ON-SITE (DEWATERING ETC) SHALL BE PLACED ON ABSORBENT PADS. THE CONTRACTOR SHALL HAVE SPILL CONTAINMENT MATERIALS LOCATED AT THE SITE, WITH OPERATORS TRAINED IN SPILL CONTROL PROCEDURES. PUMPS SHALL BE SCREENED TO PREVENT INTAKE OF SALMON, TIDEWATER GOBY, AND OTHER SPECIES.</div></div>		
				<div>ADDITIONAL COUNTY ENCROACHMENT AND AIR QUALITY NOTES</div>	
				<div><div>1.</div><div>ALL FUELING, EQUIPMENT MAINTENANCE, STAGING AND CONSTRUCTION MANAGEMENT SHALL BE LOCATED OUTSIDE THE COUNTY ROAD RIGHT OF WAY. NO CONSTRUCTION MATERIALS (CONSTRUCTION TRAILERS, STORAGE CONTAINERS, EQUIPMENT, ETC.) SHALL BE ALLOWED WITHIN THE COUNTY RIGHT OF WAY.</div></div> <div><div>2.</div><div>ALL EQUIPMENT AND LOADS OVER WEIGHT, LENGTH, WIDTH LIMITS WILL REQUIRE A TRANSPORTATION PERMIT FROM THE COUNTY OF HUMBOLDT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THESE PERMITS IF NECESSARY AND PAYING ALL PERMIT FEES.</div></div> <div><div>3.</div><div>ALL PUBLIC ROADS AND BRIDGES IMPACTED BY THE CONSTRUCTION ACTIVITIES SHALL BE CLEARED OF ALL SEDIMENT AND DEBRIS ON A DAILY BASIS OR AS DIRECTED BY COUNTY OF HUMBOLDT AND THE CONSTRUCTION MANAGER.</div></div> <div><div>4.</div><div>ALL ACTIVE CONSTRUCTION AREAS SHALL BE WATERED AT A RATE SUFFICIENT TO KEEP SOIL MOIST AND PREVENT FORMATION OF WIND-BLOWN DUST.</div></div> <div><div>5.</div><div>ALL TRUCKS HAULING SOIL, SAND, AND OTHER LOOSE MATERIALS SHALL BE COVERED, OR ALL TRUCKS SHALL BE REQUIRED TO MAINTAIN AT LEAST 2 FEET OF FREEBOARD, OR SHALL HAVE MOISTURE CONTENT, OR UTILIZE SOME OTHER METHODS THAT PREVENTS GENERATION OF FUGITIVE DUST.</div></div> <div><div>6.</div><div>EXPOSED STOCKPILES OF DIRT, SAND, AND SIMILAR MATERIAL SHALL BE ENCLOSED, COVERED, AND/OR WATERED DAILY, OR TREATED WITH NON-TOXIC SOIL BINDERS AS NECESSARY TO PREVENT GENERATION OF FUGITIVE DUST.</div></div> <div><div>7.</div><div>TRAFFIC SPEEDS ON UNPAVED ROADS SHALL BE LIMITED TO 10 MILES PER HOUR.</div></div> <div><div>8.</div><div>OUTDOOR DUST-PRODUCING ACTIVITIES SHALL BE SUSPENDED WHEN HIGH WINDS (>15 MPH) CREATE VISIBLE DUST PLUMES IN SPITE OF CONTROL MEASURES.</div></div> <div><div>9.</div><div>REASONABLE PRECAUTIONS SHALL BE TAKEN TO PREVENT THE ENTRY OF UNAUTHORIZED VEHICLES INTO THE PROJECT SITE DURING NON-WORK HOURS.</div></div> <div><div>10.</div><div>THE CONTRACTOR SHALL COMPLY WITH AIR QUALITY MANAGEMENT DISTRICT (AQMD) RULE 420 (PARTICULATE MATTER) AND RULE 430 (FUGITIVE DUST EMISSIONS), OR SUCCEEDING AQMD RULES THAT CARRY OUT THE AQMD'S MANAGEMENT PROGRAM FOR PARTICULATE MATTER.</div></div> <div><div>11.</div><div>ALL EQUIPMENT SHALL OPERATE WITH FACTORY-EQUIPPED MUFFLERS.</div></div> <div><div>12.</div><div>TO THE DEGREE FEASIBLE, HAUL TRUCKS SHALL USE HAUL ROUTES ALONG THE EXISTING CHANNEL EXCAVATION PATH, OR ALONG ROADWAYS DISTANT FROM SENSITIVE RECEPTORS.</div></div>	

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										Project CANNIBAL ISLAND RESTORATION PROJECT									
No. Issue				Checked		Approved		Date		Project No. 11206383		Date 2023-09-29		Scale AS SHOWN		Sheet No. G-003		Sheet 3 28	
Author P. DUIN				Drafting Check B. VIVYAN		Project Manager JS													
Designer P. DUIN				Design Check B. VIVYAN		Project Director JS													





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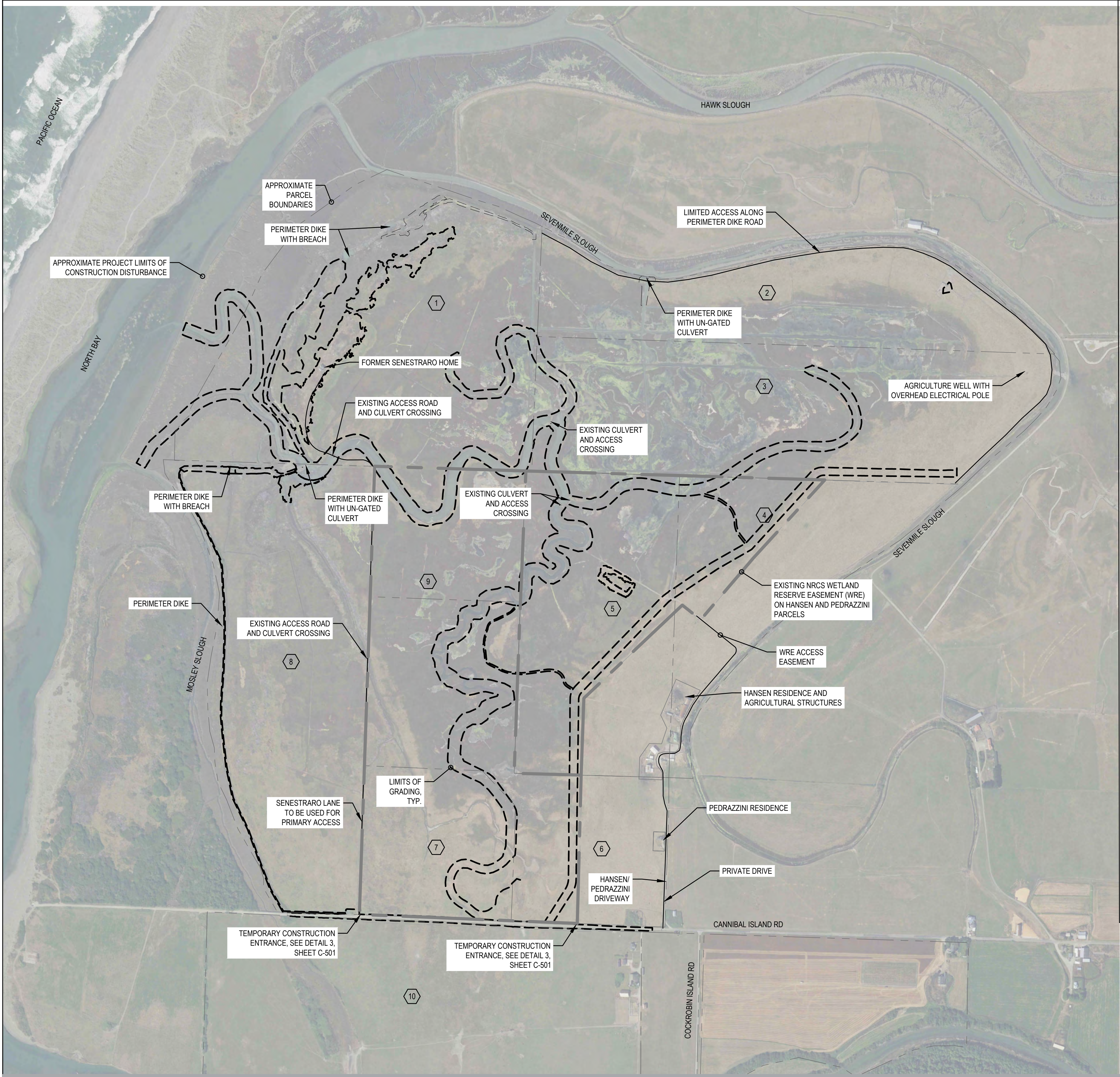
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EROSION, SEDIMENT, POLLUTION AND WASTE CONTROL NOTES

- | | | | | | | | | | | | |
|----|--|--|----|---|--|----|--|--|-----|---|--|
| 1. | THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES OF STORM WATER RUNOFF ASSOCIATED WITH PROJECT CONSTRUCTION ACTIVITY. THE SITE DISTURBANCE IS GREATER THAN 1 ACRE, THEREFORE THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE PROJECT. THE SWPPP SHALL BE DEVELOPED BY A QUALIFIED SWPPP DEVELOPER (QSD) AND BMP MONITORING AND REPORTING SHALL BE OVERSEEN BY A QUALIFIED SWPPP PRACTITIONER (QSP). | | 2. | IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MINIMIZE EROSION AND PREVENT THE TRANSPORT OF SEDIMENT TO THE ADJACENT WATERS AND SENSITIVE AREAS. | | 3. | PERFORM EROSION PREVENTION AND SEDIMENT CONTROL IN ACCORDANCE WITH THE LATEST EDITION OF CHAPTER 33 OF THE CALIFORNIA BUILDING CODE, APPLICABLE HUMBOLDT COUNTY REGULATIONS, AND SECTION 20 OF THE CALTRANS STANDARD SPECIFICATIONS. | | 4. | AT A MINIMUM, THE CONTRACTOR SHALL EMPLOY THE FOLLOWING BEST MANAGEMENT PRACTICES (BMPS) AS DESCRIBED IN THE CURRENT CALTRANS STORM WATER QUALITY HANDBOOK AS NEEDED: | |
| | SS-2 PRESERVATION OF EXISTING VEGETATION
SS-10 OUTLET PROTECTION/VELOCITY DISSIPATION DEVICES
SC-1 SILT FENCE
NS-2 DEWATERING OPERATIONS
NS-3 PAVING AND GRINDING OPERATIONS
NS-5 CLEAR WATER DIVERSION | NS-9 VEHICLE EQUIPMENT AND FUELING
WM-1 MATERIALS DELIVERY AND STORAGE
WM-2 MATERIAL USE
WM-4 SPILL PREVENTION AND CONTROL
WM-8 CONCRETE WASTE MANAGEMENT
WM-9 SANITARY/SEPTIC WASTE MANAGEMENT | | | | | | | | | |
| 5. | IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIX ANY EROSION, SEDIMENT, POLLUTION, & WASTE CONTROL DEFICIENCIES IDENTIFIED BY THE OWNER OR THE CONSTRUCTION MANAGER. | | 6. | PRIOR TO FINAL ACCEPTANCE ALL DISTURBED AREAS OF THE SITE WILL BE VEGETATED OR PERMANENTLY STABILIZED AND ALL TEMPORARY SEDIMENT CONTROL MEASURES SHALL BE REMOVED. | | 7. | ALL DISTURBED EARTH AREAS SHALL BE MULCHED AND SEEDED PER THE RE-VEGETATION AND PLANTING SPECIFICATIONS. | | 8. | IF DISCREPANCIES OCCUR BETWEEN THESE NOTES, MATERIAL REFERENCED HEREIN OR MANUFACTURERS RECOMMENDATIONS, THEN THE MOST PROTECTIVE SHALL APPLY. | |
| | | | | | | | | | 9. | PRESERVATION OF EXISTING VEGETATION SHALL OCCUR TO THE MAXIMUM EXTENT PRACTICABLE. | |
| | | | | | | | | | 10. | DISCHARGES OF POTENTIAL POLLUTANTS FROM CONSTRUCTION SITES SHALL BE PREVENTED USING SOURCE CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SEDIMENT, TRASH, NUTRIENTS, PATHOGENS, PETROLEUM HYDROCARBONS, METALS, CONCRETE, CEMENT, ASPHALT, LIME, PAINT, STAINS, GLUES, WOOD PRODUCTS, PESTICIDES, HERBICIDES, CHEMICALS, HAZARDOUS WASTE, SANITARY WASTE, VEHICLE OR EQUIPMENT WASH WATER, CIGARETTE BUTTS, AND CHLORINATED WATER. | |
| | | | | | | | | | 11. | WHENEVER IT IS NOT POSSIBLE TO UTILIZE EROSION PREVENTION MEASURES, EXPOSED SLOPES SHALL EMPLOY SEDIMENT CONTROL DEVICES, SUCH AS FIBER ROLLS AND SILT FENCES. FIBER ROLLS AND SILT FENCES SHALL BE TRENCHED AND KEYED INTO THE SOIL AND INSTALLED ON CONTOUR. SILT FENCES SHALL BE INSTALLED APPROXIMATELY 2 TO 5 FEET FROM TOE OF SLOPE. | |
| | | | | | | | | | 12. | ENERGY DISSIPATERS SHALL BE INSTALLED IN LOCATIONS WHERE STORM WATER FLOW MAY LEAD TO SOIL EROSION. | |
| | | | | | | | | | 13. | SOIL AND MATERIAL STOCKPILES SHALL BE PROPERLY PROTECTED TO MINIMIZE SEDIMENT AND POLLUTANT TRANSPORT FROM THE CONSTRUCTION SITE. | |
| | | | | | | | | | 14. | SOLID WASTE, SUCH AS TRASH AND DEBRIS, SHALL BE PLACED IN DESIGNATED COLLECTION AREAS OR CONTAINERS. THE CONSTRUCTION SITE SHALL BE CLEARED OF SOLID WASTE DAILY, OR AS NECESSARY, AND REGULAR REMOVAL AND PROPER DISPOSAL SHALL BE ARRANGED. | |
| | | | | | | | | | 15. | PROPER APPLICATION, CLEANING AND STORAGE OF POTENTIALLY HAZARDOUS MATERIALS, SUCH AS PAINTS AND CHEMICALS, SHALL BE CONDUCTED TO PREVENT THE DISCHARGE OF POLLUTANTS. | |
| | | | | | | | | | 16. | WHEN UTILIZED, TEMPORARY RESTROOMS AND SANITARY FACILITIES SHALL BE LOCATED AND MAINTAINED TO PREVENT THE DISCHARGE OF POLLUTANTS. | |
| | | | | | | | | | 17. | APPROPRIATE VEHICLE STORAGE, FUELING, MAINTENANCE AND CLEANING AREAS SHALL BE DESIGNATED AND MAINTAINED TO PREVENT DISCHARGE OF POLLUTANTS. | |
| | | | | | | | | | 18. | ENTRANCE(S) TO THE CONSTRUCTION SITE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF POTENTIAL POLLUTANTS OFFSITE. POTENTIAL POLLUTANTS DEPOSITED ON PAVED AREAS WITHIN THE COUNTY RIGHT-OF-WAY, SUCH AS ROADWAYS, SHALL BE PROPERLY DISPOSED OF EACH WORKING DAY OR MORE FREQUENTLY AS NECESSARY. | |
| | | | | | | | | | 19. | CHANGES TO THE STORM WATER POLLUTION PREVENTION PLAN MAY BE MADE TO RESPOND TO FIELD CONDITIONS. CHANGES SHALL BE NOTED ON THE PLAN WHEN MADE. | |
| | | | | | | | | | 20. | BECAUSE COFFER DAMS WILL BE INSTALLED AND THE CHANNELS WILL BE DEWATERED PRIOR TO EXCAVATION, EQUIPMENT WILL NOT BE OPERATED DIRECTLY WITHIN TIDAL WATERS OR CHANNELS OF FLOWING STREAMS, PRIOR TO FISH REMOVAL EFFORTS BEING COMPLETED. | |
| | | | | | | | | | 21. | SILT FENCES AND OR SILT CURTAINS WILL BE DEPLOYED IN THE VICINITY OF THE COFFER DAMS AND AT EXCAVATION OF SLOUGHS AT CULVERT REMOVAL AREAS TO PREVENT ANY SEDIMENT FROM FLOWING INTO THE WETTED CHANNELS. IF THE SILT FENCES ARE NOT ADEQUATELY CONTAINING SEDIMENT, CONSTRUCTION ACTIVITY WILL CEASE UNTIL REMEDIAL MEASURES ARE IMPLEMENTED THAT PREVENTS SEDIMENT FROM ENTERING THE ADJACENT WATERS. | |
| | | | | | | | | | 22. | SEDIMENT SOURCES SHALL BE CONTROLLED USING BMPS SUCH AS FIBER ROLLS, SEDIMENT BASINS, AND/OR CHECK DAMS THAT WILL BE INSTALLED PRIOR TO OR DURING GRADING ACTIVITIES AND REMOVED ONCE THE SITE HAS STABILIZED. | |
| | | | | | | | | | 23. | EROSION CONTROL MAY INCLUDE REUSE OF ONSITE NATIVE TOP SOIL AND ORGANIC MULCH, SEEDING, EROSION CONTROL BLANKETS, PLASTIC COVERINGS, AND GEOTEXTILES OR OTHER BMPS AS APPROVED OF BY THE CONSTRUCTION MANAGER. | |
| | | | | | | | | | 24. | EXCESS NUISANCE WATER ENCOUNTERED DURING EXCAVATION WILL BE PUMPED INTO THE SURROUNDING FIELDS OR INTO TEMPORARY SETTLING BASINS WITHIN THE CORRIDOR TO PREVENT SEDIMENT-LADEN WATER FROM ENTERING THE DOWNSTREAM CHANNEL. | |
| | | | | | | | | | 25. | APPROPRIATE ENERGY DISSIPATION DEVICES WILL BE UTILIZED TO REDUCE OR PREVENT EROSION AT DISCHARGE END OF DEWATERING ACTIVITY. | |
| | | | | | | | | | 26. | CONSTRUCTION MATERIALS, DEBRIS, AND WASTE WILL NOT BE PLACED OR STORED WHERE IT CAN ENTER INTO OR BE WASHED BY RAIN | |

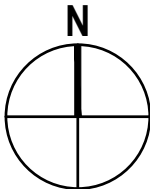
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No. Issue		Checked		Approved		Date		Project No. 11206383		Date 2023-09-29		Scale AS SHOWN		Sheet No. G-004		Sheet 4 of 28	
Author P. DUIN		Drafting Check B. VIVYAN		Project Manager JS													
Designer P. DUIN		Design Check B. VIVYAN		Project Director JS													



LIST OF PARCELS BISECTED BY APPROXIMATE LIMITS OF CONSTRUCTION DISTURBANCE

NOTE	APN #	PROPERTY OWNER
1	310-033-04	CALIFORNIA DEPT. OF FISH & WILDLIFE
2	310-021-03	CALIFORNIA DEPT. OF FISH & WILDLIFE
3	310-021-04	CALIFORNIA DEPT. OF FISH & WILDLIFE
4	310-051-01	HANSEN LORI
5	310-043-03	HANSEN LORI
6	310-043-04	PEDRAZZINI LESTER P TR
7	310-043-05	PEDRAZZINI LESTER P TR
8	310-043-01	CALIFORNIA DEPT. OF FISH & WILDLIFE
9	310-043-06	PEDRAZZINI LESTER P TR
10	310-071-001	PEDRAZZINI LESTER P TR

* PARCEL INFORMATION OBTAINED FROM HUMBOLDT COUNTY GIS DATA, NOT A PRODUCT OF SURVEY.



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No.	Issue	Checked	Approved	Date
Author	P. DUIN	Drafting Check	B. VIVYAN	Project Manager JS
Designer	P. DUIN	Design Check	B. VIVYAN	Project Director JS

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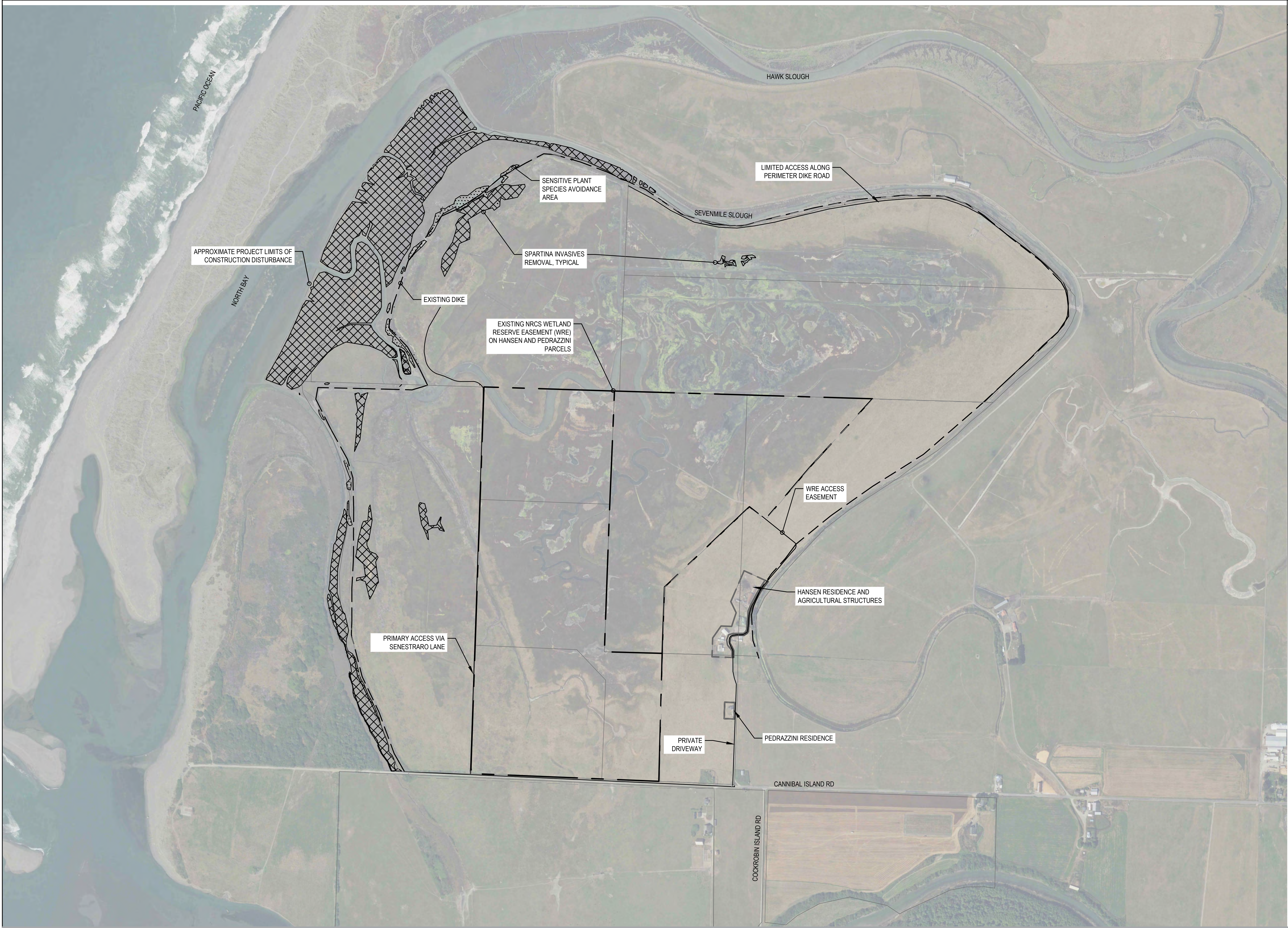


Client **CALTROUT**
Project **CANNIBAL ISLAND RESTORATION PROJECT**

Title **SITE PLAN - EXISTING CONDITIONS AND SITE ACCESS**

Project No. **11206383** Date **2023-09-29** Scale **AS SHOWN**

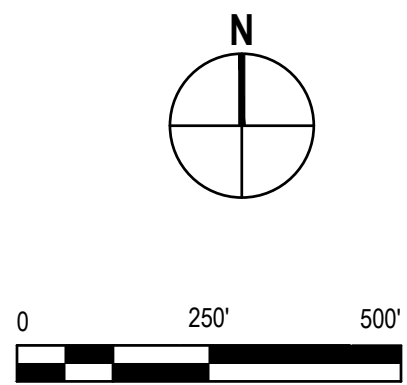
Sheet No. **C-001** Sheet **5** of **28**



LEGEND

INVASIVE SPARTINA
REMOVAL AREA (56 ACRES)
SEE SPECIFICATIONS AND PROJECT
PERMITS FOR APPROVED METHODS
AND IMPACT MINIMIZATION
MEASURES

SENSITIVE VEGETATION TO BE
AVOIDED UNLESS OTHERWISE NOTED



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Client	CALTROUT		
Project	CANNIBAL ISLAND RESTORATION PROJECT		
Project No.	11206383	Date	2023-09-29
Scale	AS SHOWN		

Title	SITE PLAN - INVASIVE SPARTINA REMOVAL		Size ANSI D
Sheet No.	C-002	Sheet	628



LEGEND

- LIMITS OF GRADING
- HABITAT FILL AREA (SEE NOTE 1)
- UPLAND AREA TO BE GRADED TO ADJACENT MARSH ELEVATION
- FILL AREA
- SENSITIVE SPECIES AVOIDANCE AREA (SEE NOTE 2)
- SALT MARSH RIDGE
- GRAVEL TRAIL, ACCESS ROAD, SHOULDER
- ROCK SLOPE PROTECTION
- PAVING

- NOTES:
- HABITAT FILL AREA - AREAS BELOW MHHW MAY BE UTILIZED FOR THE DISPOSAL OF EXCAVATED NATIVE MATERIAL. HABITAT FEATURES MAY INCLUDE SALT MARSH RIDGES, HABITAT MOUNDS, TRANSITIONAL HABITAT ELEVATION GRADIENTS OR OTHER BENEFICIAL HABITAT WATER QUALITY, OR HYDRAULIC PURPOSES.
 - SENSITIVE SPECIES AVOIDANCE AREA - PREVIOUS SURVEYS IDENTIFIED THE PRESENCE OF SENSITIVE PLANT SPECIES IN THESE AREAS. GRADING AND DISTURBANCE ONLY PERMITTED WHERE SPECIFIED.

No.	Issue			Checked	Approved	Date
Author	P. DUIN	Drafting Check	B. VIVYAN	Project Manager	JS	
Designer	P. DUIN	Design Check	B. VIVYAN	Project Director	JS	

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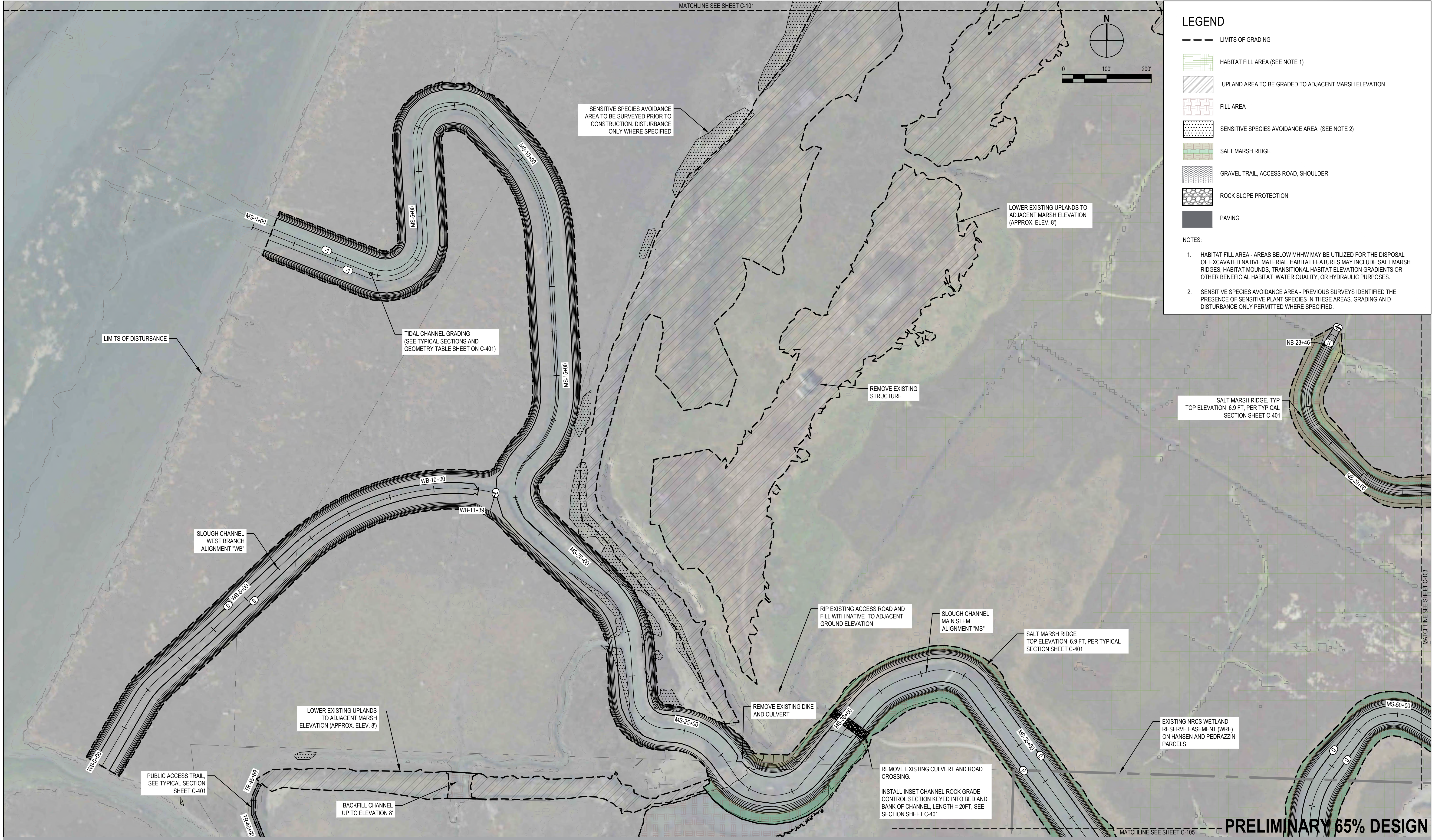
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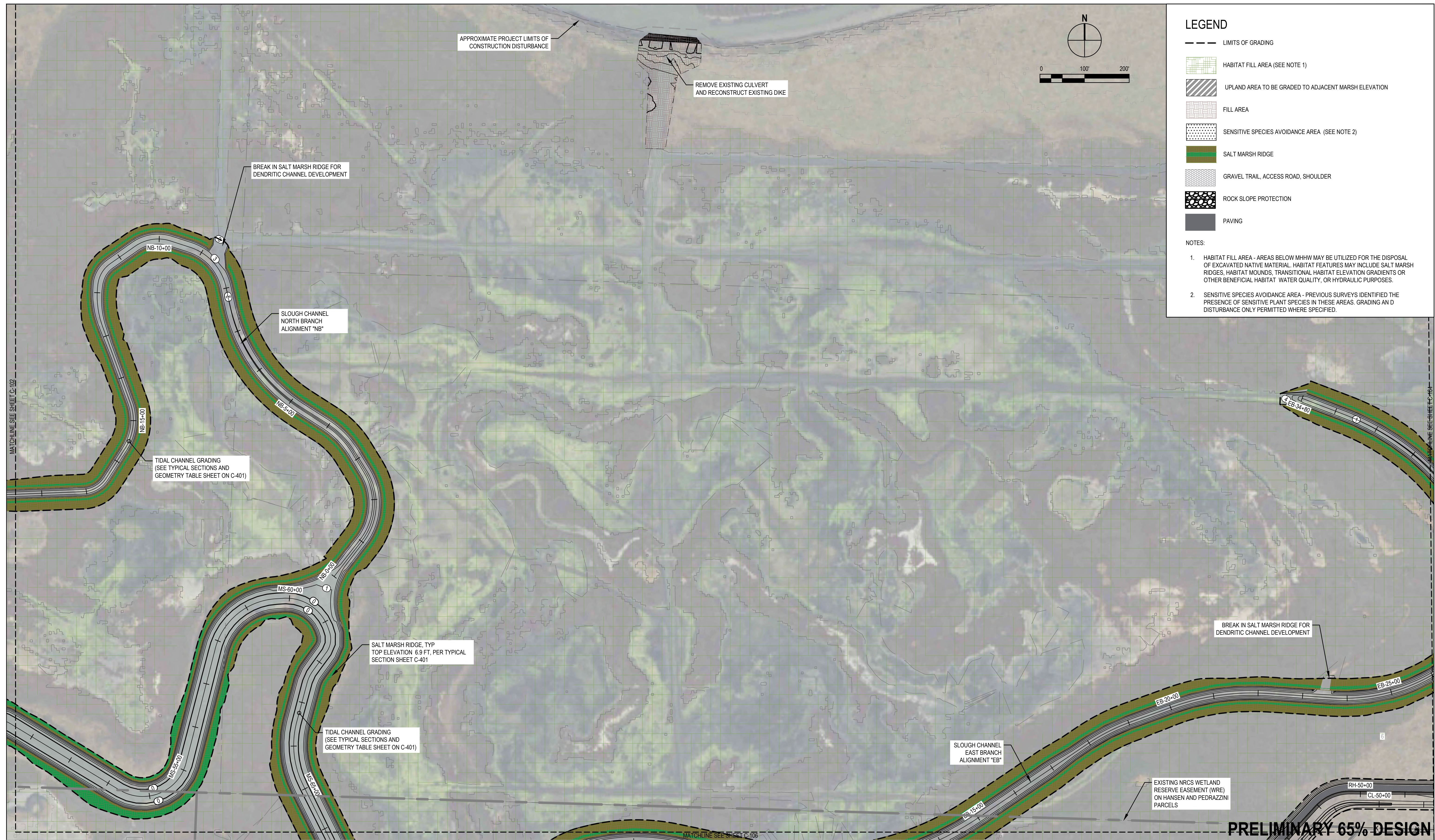





Client	CALTROUT
Project	CANNIBAL ISLAND RESTORATION PROJECT
Project No.	11206383
Date	2023-09-29
Scale	AS SHOWN

Title	SITE PLAN (1 OF 9)
Sheet No.	C-101
Size	ANSI D
Page	8 of 28



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No.	Issue		Checked	Approved	Date	Project CANNIBAL ISLAND RESTORATION PROJECT									
Author	P. DUIN	Drafting Check	B. VIVYAN	Project Manager	JS			Project No. 11206383		Date 2023-09-29	Scale AS SHOWN	Sheet No. C-102	Sheet 9 28		
Designer	P. DUIN	Design Check	B. VIVYAN	Project Director	JS										



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								Project CANNIBAL ISLAND RESTORATION PROJECT				
No. Issue			Checked	Approved	Date	Conditions of Use		Project No.	Date	Scale	Sheet No.	Sheet
Author P. DUIN Designer P. DUIN			Drafting Check B. VIVYAN Design Check B. VIVYAN	Project Manager JS Project Director JS		This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.		11206383	2023-09-29	AS SHOWN	C-103	10 28



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Author		P. DUIN		Drafting Check		B. VIVYAN		Project Manager	
Designer		P. DUIN		Design Check		B. VIVYAN		Project Director	

Checked		Approved		Date	
Project Manager		JS			
Project Director		JS			

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0 1"	



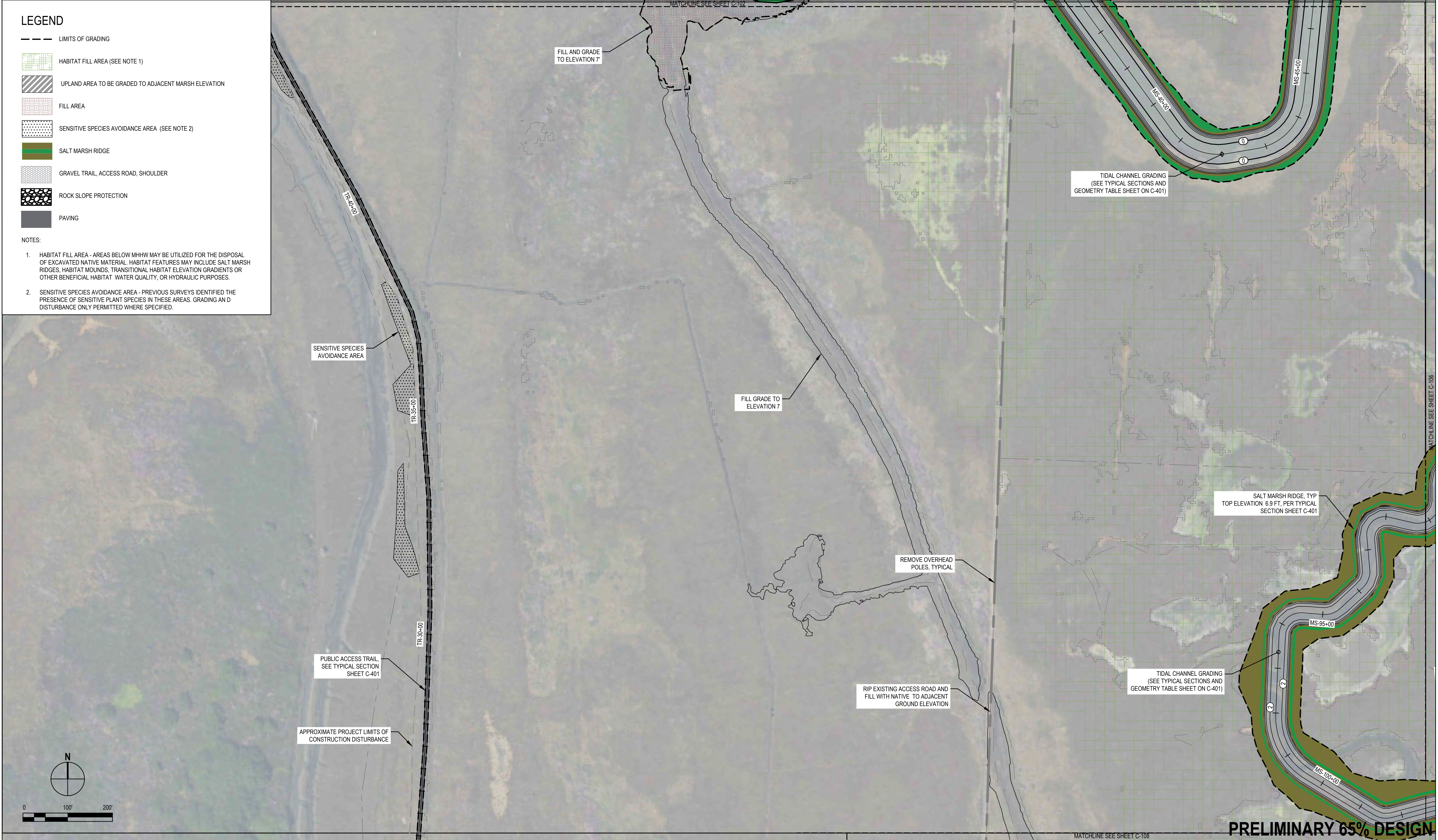
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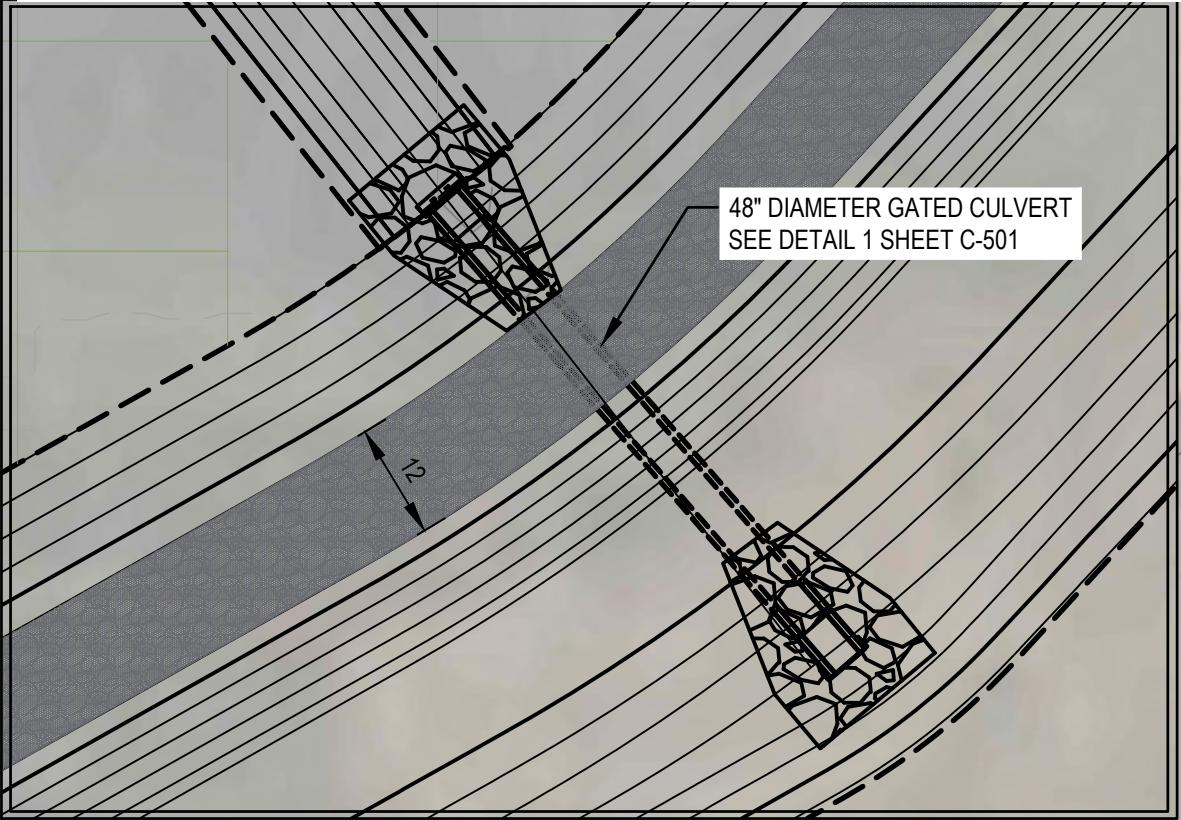
Client		CALTROUT	
Project		CANNIBAL ISLAND RESTORATION PROJECT	
Project No.		11206383	
Date		2023-09-29	
Scale		AS SHOWN	

Title		SITE PLAN (4 OF 9)	
Sheet No.		C-104	
Size		ANSI D	
Plot Date: 29 September 2023 - 1:47 PM		Plotted By: Pete Duin	
Filename: \\ghdnet\ghd\US\Eureka\Projects\56111206383\Digital_Design\ACAD 2020\Sheets\7 TO 15 SITE PLAN.dwg			

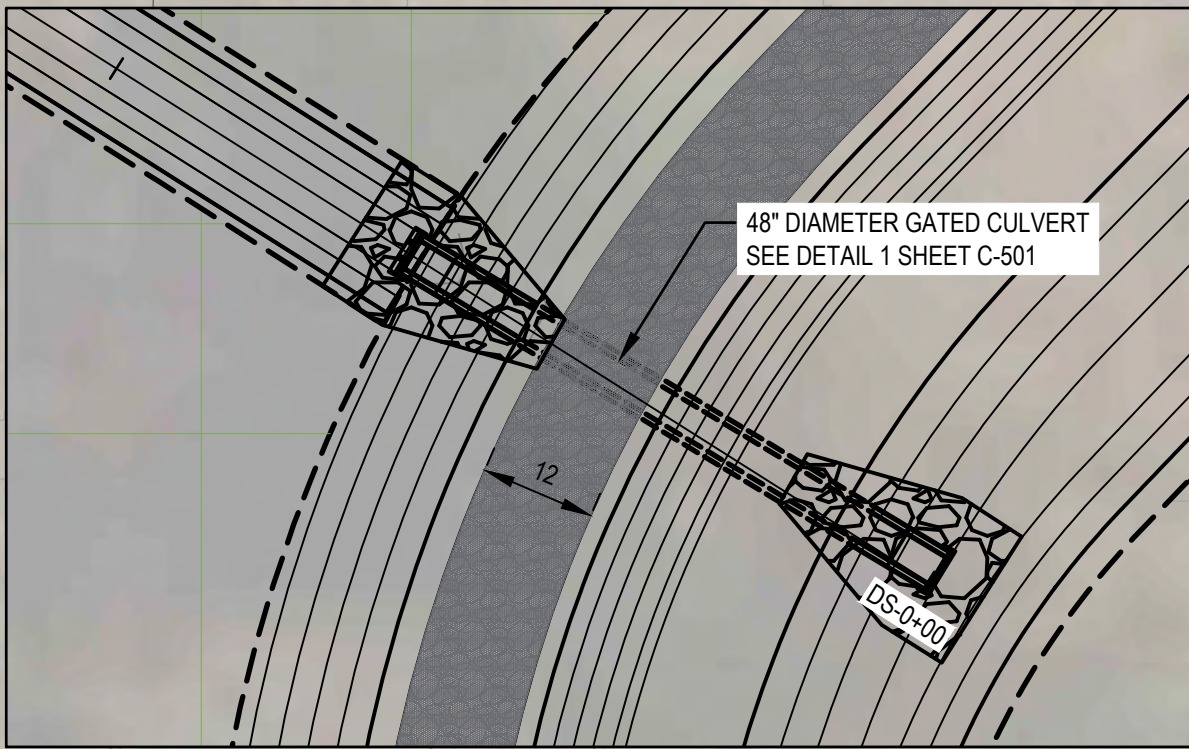




INSET 2: CULVERT CROSSING AT SET-BACK LEVEE DRAINAGE CHANNEL NORTH



INSET 1: CULVERT CROSSING AT SET-BACK LEVEE DRAINAGE CHANNEL SOUTH



LEGEND

- LIMITS OF GRADING
- [Green grid pattern] HABITAT FILL AREA (SEE NOTE 1)
- [Diagonal hatching] UPLAND AREA TO BE GRADED TO ADJACENT MARSH ELEVATION
- [Red grid pattern] FILL AREA
- [Dotted pattern] SENSITIVE SPECIES AVOIDANCE AREA (SEE NOTE 2)
- [Green line] SALT MARSH RIDGE
- [Grey stippled pattern] GRAVEL TRAIL, ACCESS ROAD, SHOULDER
- [Rock pattern] ROCK SLOPE PROTECTION
- [Dark grey] PAVING

- NOTES:
- HABITAT FILL AREA - AREAS BELOW MHHW MAY BE UTILIZED FOR THE DISPOSAL OF EXCAVATED NATIVE MATERIAL. HABITAT FEATURES MAY INCLUDE SALT MARSH RIDGES, HABITAT MOUNDS, TRANSITIONAL HABITAT ELEVATION GRADIENTS OR OTHER BENEFICIAL HABITAT WATER QUALITY, OR HYDRAULIC PURPOSES.
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PRELIMINARY 65% DESIGN

No.	Issue			Checked	Approved	Date
Author	P. DUIN	Drafting Check	B. VIVYAN		Project Manager	JS
Designer	P. DUIN	Design Check	B. VIVYAN		Project Director	JS

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Project No.	11206383
Date	2023-09-29
Scale	AS SHOWN

Title	SITE PLAN (6 OF 9)
Sheet No.	C-106
Size	ANSI D
Plot Date	29 September 2023 - 1:50 PM
Plotted By	Pete Duin
Filename	lghdnet\ghd\US\Eureka\Projects\56111206383\Digital_Design\ACAD 2020\Sheets\7 TO 15 SITE PLAN.dwg


LEGEND

--- LIMITS OF GRADING

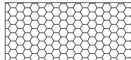
 HABITAT FILL AREA (SEE NOTE 1)


 UPLAND AREA TO BE GRADED TO ADJACENT MARSH ELEVATION

 FILL AREA

 SENSITIVE SPECIES AVOIDANCE AREA (SEE NOTE 2)

 SALT MARSH RIDGE

 GRAVEL TRAIL, ACCESS ROAD, SHOULDER

 ROCK SLOPE PROTECTION

 PAVING

NOTES:

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No.	Issue	Checked	Approved	Date	
Author	P. DUIN	Drafting Check B. VIVYAN	Project Manager JS		
Designer	P. DUIN	Design Check B. VIVYAN	Project Director JS		

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Project	CANNIBAL ISLAND RESTORATION PROJECT		

Title SITE PLAN (7 OF 9)

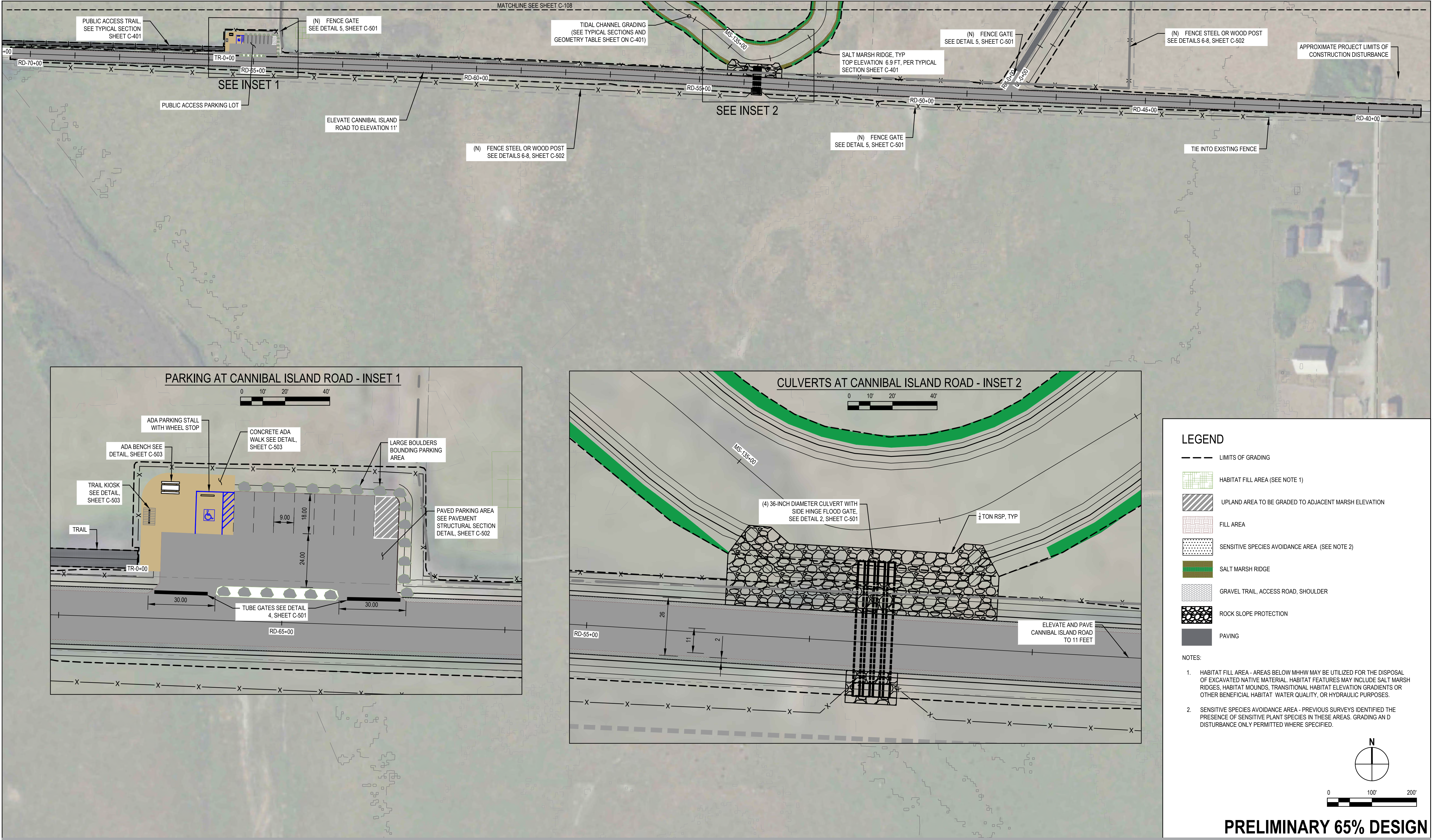
Project No.	Date	Scale
11206383	2023-09-29	AS SHOWN

Sheet No. C-107
14 28



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No.		Issue		Checked	Approved				Date	Project CANNIBAL ISLAND RESTORATION PROJECT			
Author	P. DUIN	Drafting Check	B. VIVYAN	Project Manager	JS				Project No. 11206383	Date 2023-09-29	Scale AS SHOWN	Sheet No. C-108	Sheet 15 of 28
Designer	P. DUIN	Design Check	B. VIVYAN	Project Director	JS								



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Author	P. DUIN	Drafting Check	B. VIVYAN	Project Manager
Designer	P. DUIN	Design Check	B. VIVYAN	Project Director

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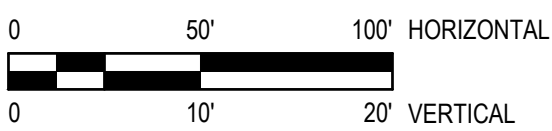
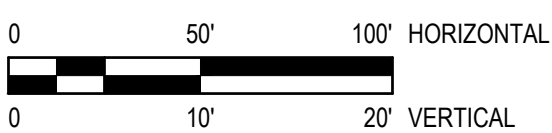
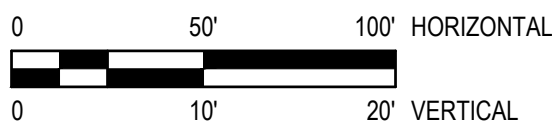
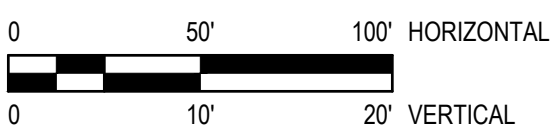
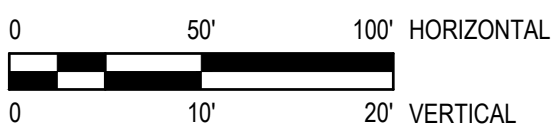
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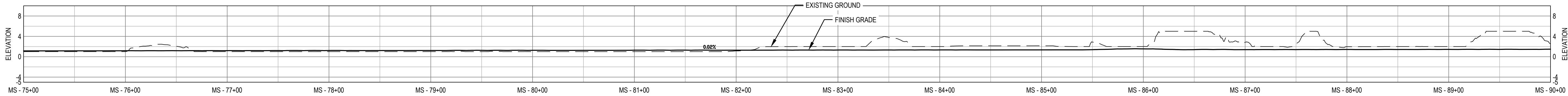
Client	CALTROUT
Project	CANNIBAL ISLAND RESTORATION PROJECT
Project No.	11206383
Date	2023-09-29
Scale	AS SHOWN

Title	SITE PLAN (9 OF 9)
Sheet No.	C-109
Size	ANSI D
Sheet	16 28



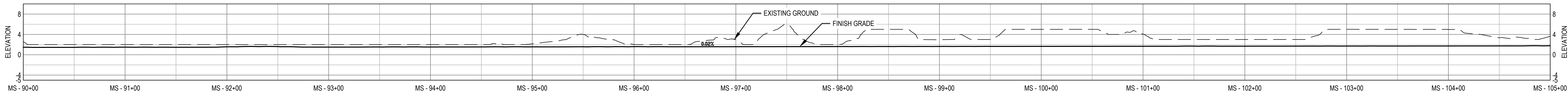
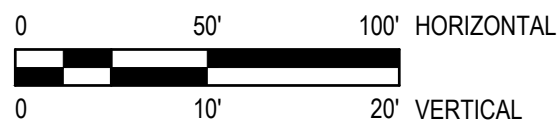
Size
ANSI D

Sheet



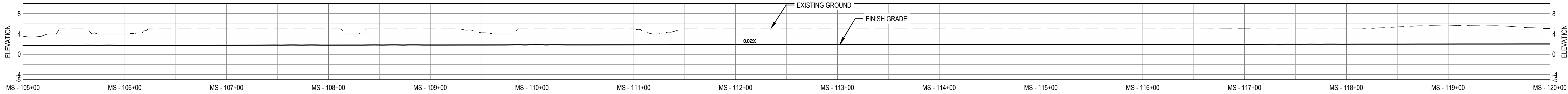
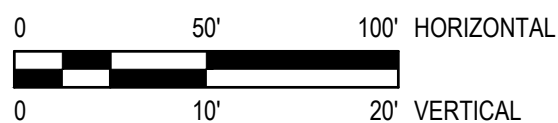
PROFILE: CANNIBAL ISLAND MAIN SLOUGH

VERTICAL EX.: 5:1



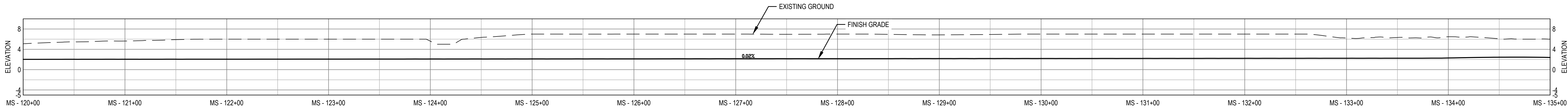
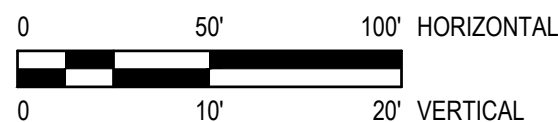
PROFILE: CANNIBAL ISLAND MAIN SLOUGH

VERTICAL EX.: 5:1



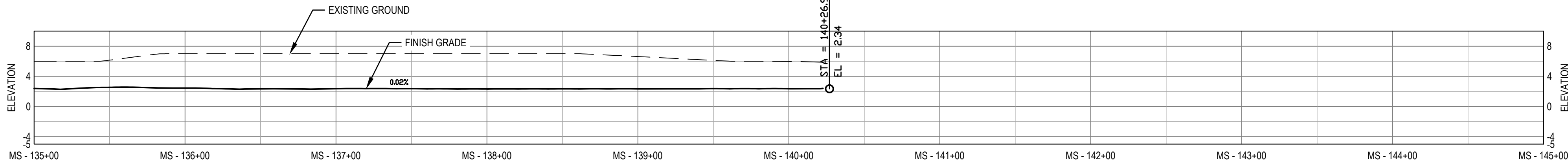
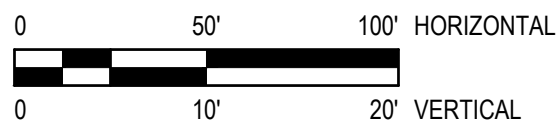
PROFILE: CANNIBAL ISLAND MAIN SLOUGH

VERTICAL EX.: 5:1



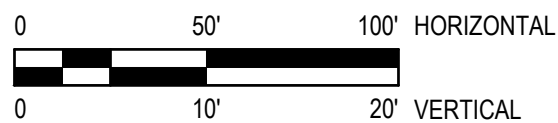
PROFILE: CANNIBAL ISLAND MAIN SLOUGH

VERTICAL EX.: 5:1



PROFILE: CANNIBAL ISLAND MAIN SLOUGH

VERTICAL EX.: 5:1



PRELIMINARY 65% DESIGN

No.	Issue	Checked	Approved	Date	
Author	P. DUIN	Drafting Check	B. VIVYAN	Project Manager	JS
Designer	P. DUIN	Design Check	B. VIVYAN	Project Director	JS

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Project CANNIBAL ISLAND RESTORATION PROJECT

Project No. 11206383

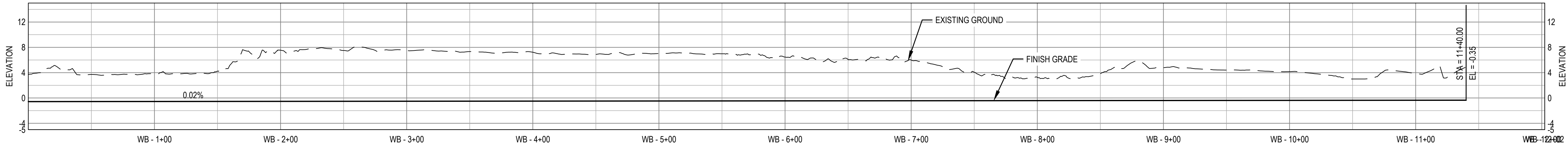
Date 2023-09-29

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Title PROFILE (2 OF 7)

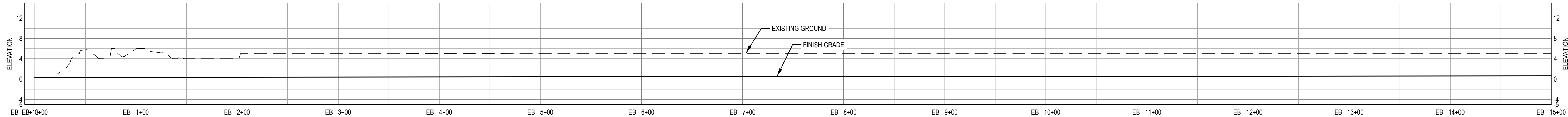
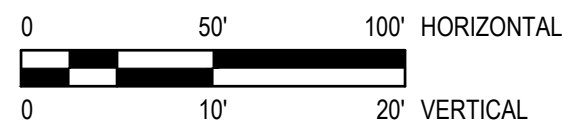
Size ANSI D

Sheet No. C-202 18 28



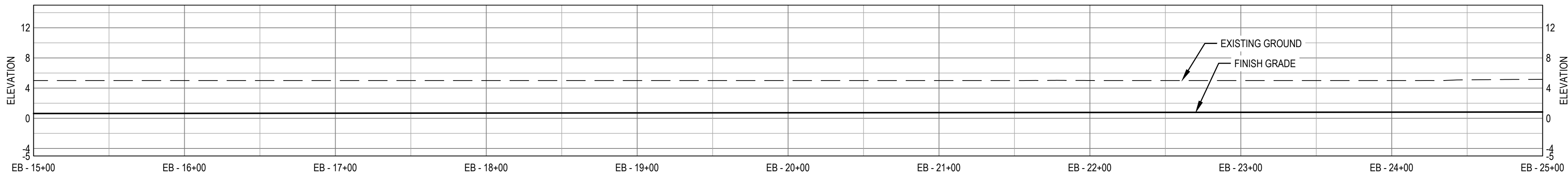
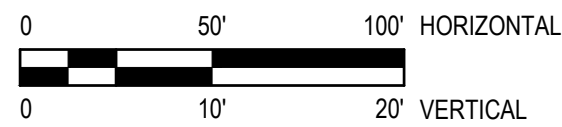
PROFILE: CANNIBAL ISLAND WEST BRANCH

VERTICAL EX.: 5:1



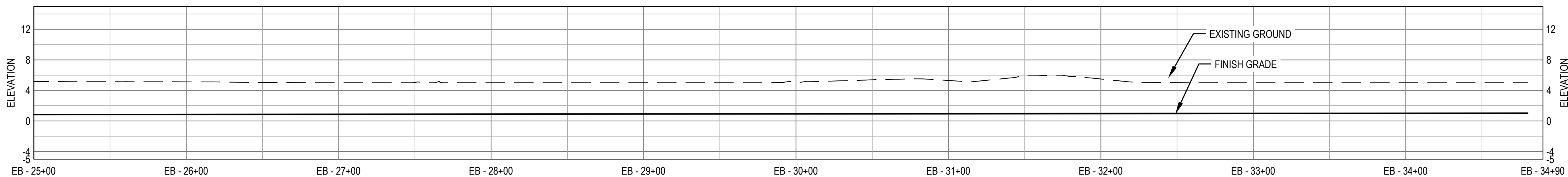
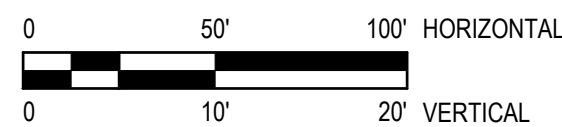
PROFILE: CANNIBAL ISLAND EAST BRANCH

VERTICAL EX.: 5:1



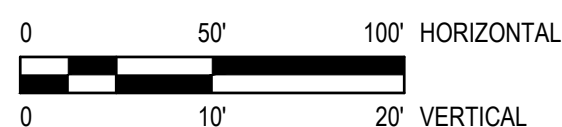
PROFILE: CANNIBAL ISLAND EAST BRANCH

VERTICAL EX.: 5:1



PROFILE: CANNIBAL ISLAND EAST BRANCH

VERTICAL EX.: 5:1



PRELIMINARY 65% DESIGN

No.	Issue		Checked	Approved	Date
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Designer	P. DUIN	Design Check	B. VIVYAN	Project Director	JS

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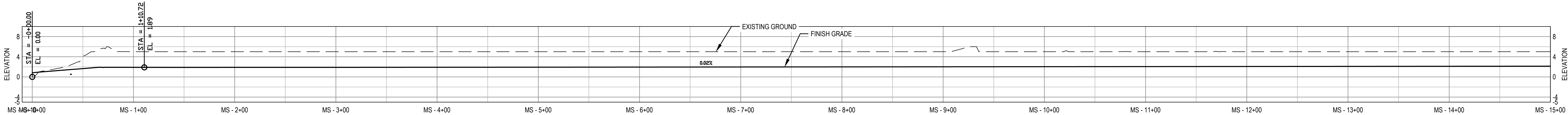
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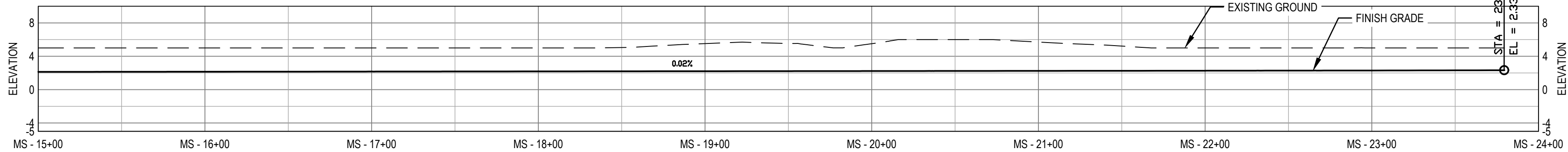
Client	CALTROUT
Project	CANNIBAL ISLAND RESTORATION PROJECT
Project No.	11206383
Date	2023-09-29
Scale	AS SHOWN

Title	PROFILE (3 OF 7)
Sheet No.	C-203
Size	ANSI D
Sheet	19 28



PROFILE: CANNIBAL ISLAND NORTH BRANCH

VERTICAL EX.: 5:1

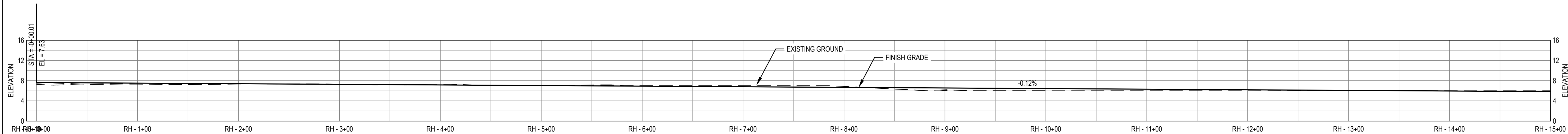


PROFILE: CANNIBAL ISLAND NORTH BRANCH

VERTICAL EX.: 5:1

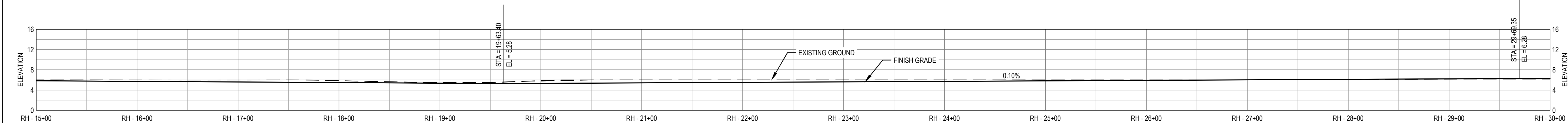
PRELIMINARY 65% DESIGN

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							Project CANNIBAL ISLAND RESTORATION PROJECT			
							Project No. 11206383			
							Date 2023-09-29			
							Scale AS SHOWN			
No. Issue		Checked	Approved	Date			Sheet No. C-204		Sheet 20 of 28	
Author	P. DUIN	Drafting Check	B. VIVYAN	Project Manager	JS					
Designer	P. DUIN	Design Check	B. VIVYAN	Project Director	JS					



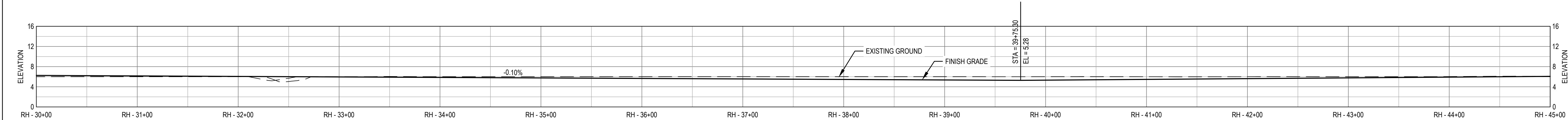
PROFILE: SET-BACK LEVEE RIGHT HINGE

VERTICAL EX.: 5:1



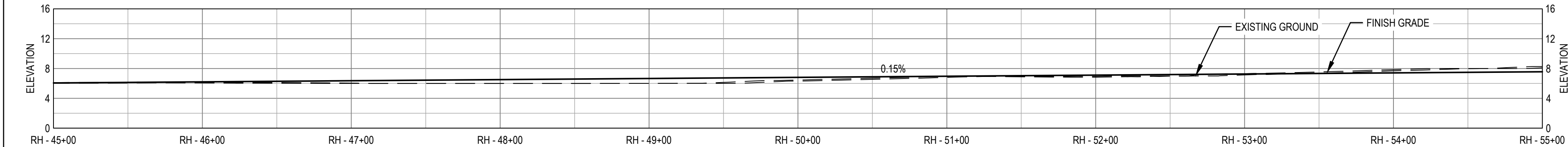
PROFILE: SET-BACK LEVEE RIGHT HINGE

VERTICAL EX.: 5:1



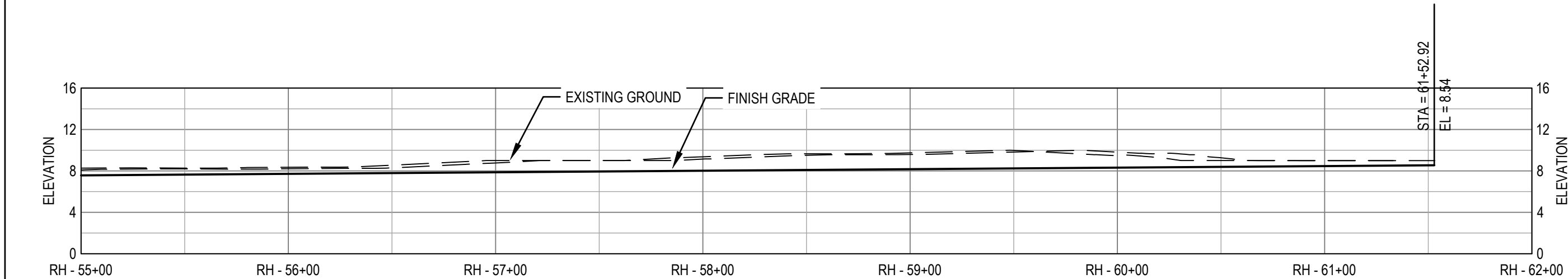
PROFILE: SET-BACK LEVEE RIGHT HINGE

VERTICAL EX.: 5:1



PROFILE: SET-BACK LEVEE RIGHT HINGE

VERTICAL EX.: 5:1



PROFILE: SET-BACK LEVEE RIGHT HINGE

VERTICAL EX.: 5:1

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Client CALTROUT

Project CANNIBAL ISLAND RESTORATION PROJECT

Project No. 11206383

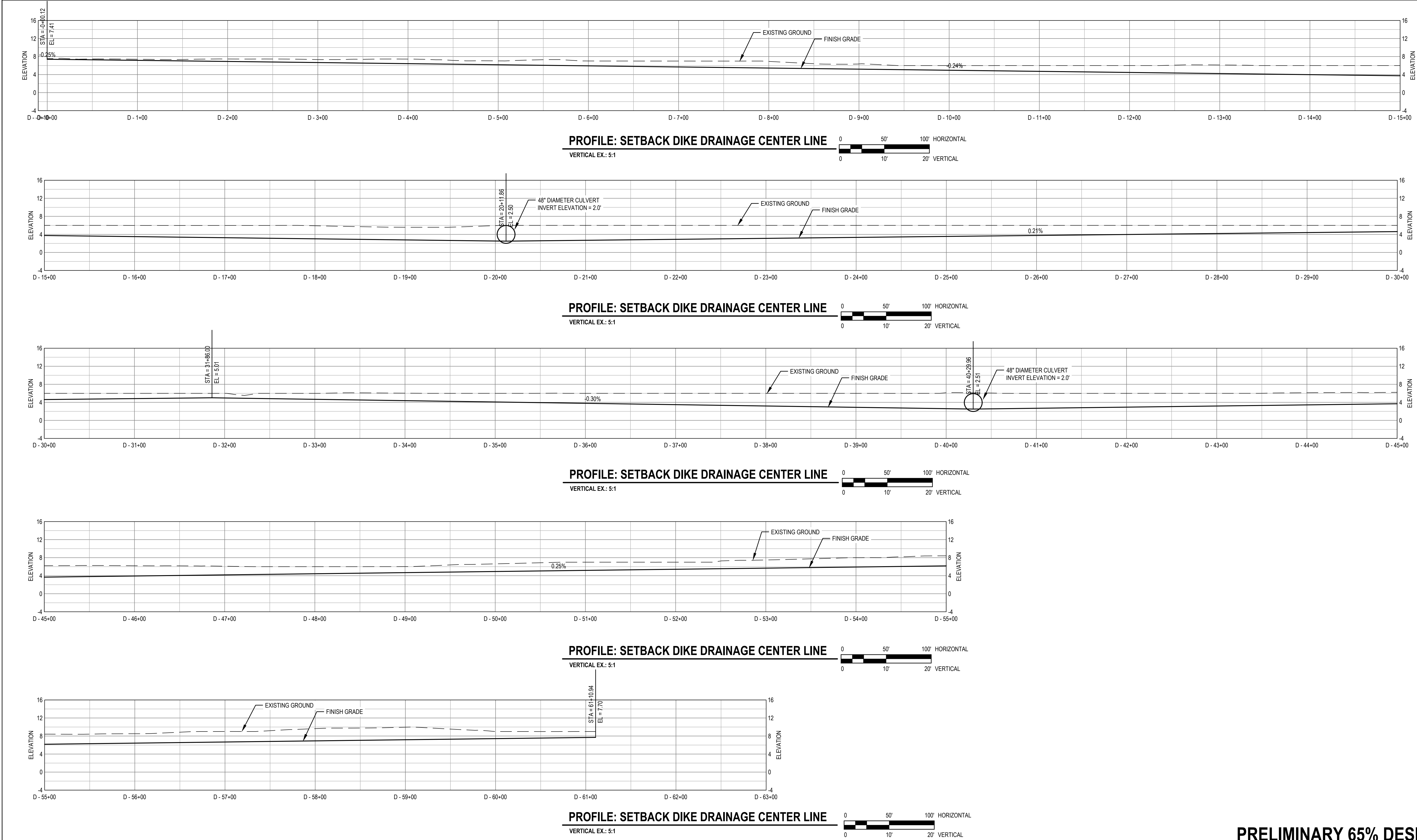
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Title PROFILE (5 OF 7)

Sheet No. C-205

Sheet 21 28



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Author	P. DUIN		Drafting Check	B. VIVYAN	Project Manager	JS
Designer	P. DUIN		Design Check	B. VIVYAN	Project Director	JS

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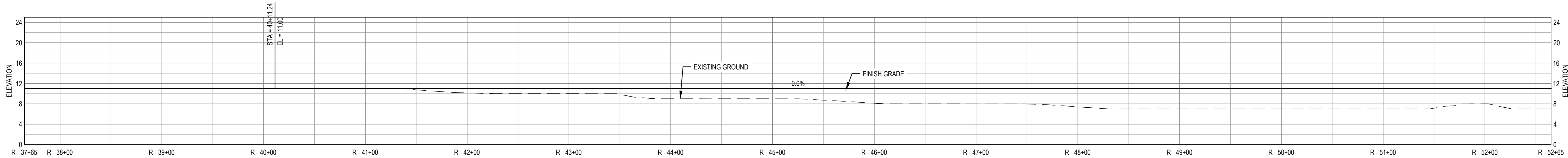
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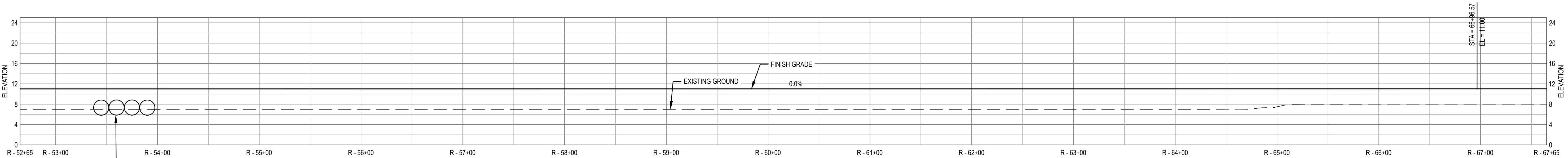
Client	CALTROUT
Project	CANNIBAL ISLAND RESTORATION PROJECT
Project No.	11206383
Date	2023-09-29
Scale	AS SHOWN

Title	PROFILE (6 OF 7)
Sheet No.	C-206
Size	ANSI D
Sheet	22 28



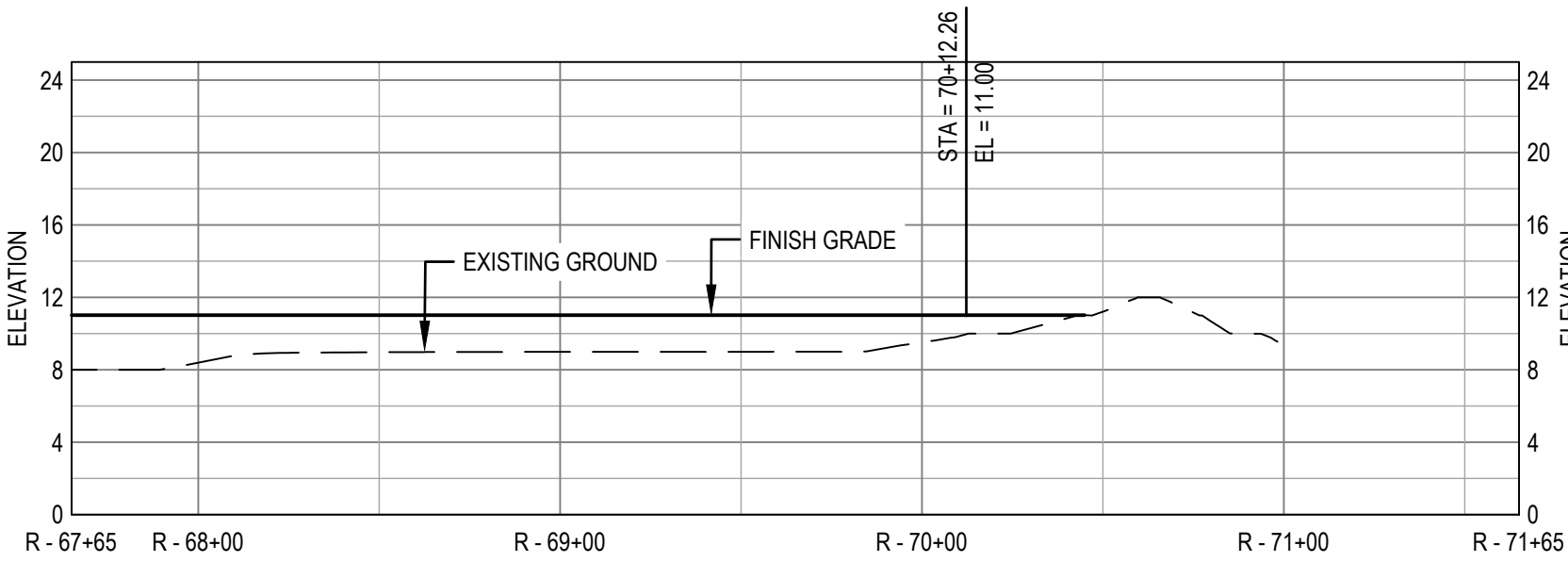
PROFILE: CANNIBAL ISLAND ROAD

VERTICAL EX.: 5:1



PROFILE: CANNIBAL ISLAND ROAD

VERTICAL EX.: 5:1



PROFILE: CANNIBAL ISLAND ROAD

VERTICAL EX.: 5:1

(N) FOUR 36" DIA CULVERTS

PRELIMINARY 65% DESIGN

No.	Issue	Checked	Approved	Date
Author	P. DUIN	Drafting Check	B. VIVYAN	Project Manager JS
Designer	P. DUIN	Design Check	B. VIVYAN	Project Director JS

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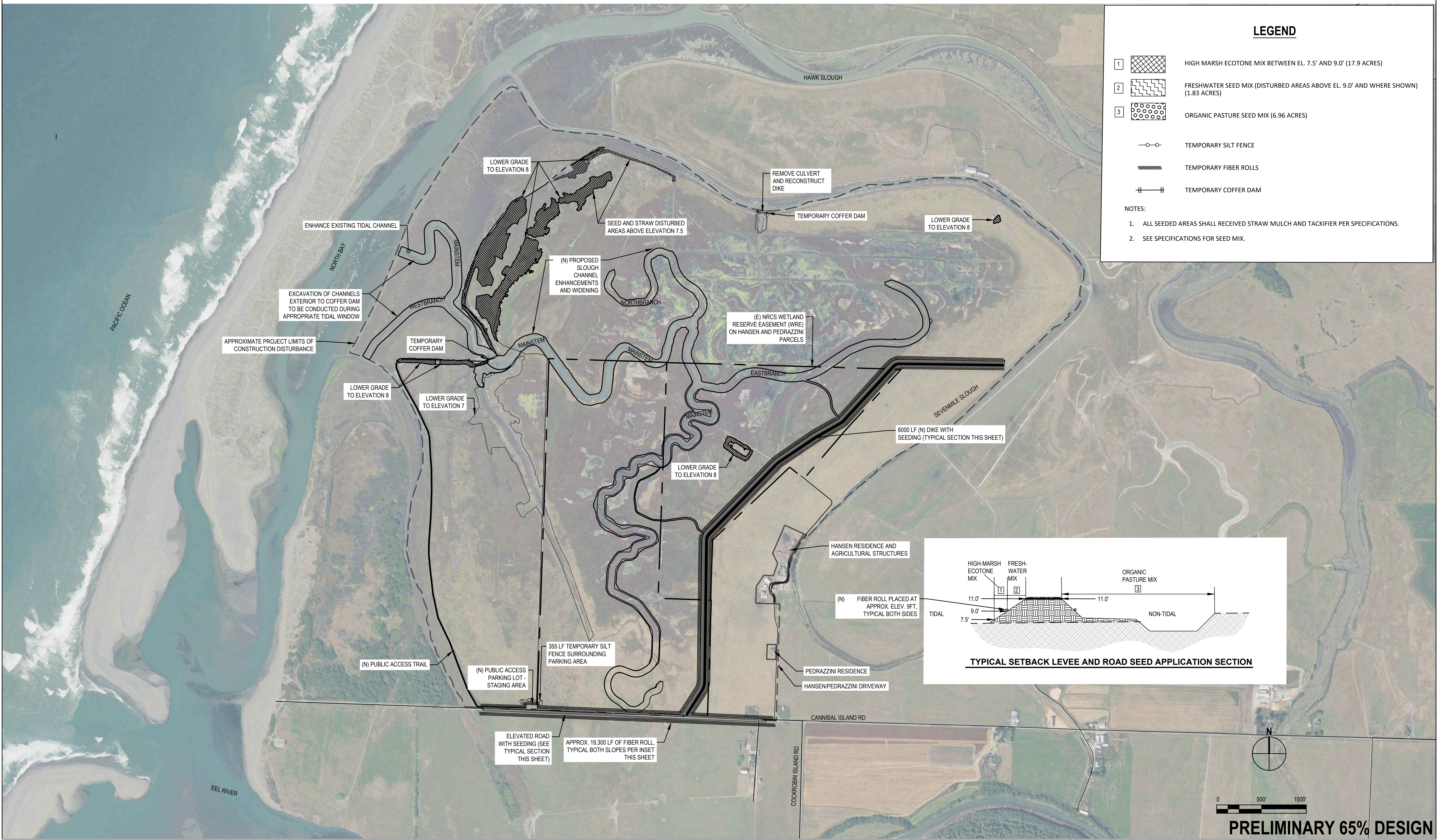
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Title PROFILE (7 OF 7)

Sheet No. C-207

Sheet 23 28



No.	Issue	Checked	Approved	Date
Author	PD	Drafting Check JS	Project Manager JS	
Designer	PD	Design Check JS	Project Director JS	

Plot Date: 28 September 2023 - 9:58 PM

Plotted By: Pete Duin

Filename: \\ghdnet\ghd\US\Eureka\Projects\56111206383\Digital_Design\ACAD 2020\Sheets\11206383_07_C-503_EROSION CONTROL AND BMP PLAN.dwg

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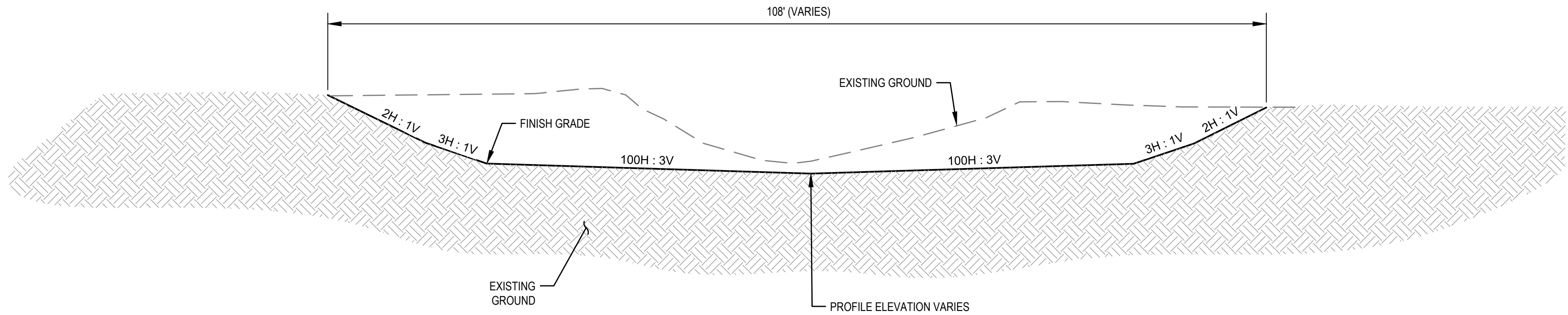
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Sheet No. C-301

Size ANSI D

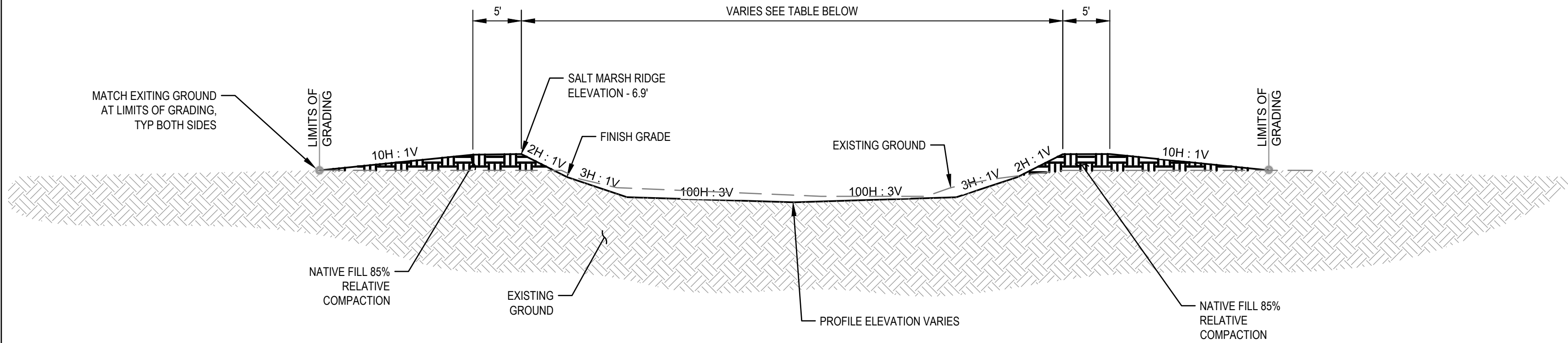
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CHANNEL TYPICAL SECTION - STA "MS" 21+00

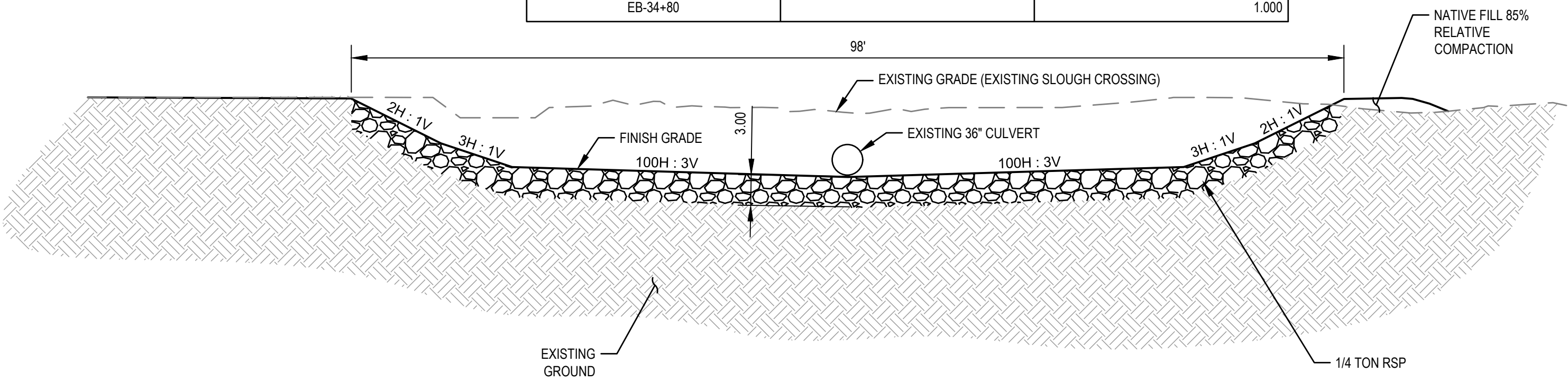
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CHANNEL TYPICAL SECTION WITH SALT MARSH RIDGE - STA "MS" 85+75

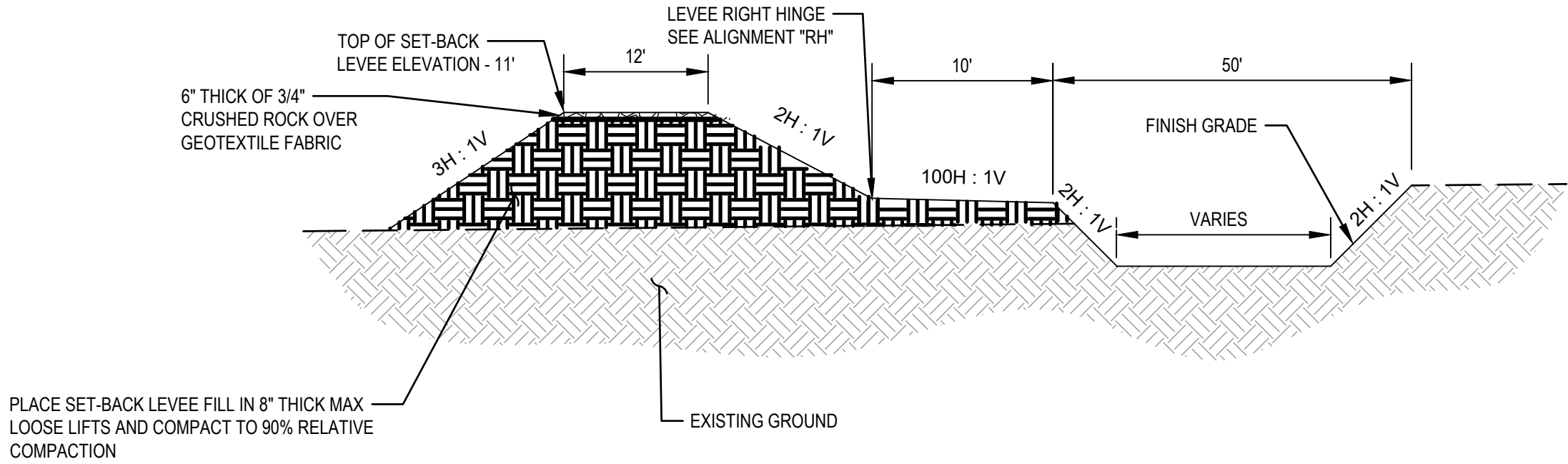
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TIDAL SLOUGH CHANNEL GEOMETRY			
STATION	TOP WIDTH (FT)110	THALWEG ELEVATION (FT)	
MS-0+00	63	-1.400	
MS-70+00	58	1.000	
MS-140+27	90	2.300	
WB-0+00	90	-0.600	
WB-11+84	42	-0.200	
NB-0+00	30	1.900	
NB-23+80	49	2.300	
EB-0+00	39	0.400	
EB-34+80		1.000	



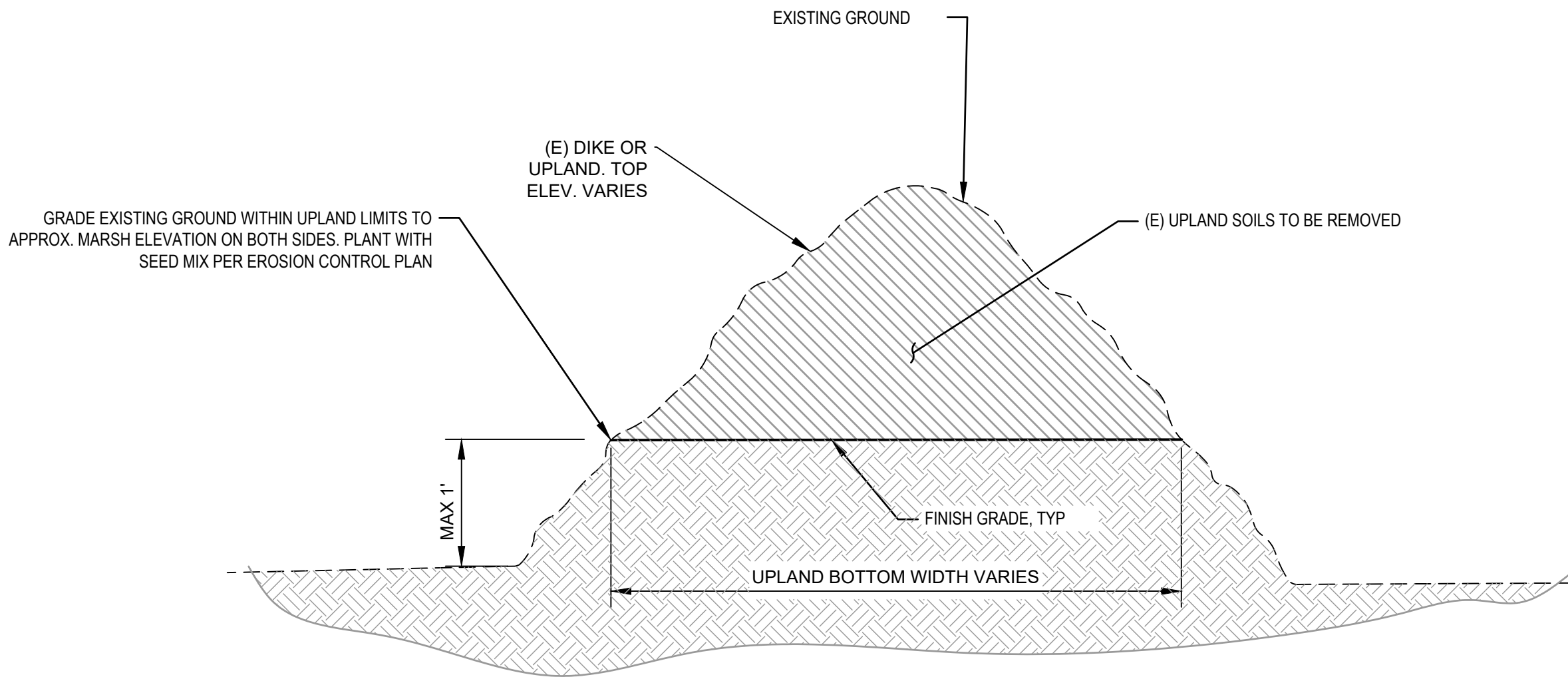
CHANNEL ROCKED CONTROL TYPICAL SECTION - STA "MS" 30+00

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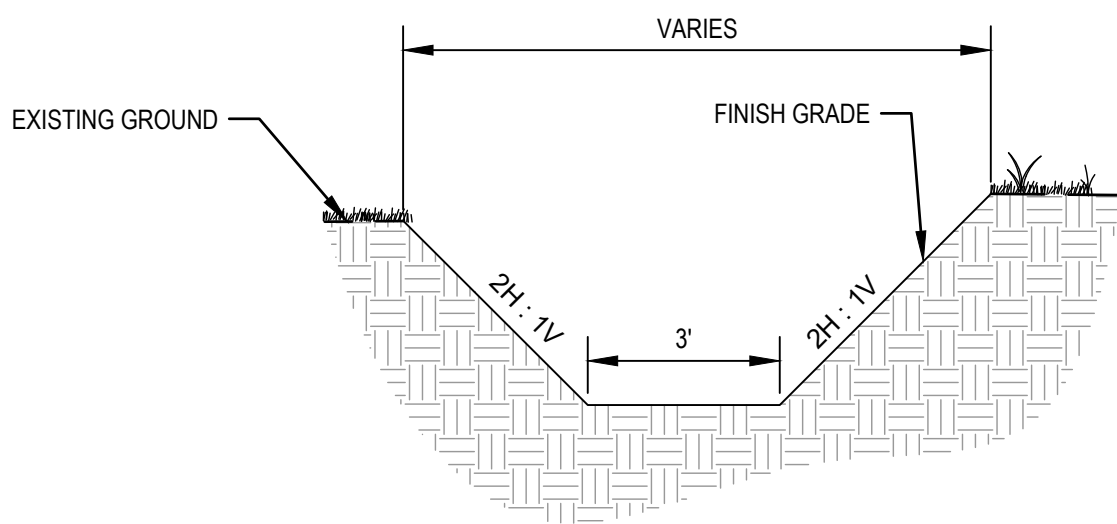
SETBACK LEVEE AND DRAINAGE DITCH TYPICAL SECTION

NOT TO SCALE



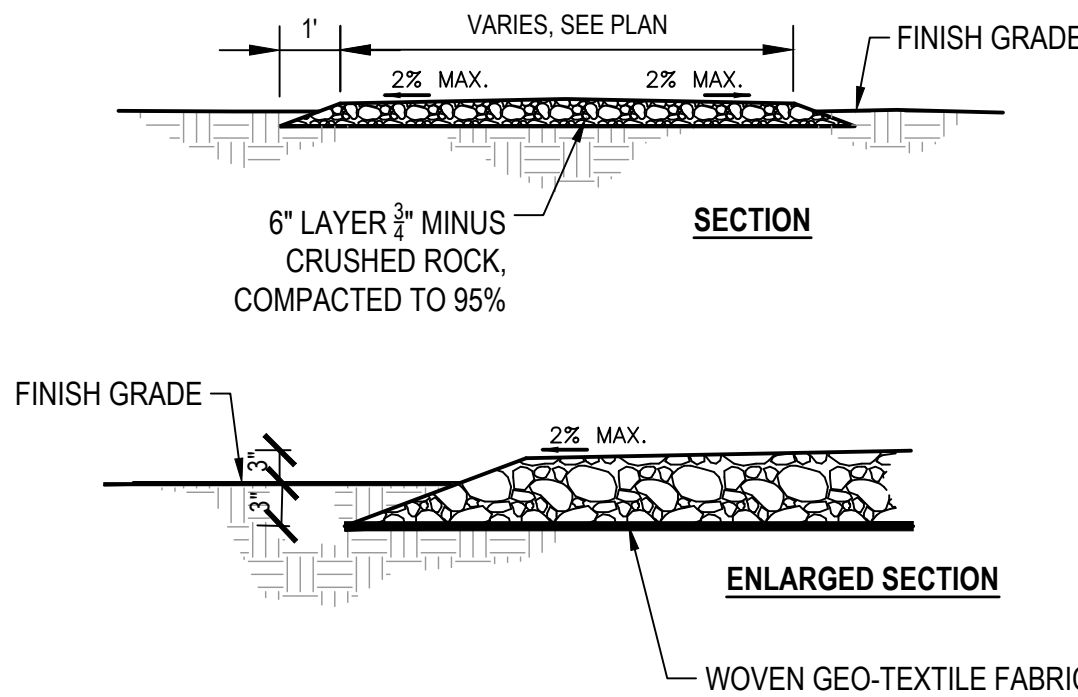
WETLAND CREATION TYPICAL SECTION

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CULVERT DRAINAGE CHANNEL TYPICAL SECTION

NOT TO SCALE



PUBLIC ACCESS TRAIL TYPICAL SECTION

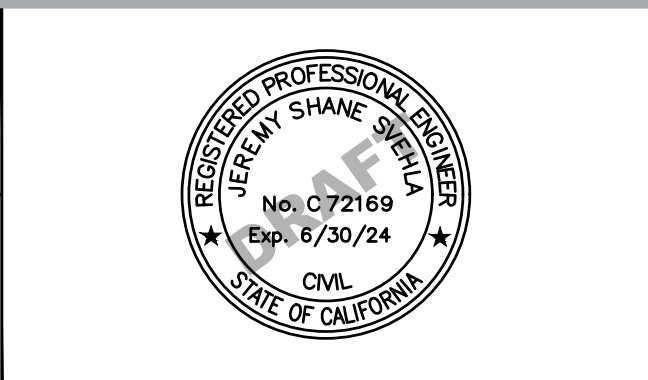
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Designer	P. DUIN	Design Check	B. VIVYAN	Project Director

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0 1"

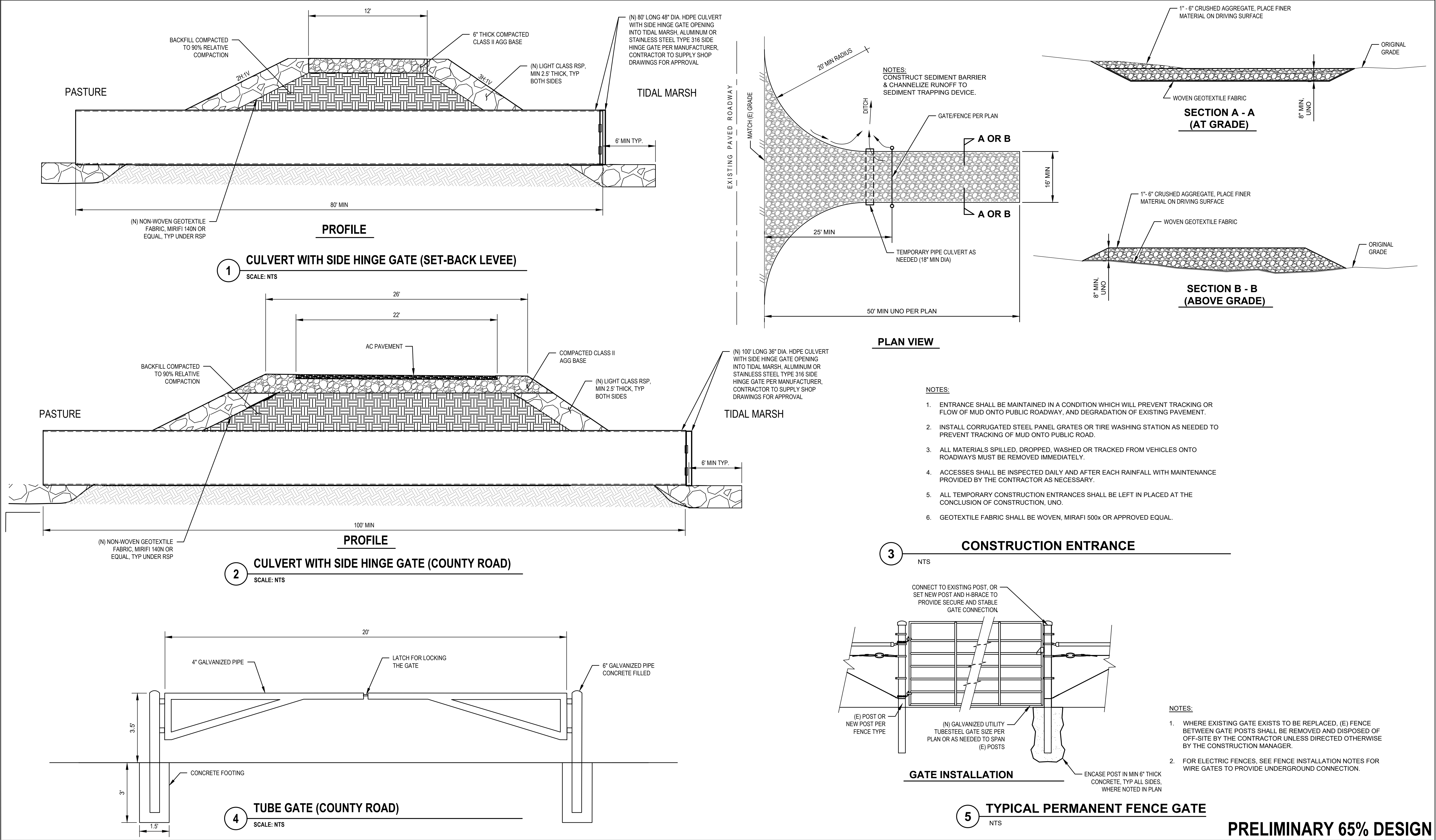


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Project No.	11206383
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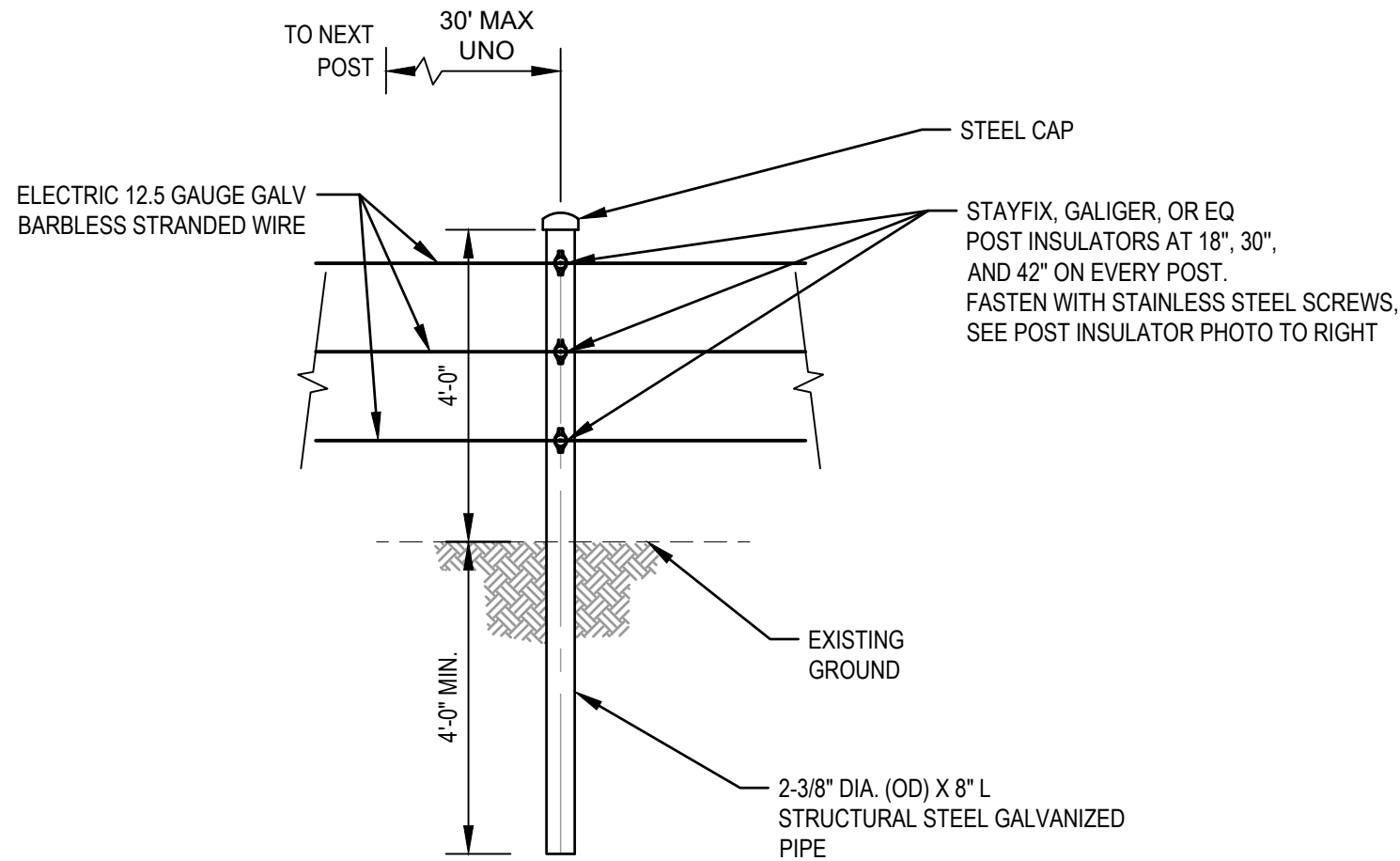
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Sheet No.	C-401
Size	ANSI D
Page	25



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									Project CANNIBAL ISLAND RESTORATION PROJECT						
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Author	P. DUIN	Drafting Check	B. VIVYAN	Project Manager	JS										
Designer	P. DUIN	Design Check	B. VIVYAN	Project Director	JS										

- NOTES:
- THE FOLLOWING MATERIALS SHALL BE USED IN ALL FENCE CONSTRUCTION UNLESS OTHERWISE NOTED:
 - 2-3/8" DIA (OD) X 8' LONG STRUCTURAL GALVANIZED PIPE (MIN. WALL THICKNESS SCHEDULE 20) (VERTICAL POSTS)
 - 12.5 GAUGE GALVANIZED BARBLESS STRANDED WIRE
 - 1-5/8" DIA (OD) X 8' LONG STRUCTURAL GALVANIZED PIPE (MIN. WALL THICKNESS SCHEDULE 20) (HORIZONTAL BRACES)
 - ALL POSTS TO BE CAPPED WITH GLAVANIZED STEEL CAP
 - COATING FOR ALL STEEL POSTS, RAILS, CAPS AND RELATED APPURTENANCES SHALL BE HOT-DIP GALVANIZATION WITH WEIGHT OF ZINC COATING NOT LESS THAN 1.8 OZ/FT² OF SURFACE (INSIDE AND OUTSIDE).
 - WIRE GATES** SHALL BE INSTALLED TO ALLOW ACCESS THROUGH THE FENCED AREA AT LOCATION SHOWN ON PLANS. WIRE GATES SHALL CONSIST OF WIRE GALVANIZED CABLES WITH INSULATED SPRING LOADED HANDLE TO MAINTAIN SAME VOLTAGE FOR THE GATE. WIRE GATE SHALL BE NON-ELECTRIFIED WHEN OPEN. UNDERGROUND DOUBLE INSULATED WIRES (INSULATED FOR MIN. 15,000 VOLTS) SHALL BE USED TO CARRY ELECTRICITY PAST THE GATE.
 - PRIOR TO INSTALLATION, ALL FENCE ALIGNMENTS SHALL BE STAKED IN THE FIELD AND APPROVED BY THE CONSTRUCTION MANAGER, AND ALL MATERIALS SHALL BE APPROVED BY THE CONSTRUCTION MANAGER.
 - ALL VERTICAL POSTS TO BE DRIVEN PLUMB WITH 4 FT EXPOSED ABOVE GROUND.
 - SEE DETAIL 20 FOR BRACING.
 - INSULATORS SHALL BE HIGH-DENSITY POLYETHYLENE WITH ULTRA-VIOLET STABILIZER AND AS SHOWN ON DETAIL. ALL INSULATORS SHALL BE CAPABLE OF WITHSTANDING 10,000 VOLTS OR MORE OF CURRENT LEAKAGE. RED INSULATORS SHALL NOT BE USED.
 - ALL WIRE SHALL BE TENSIONED TO MIN. 200 LBS.
 - LANDOWNER TO ENERGIZE SYSTEM

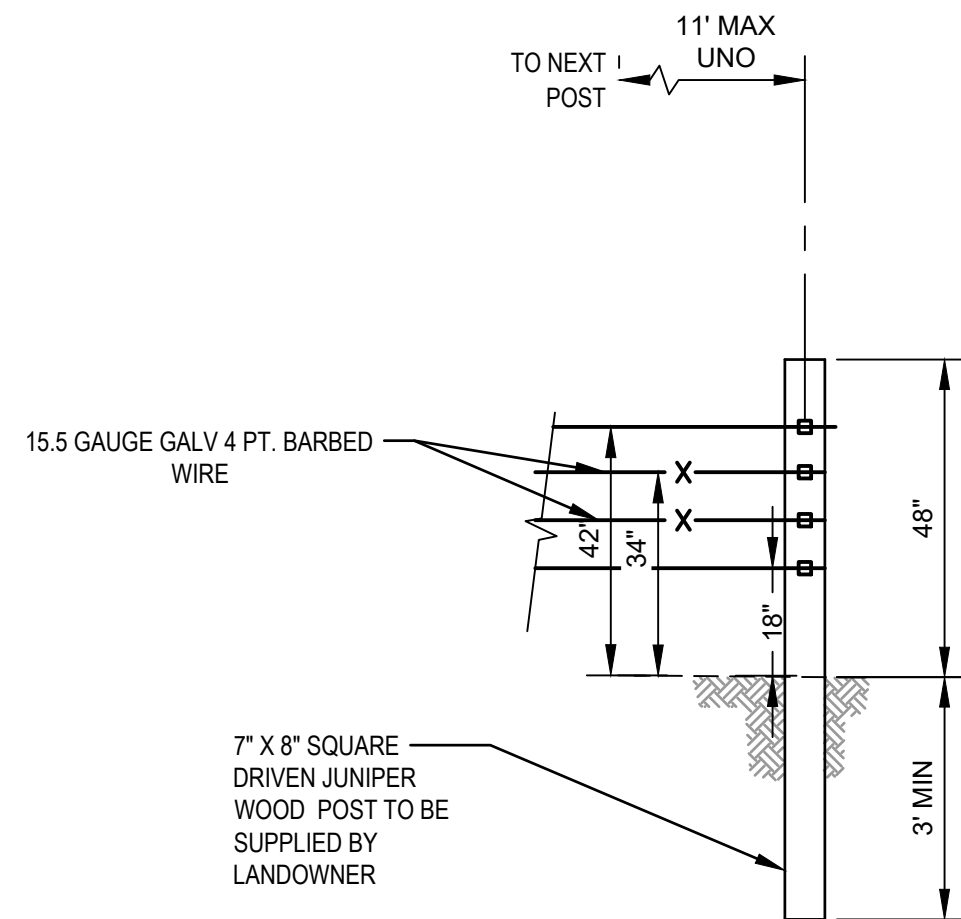


STEEL POST FENCE



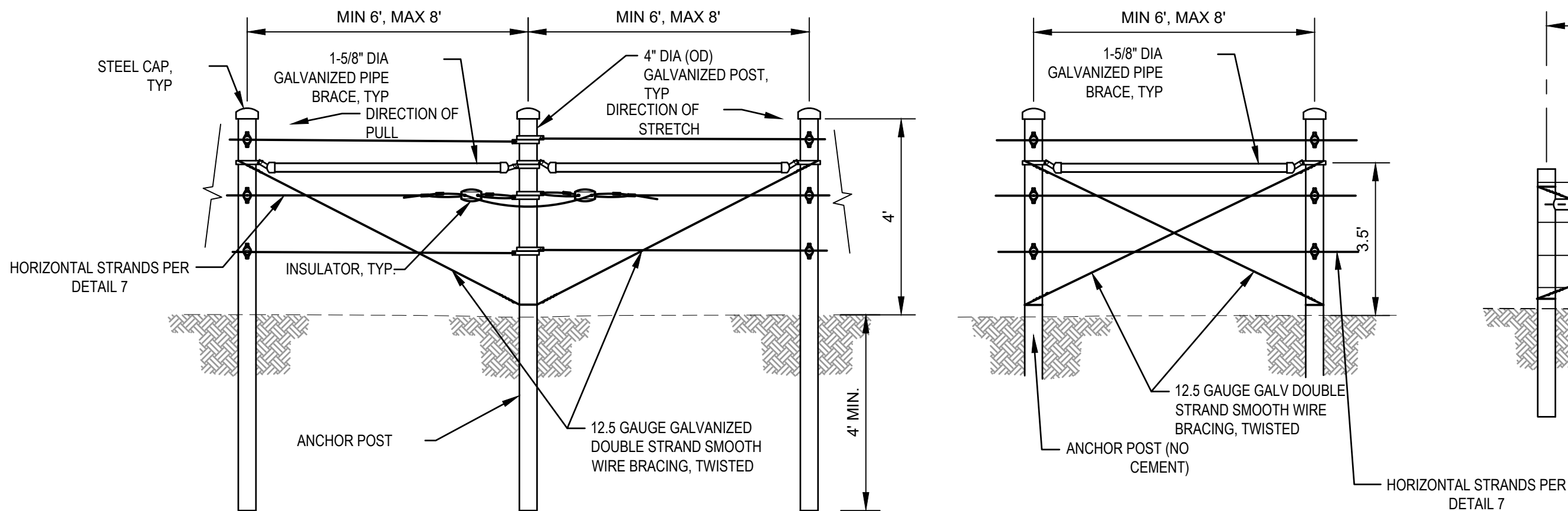
POST INSULATOR

- NOTES:
- THE FOLLOWING MATERIALS SHALL BE USED IN ALL FENCE CONSTRUCTION UNLESS OTHERWISE NOTED:
 - JUNIPER POSTS SUPPLIED BY LANDOWNER (VERTICAL POSTS)
 - 12.5 GAUGE GALVANIZED BARBLESS STRANDED WIRE (TOP AND BOTTOM WIRE)
 - 15.5 GAUGE GALVANIZED 4 PT. BARBED WIRE (TWO MIDDLE WIRES)
 - JUNIPER POSTS SUPPLIED BY LANDOWNER (HORIZONTAL BRACES)
 - 2 1/2" STAPLES
 - WIRE GATES** SHALL BE INSTALLED TO ALLOW ACCESS THROUGH THE FENCED AREA AT LOCATION SHOWN ON PLANS. WIRE GATES SHALL CONSIST OF WIRE GALVANIZED CABLES WITH INSULATED SPRING LOADED HANDLES.
 - PRIOR TO INSTALLATION, ALL FENCE ALIGNMENTS SHALL BE STAKED IN THE FIELD AND APPROVED BY THE CONSTRUCTION MANAGER, AND ALL MATERIALS SHALL BE APPROVED BY THE CONSTRUCTION MANAGER.
 - ALL VERTICAL POSTS TO BE DRIVEN PLUMB WITH 4 FT EXPOSED ABOVE GROUND.
 - SEE DETAIL 20 FOR BRACING.
 - ALL WIRE SHALL BE TENSIONED TO MIN. 200 LBS.

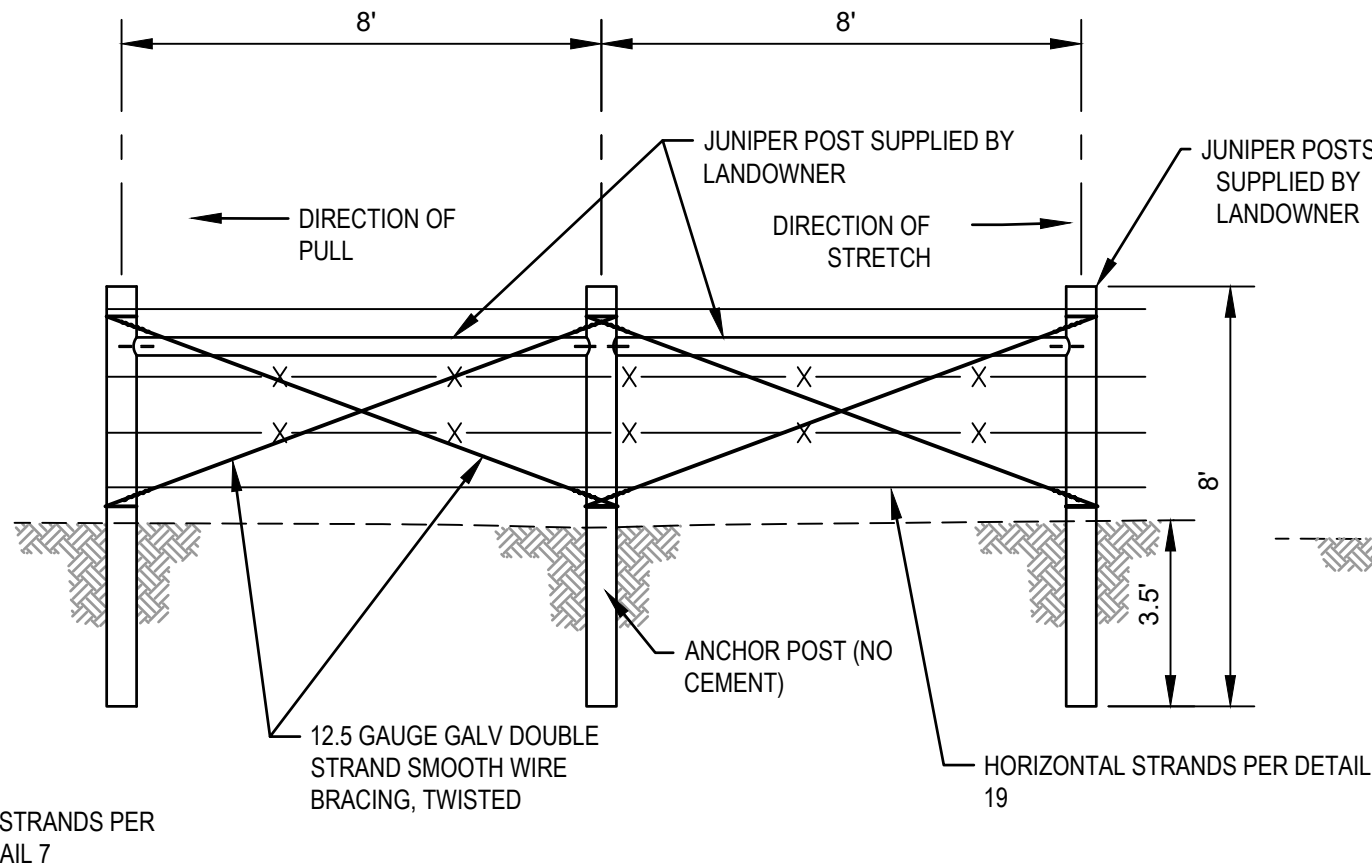


WOOD POST FENCE

6 PERMANENT STEEL-POST FENCE INSTALLATION DETAIL
NTS

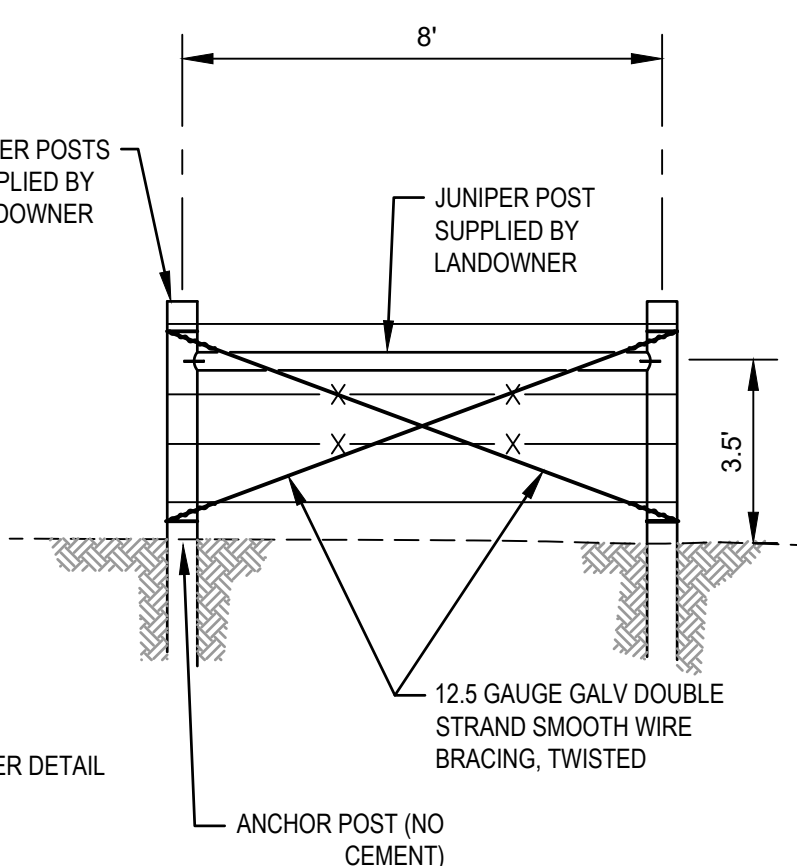


STEEL POST FENCE

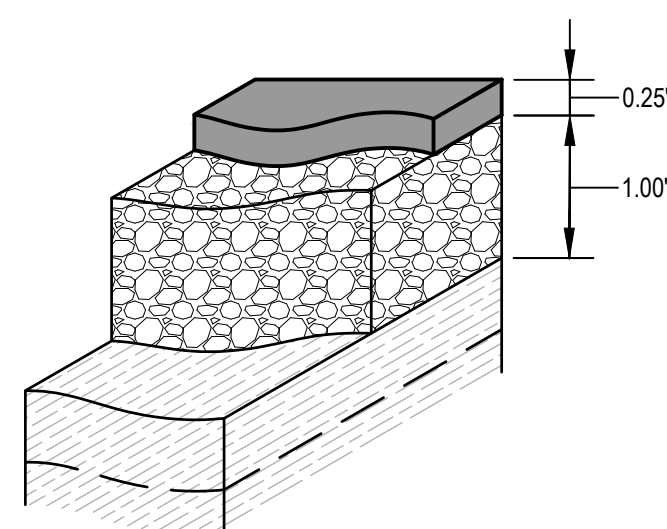


WOOD POST FENCE

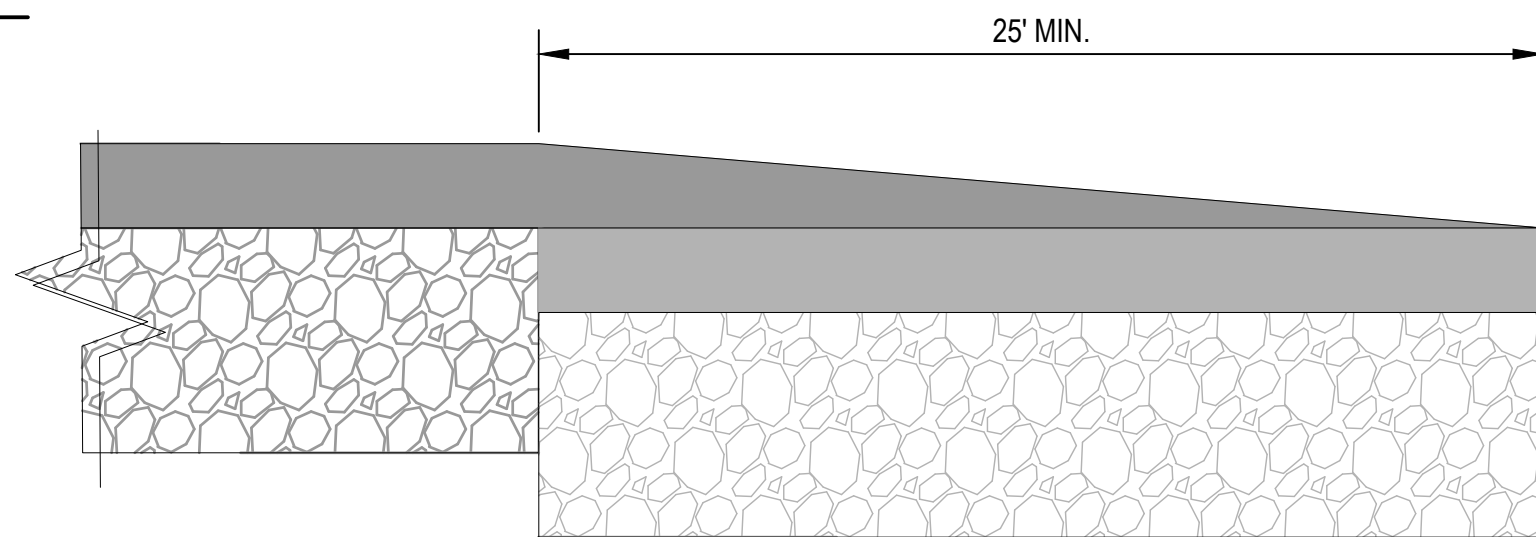
7 PERMANENT WOOD POST FENCE INSTALLATION DETAIL
NTS



DETAIL: SINGLE H GATE AND LINE BRACE



9 PAVEMENT STRUCTURAL SECTION DETAIL
NTS



10 PAVEMENT CONFORM DETAIL
SCALE: NTS

- NOTES:
- SINGLE H BRACES SHALL BE INSTALLED AT ENDS, BOTH SIDES OF GATES, AND AT A MAXIMUM OF 300-FOOT INTERVALS.
 - DOUBLE H BRACES SHALL BE INSTALLED AT DIRECTION CHANGES AND MAJOR SLOPE CHANGES.
 - WHEN CONSTRUCTING H BRACES, HORIZONTAL BRACES SHALL BE INSTALLED AT A MINIMUM OF 3.5 FEET FROM THE GROUND. A TENSION MEMBER COMPOSED OF TWO COMPLETE LOOPS OF NUMBER 12.5 GAUGE GALVANIZED DOUBLE STRAND SMOOTH WIRE SHALL EXTEND FROM A POINT APPROXIMATELY SIX INCHES BELOW THE TOP OF THE BRACE POST TO GROUND LEVEL OF THE POST BEING BRACED. THE BRACE WIRE SHALL BE TWISTED TO SECURE THE BRACE AND PROVIDE NEEDED RIGIDITY. IN-LINE H BRACES SHALL BE CONSTRUCTED WITH MIN. 1-TENSION WIRE PER BRACE.

- NOTES:
- SINGLE H BRACES SHALL BE INSTALLED AT ENDS, BOTH SIDES OF GATES, AND AT A MAXIMUM OF 300-FOOT INTERVALS.
 - DOUBLE H BRACES SHALL BE INSTALLED AT DIRECTION CHANGES AND MAJOR SLOPE CHANGES.
 - WOODEN RISE AND DIP POSTS SHALL BE INSTALLED AS NEEDED.
 - ALL WOODEN POSTS (H BRACE POST, INLINE POST, AND RISE AND DIP POSTS) SHALL BE SOLIDLY SET OR DRIVEN IN COMPACTED SOIL TO A DEPTH OF 3.5 FEET. THE HEIGHT OF ALL POSTS AFTER INSTALLATION SHALL BE 4.5 FEET.
 - WHEN CONSTRUCTING H BRACES, HORIZONTAL BRACES SHALL BE INSTALLED AT A MINIMUM OF 3.5 FEET FROM THE GROUND. A TENSION MEMBER COMPOSED OF TWO COMPLETE LOOPS OF NUMBER 12.5 GAUGE GALVANIZED DOUBLE STRAND SMOOTH WIRE SHALL EXTEND FROM A POINT APPROXIMATELY SIX INCHES BELOW THE TOP OF THE BRACE POST TO GROUND LEVEL OF THE POST BEING BRACED. THE BRACE WIRE SHALL BE TWISTED TO SECURE THE BRACE AND PROVIDE NEEDED RIGIDITY. IN-LINE H BRACES SHALL BE CONSTRUCTED WITH 2 TENSION WIRES PER BRACE.

8 PERMANENT FENCE H GATE & LINE BRACE DETAIL
NTS

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Designer	P. DUIN	Design Check	B. VIVYAN		Project Director	JS

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Project **CANNIBAL ISLAND RESTORATION PROJECT**

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ANSI D

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Project No.	11206383
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2023-09-29

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C-503

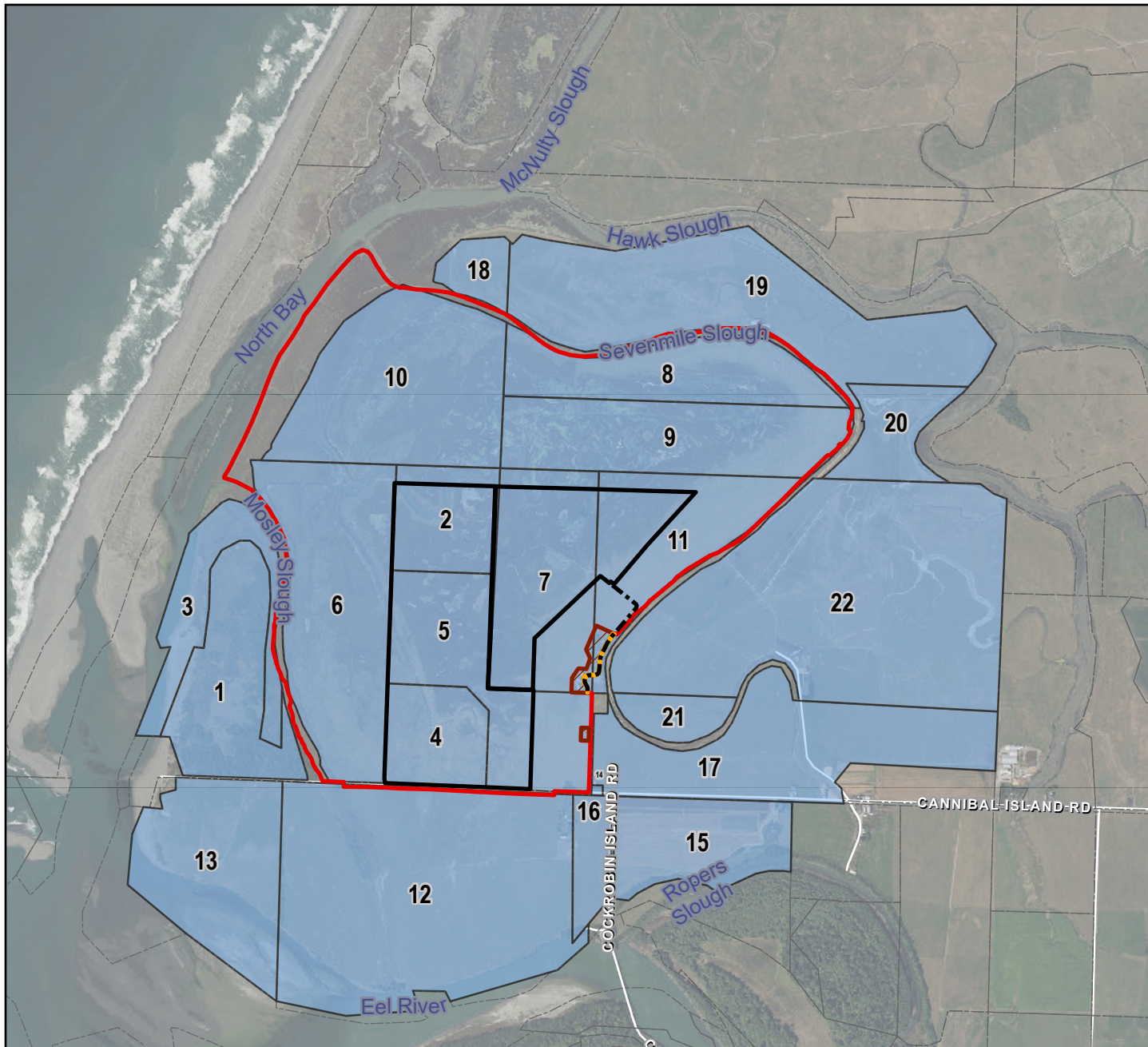
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Attachment 2

Figures

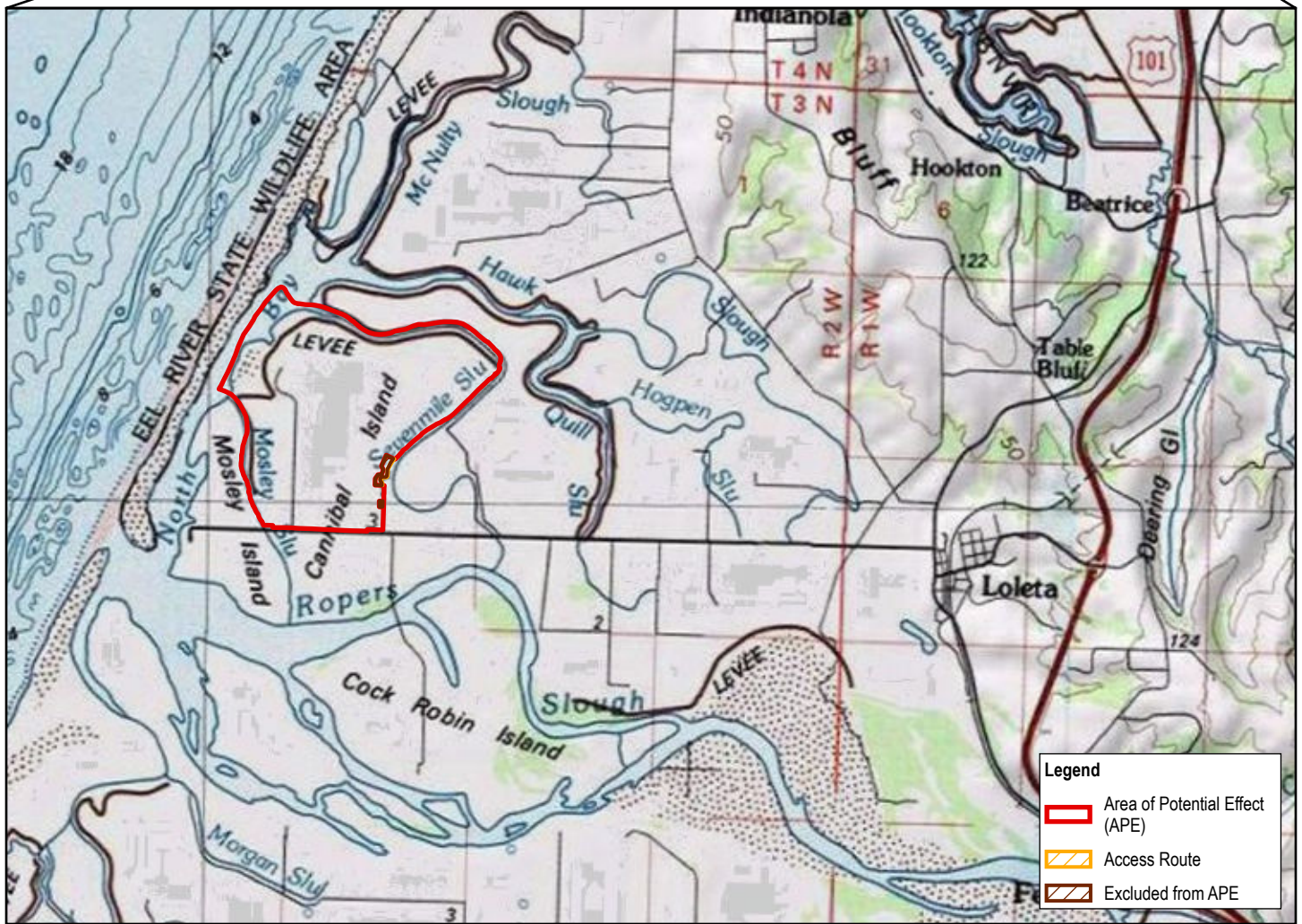
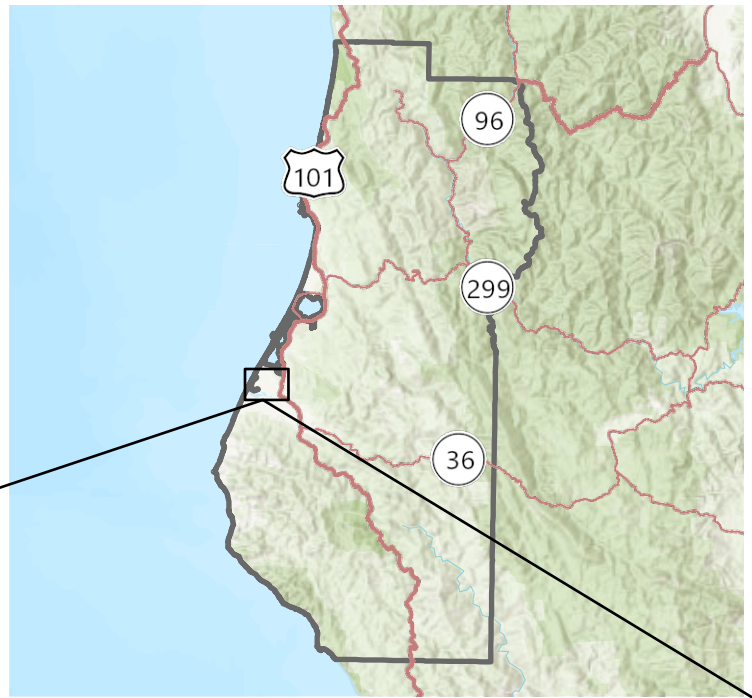


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2	310-043-006-000	Pedrazzini Lester P
3	310-042-001-000	California State Of Dept Of F & G
4	310-043-005-000	Pedrazzini Lester P
5	310-043-004-000	Pedrazzini Lester P
6	310-043-001-000	California State Of
7	310-043-003-000	Hansen Lori
8	310-021-003-000	California State Of Dept Of F & G
9	310-021-004-000	California State Of Dept Of F & G
10	310-033-004-000	California State Of
11	310-051-001-000	Hansen Lori

ID	APN	OWNER
12	310-071-001-000	Pedrazzini Lester
13	310-083-004-000	Niles Robert L Tr
14	310-051-003-000	Pedrazzini Lester P
15	310-071-007-000	Generations Farmland Llc
16	310-071-004-000	Pedrazzini Lester
17	310-051-005-000	Oneil James M & Leslie R Tr
18	310-033-002-000	Fort Baker Ranch Co
19	310-021-002-000	Fort Baker Ranch Co
20	310-021-005-000	Rice Skylar J & Joe & Jill
21	310-051-004-000	Albin Enterprises Llc Co
22	310-051-007-000	Rice Skylar J & Joe & Jill

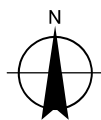
Legend

- Wetland Reserve Easement (WRE)
- WRE Access Easement
- Study Area Boundary
- Access Route
- Excluded from Study Area
- Parcels
- Approx. Parcel Boundaries



Paper Size ANSI A
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Miles

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California II FIPS 0402 Feet



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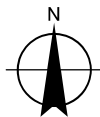
Project No. 11206383
Revision No. -
Date Sep 2022

Vicinity Map

FIGURE 2-1



Paper Size ANSI A
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Feet



Map Projection: Lambert Conformal Conic
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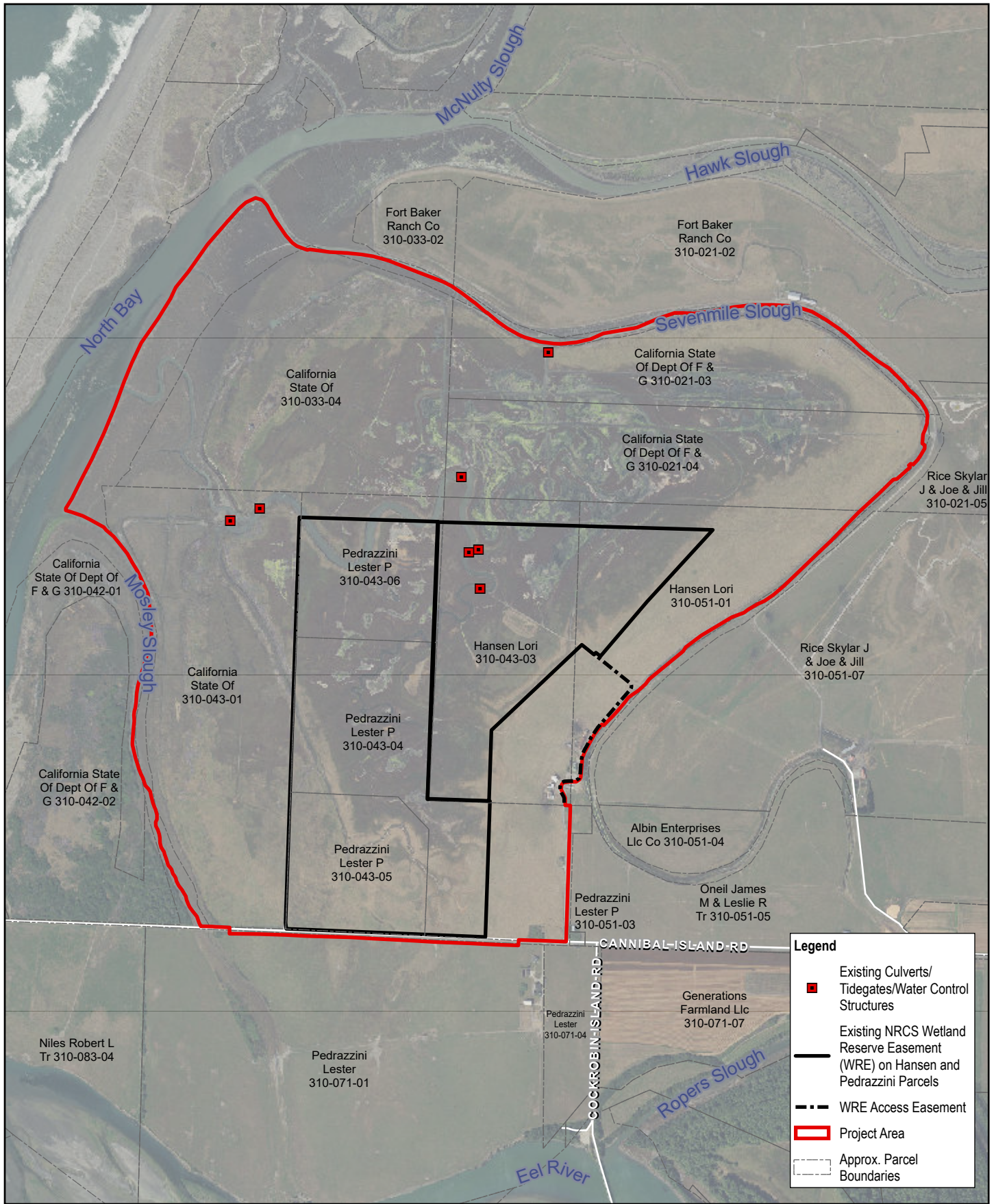


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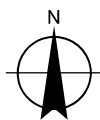
Project Area

FIGURE 2-2



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Map Projection: Lambert Conformal Conic
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Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

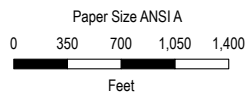
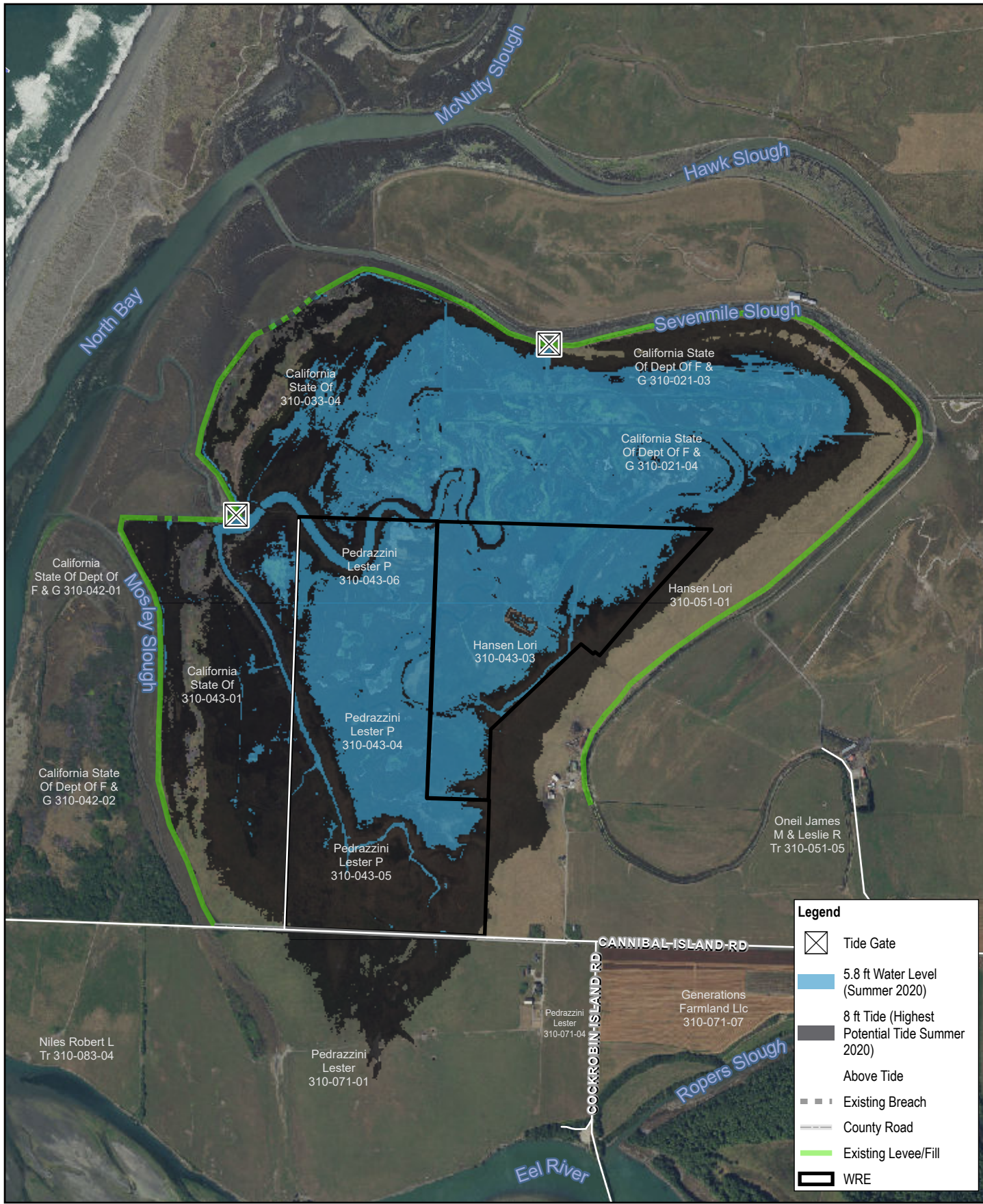


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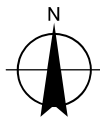
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Ownership Boundaries

FIGURE 2-3



Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

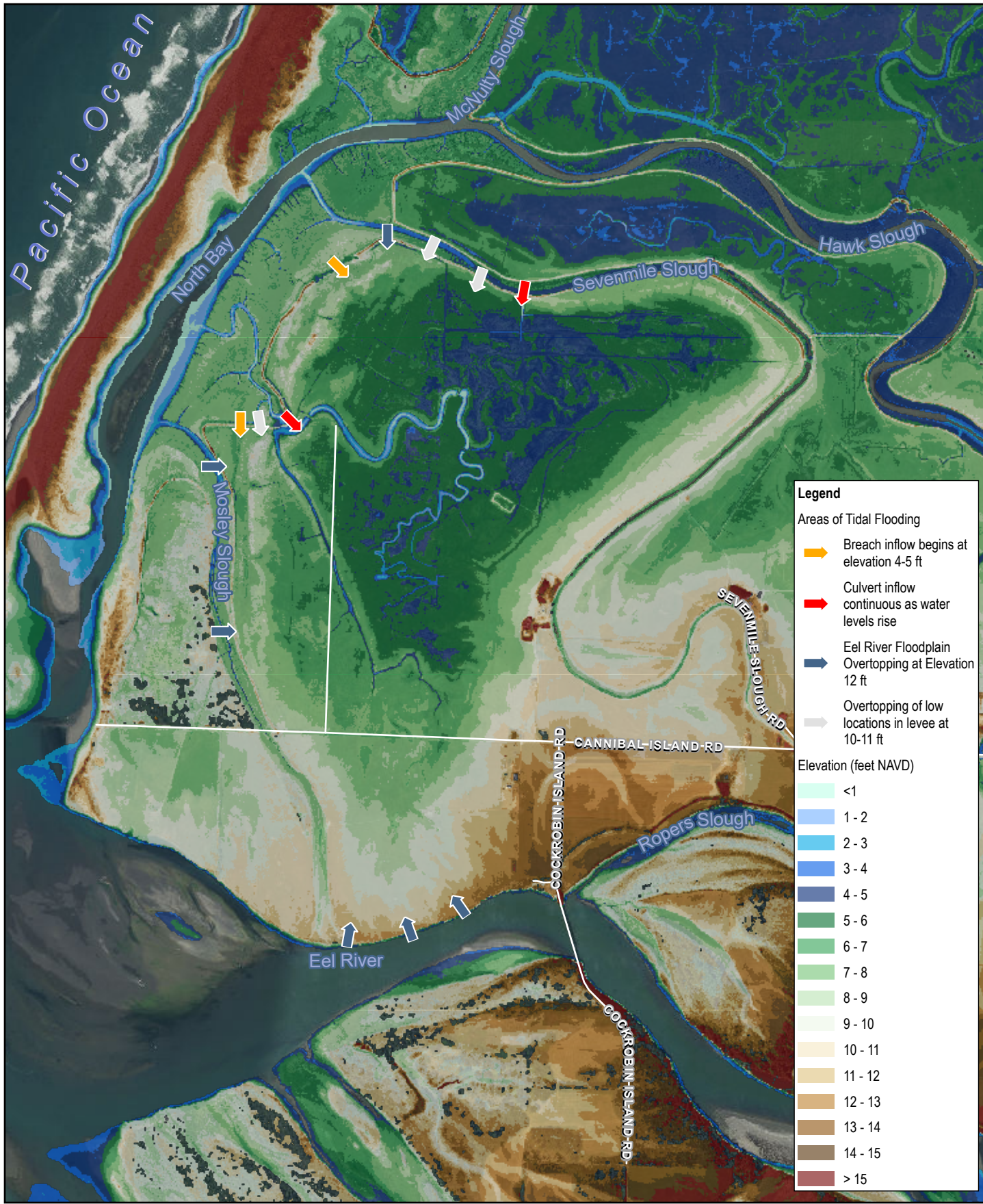


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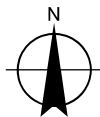
Existing Dikes / Levees / Fill

FIGURE 2-4



Paper Size ANSI A
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Map Projection: Lambert Conformal Conic
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Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

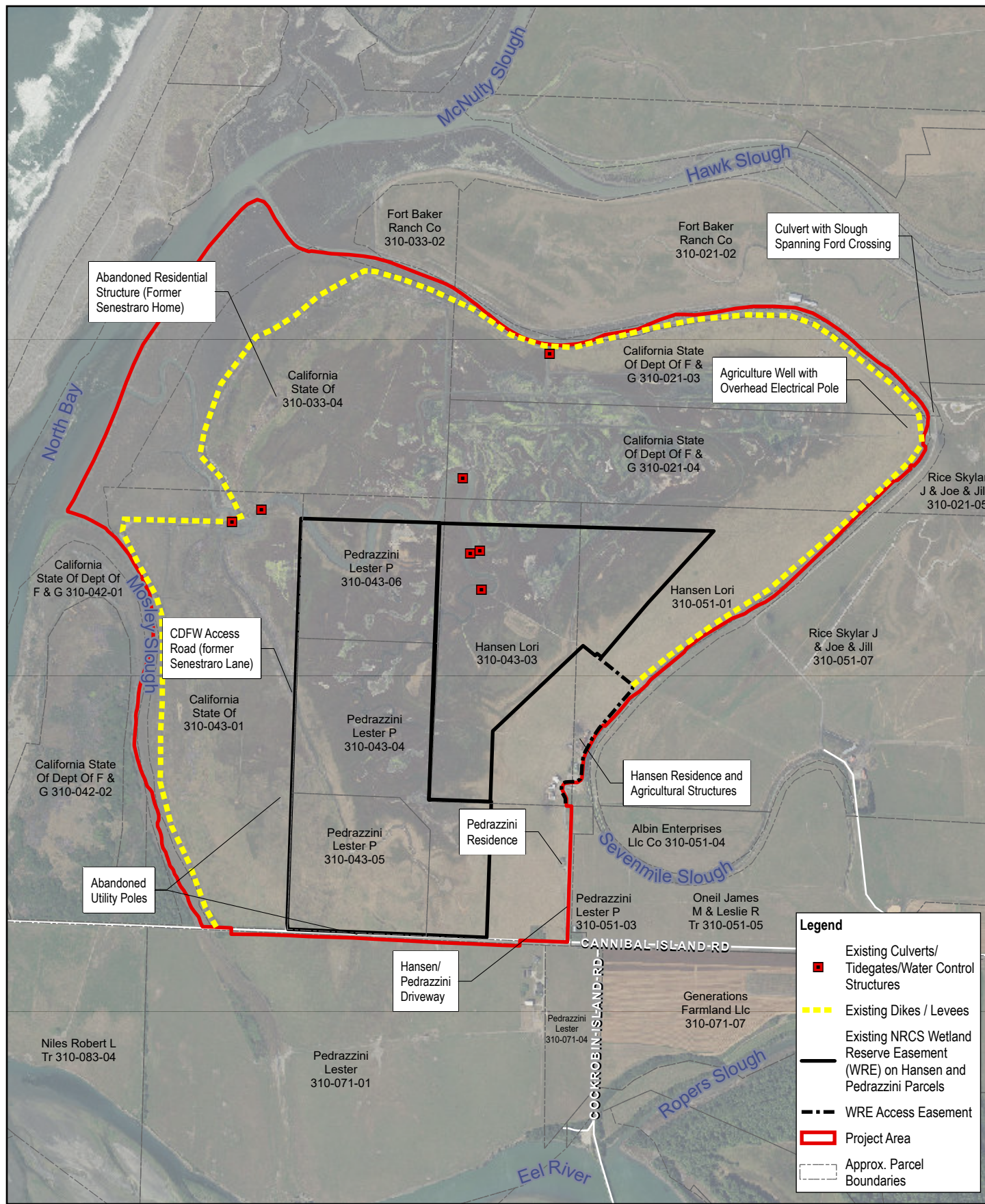


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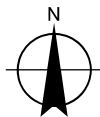
Areas of Tidal Flooding

FIGURE 2-5



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Map Projection: Lambert Conformal Conic
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Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

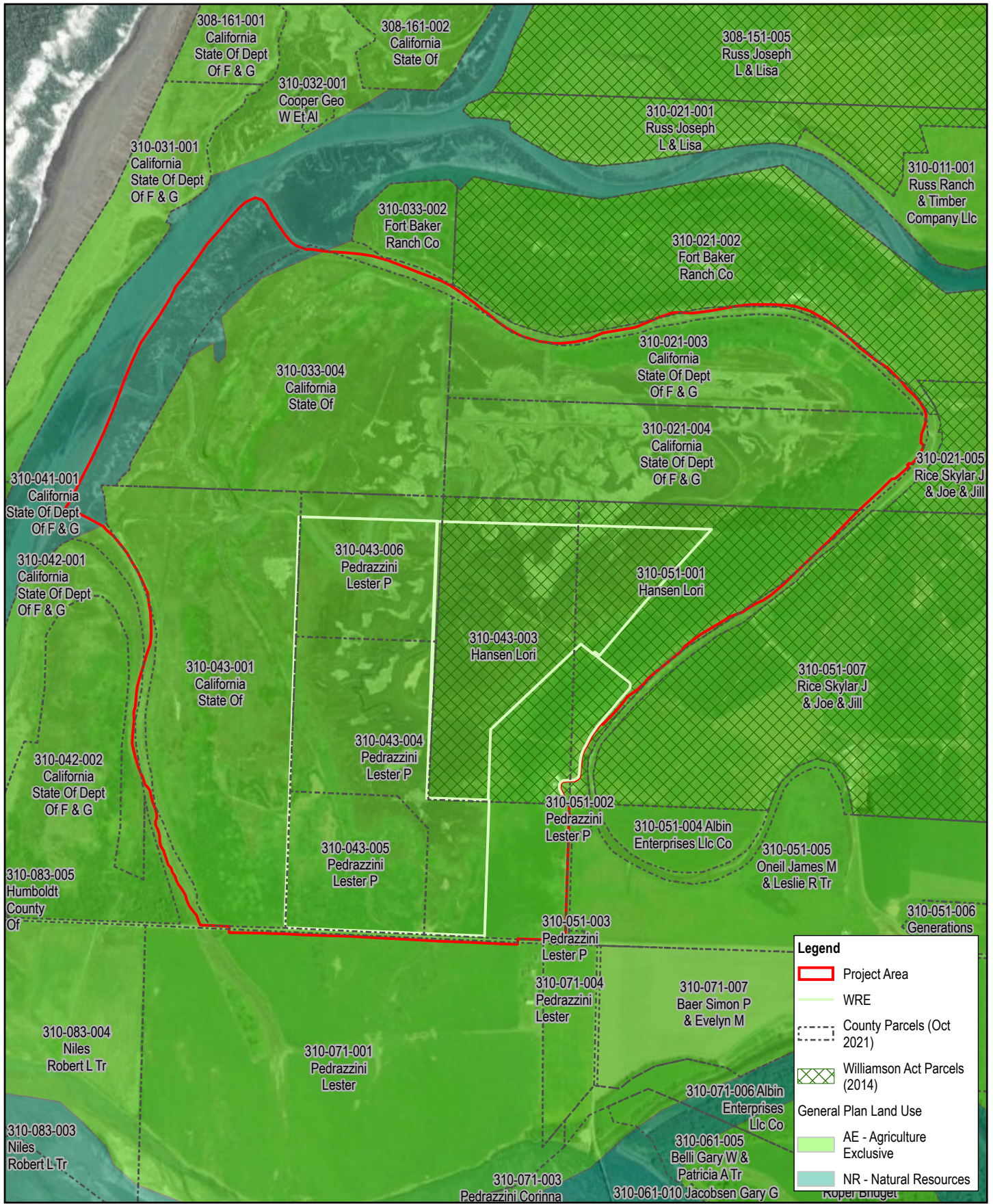


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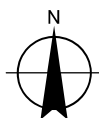
Existing Infrastructure

FIGURE 2-6



Paper Size ANSI A
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Map Projection: Lambert Conformal Conic
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Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

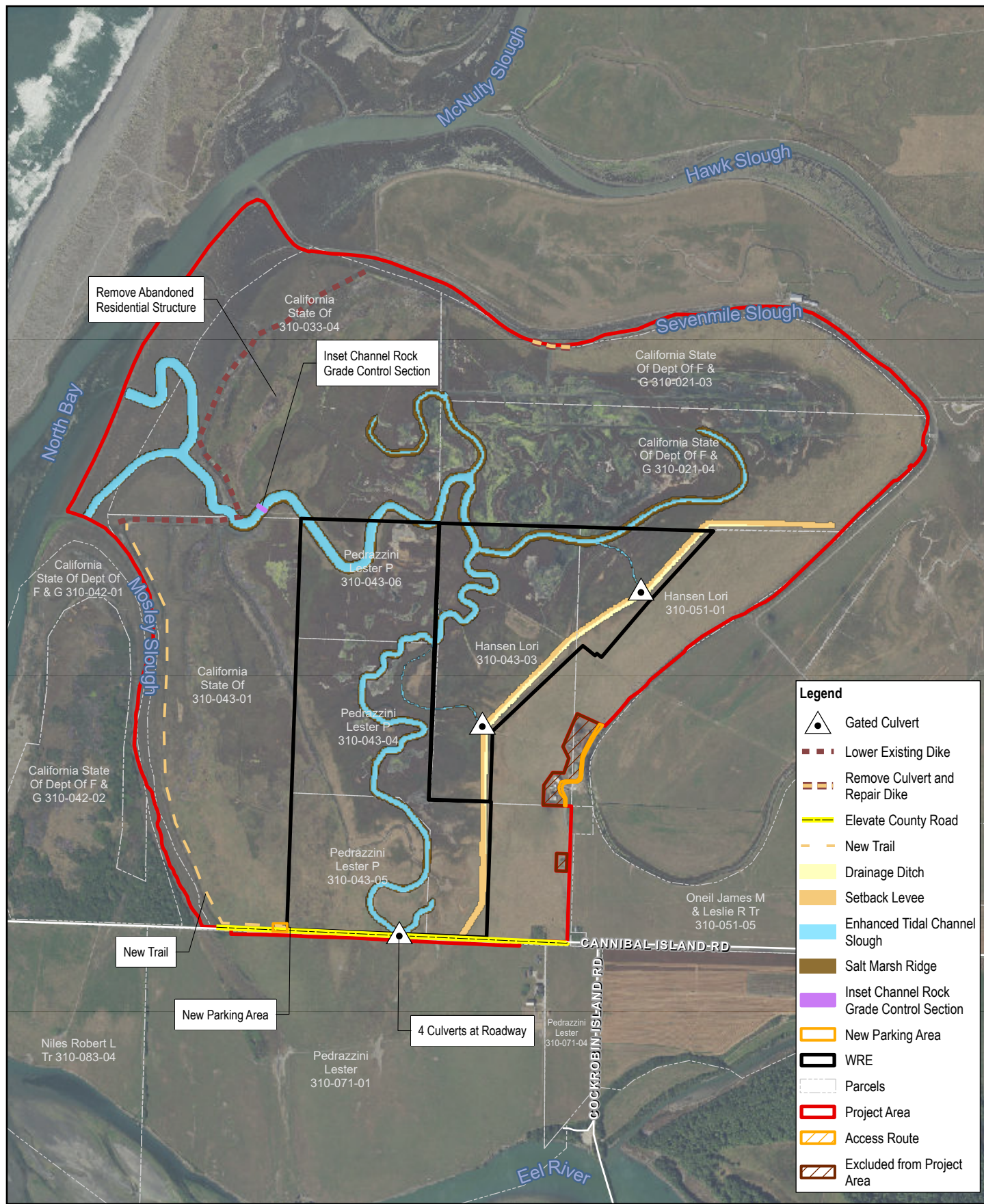


CalTrout
Cannibal Island Restoration Project

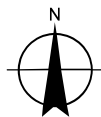
Land Use and
Williamson Act Contracts

Project No. 11206383
Revision No. -
Date Sep 2022

FIGURE 2-7



Paper Size ANSI A
0 350 700 1,050 1,400
Feet



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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

Project Components

FIGURE 3



Appendix H

Photos of Pre-project Site Conditions



Photo 1—Drone footage from December 2021, looking southeast at Cannibal Island Road. Note flooding in road prism where the elevation has become lower relative to the edges of the pasture to the north and south of the road. Cannibal Island Road is proposed to be elevated in this area during Project implementation.



Photo 2—Drone footage from December 2021, looking east at muted tidal flooding that occurs within the interior of the existing levees, namely within the NRCS Wetland Reserve Easements (WRE). The small sliver of dry land in the furthest eastern extent of the Project Area is on private property that is proposed to be protected behind the new levee construction.



Photo 3—Drone footage from December 2021, looking northwest at the large interior slough channel (unnamed) that extends eastward into the Project Area, and another smaller slough channel that runs south. The existing levee system (and areas that have failed and breached), can be seen in the distant northern portion where there are small slivers of dry land.



Photo 4—Drone footage from December 2021, looking northwest at the large interior slough channel (unnamed) and its confluence with North Bay (large water channel to the west). The confluence of Mosley Slough with North Bay is also captured (southernmost channel).



Photo 5—View of Senestraro Lane and flooded pasture with small slough channel crossing under the road within Project Area, facing north from Senestraro Lane. This area is coastal salt and brackish marsh dominated by pickleweed that intergrades with non-native agricultural pasture.



Photo 6—View of small slough that runs through muted coastal salt and brackish marsh within Project Area, facing east from Senestraro Lane.



Photo 7—View of large interior slough (unnamed), facing east from Senestraro Lane



Photo 8—View of failed road crossing on Senestraro Lane (looking northeast) and the large interior slough (unnamed) that now passes over it.



Photo 9—View of large interior slough (unnamed), facing southwest from failed road crossing along Senestraro Lane.

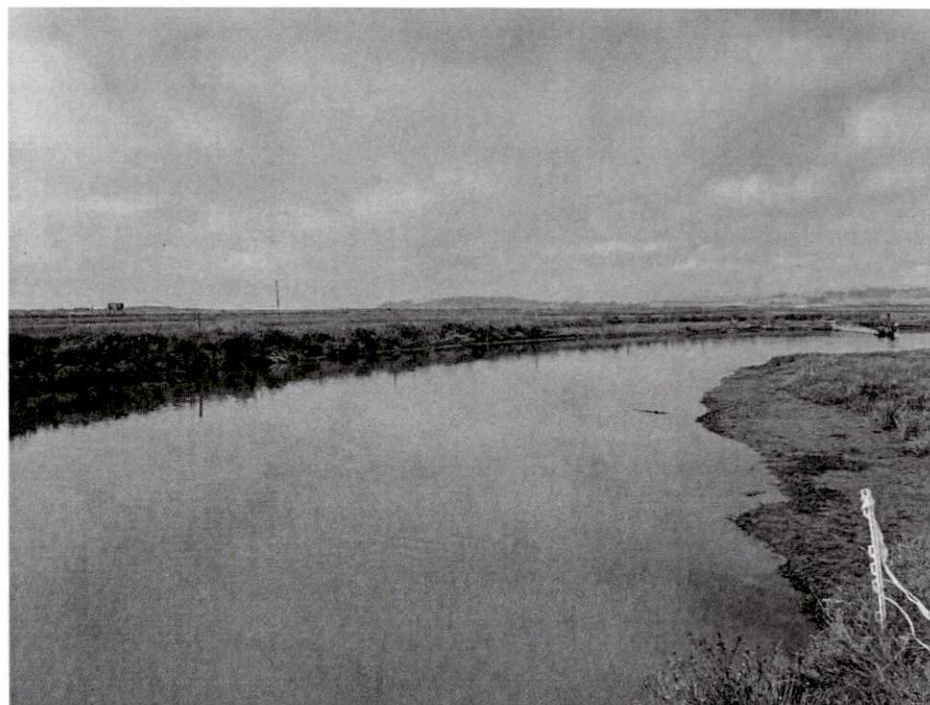


Photo 10—View of large interior slough (unnamed), facing northeast from failed road crossing along Senestraro Lane.

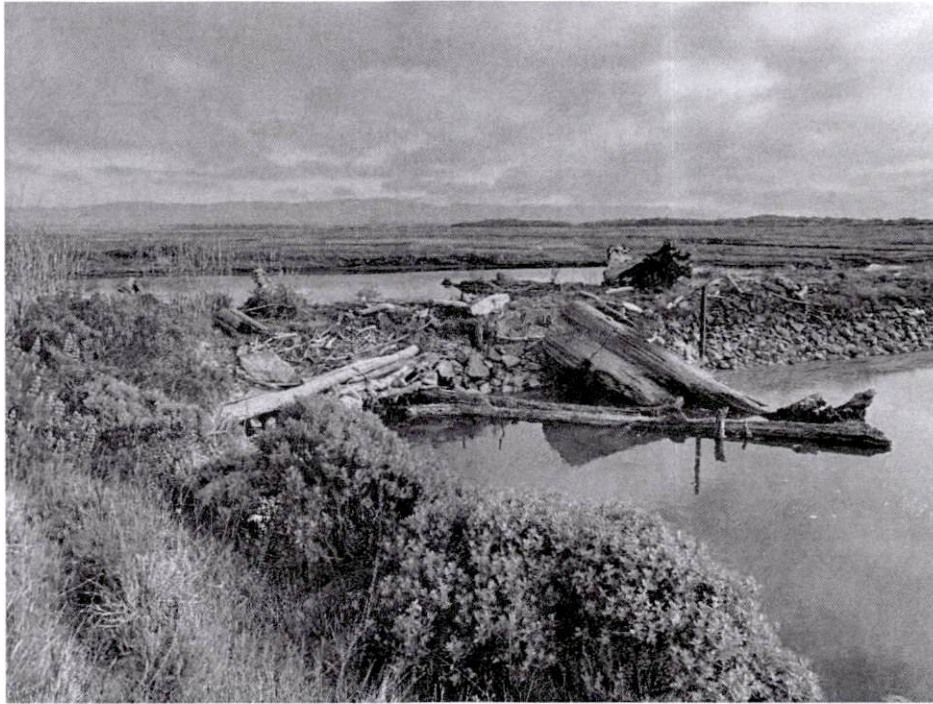


Photo 11—View of the large levee and failed tide gate (obscured by woody debris). Photo taken from levee facing south.



Photo 12—Failed tide gate (outboard), facing west.



Photo 13—Failed culvert on inboard side of tide gate, facing southeast.



Photo 14—Rocked levees around the tide gate, facing southwest.



Photo 15—View of standing water to the east of large levee. Photo taken atop levee and facing north. The abandoned residential structure proposed for removal is in the background, and muted coastal brackish and salt marsh in the foreground.



Photo 16—View of dense-flowered cordgrass marsh intergraded with non-native agricultural pasture and muted coastal salt and brackish marsh within Project Area, facing east.



Photo 17—View of Sevenmile Slough and muted coastal salt and brackish marsh dominated by salt grass flats at northern limits of the Project Area, facing east.



Photo 18—View of Sevenmile Slough with the confluence of the North Bay in the distance, facing northwest.



Photo 19—View of abandoned residential structure that is proposed to be demolished and removed from the non-native dominated ruderal habitat it was constructed in. This area will be reclaimed by full tidal influenced coastal salt and brackish marsh once the existing levees are graded to lower elevations.



Photo 20—Dense-flowered cordgrass dominated low marsh outside of the levees. This species will be eradicated from the Project Area during implementation, and controlled post-implementation.