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F13a

MEMORANDUM

Date: January 14, 2010

To: Commissioners and Interested Parties

From: Peter M. Douglas, Executive Director
Robert S. Merrill, District Manager – North Coast District
James R. Baskin AICP, Coastal Program Analyst – North Coast District

Subject: **Addendum to Commission Meeting for Friday, January 15, 2010**
North Coast District Item F13a, CDP Application No. 1-07-046
(Cher-ae Heights Indian Community of the Trinidad Rancheria *Trinidad Pier Reconstruction Project*)

STAFF NOTE

The staff is proposing to make certain changes to the staff recommendation on Coastal Development Permit Amendment Application No. 1-07-046, revising special conditions requiring the applicant to: (a) conduct acoustic monitoring during pile demolition/construction operations; and (b) prepare and submit for the Executive Director's approval, a supplemental archaeological work plan upon the incidental encountering of cultural deposits during construction. Staff is proposing that Special Condition Nos. 6 and 14 be modified, with related findings included explaining why acoustic monitoring is needed and detailing how the revised safeguards will ensure that impacts to cultural resources are more comprehensively avoided and/or minimized to less than significant levels, respectively. Staff is also recommending that the terms of compliance with Special Condition Nos. 6, 10 and 12 be modified to provide the permittee with an extended timeframe in which to submit the hydroacoustic monitoring plan, secure encroachment rights for temporary use of certain federal lands as a portion of the development's staging area and to provide constructive notice to mariners and other public safety first responders of the limited availability of the pier during demolition and construction phases. The changes allow the applicant to submit documents satisfying these requirements prior to commencement of the development rather than prior to issuance of the permit to facilitate issuance of the permit by mid-February so that the applicant can meet grant funding deadlines.

In addition, this addendum contains findings for conditional approval of the subject development project which were not included in the December 24, 2009 staff recommendation report. These findings address the project's conditional conformance with Coastal Act policies regarding provision of public access and priority coastal-dependent uses such as commercial fishing and water-oriented coastal recreation and the protection of coastal water quality, marine and terrestrial biological resources, and environmentally sensitive habitat areas.

Staff continues to recommend that the Commission approve the project with the special conditions included in the staff recommendations of December 24, 2009 as modified by the revisions described below.

In addition, staff has received correspondence from the applicant's agent providing further elaboration on changes to the project description, including an updated construction time line. A copy of this correspondence is attached as Attachment No. 1.

I. REVISIONS TO STAFF RECOMMENDATION

The revisions to the staff report dated December 24, 2009, including the modification of special condition language and related findings regarding provisions for public access and the protection of archaeological resources associated with the *Trinidad Pier Reconstruction Project* are discussed below.

Text to be deleted is shown in ~~**bold strikethrough**~~, text to be added appears in **bold double-underline**.

- **Revise Special Condition No. 6 to read as follows:**

6. Hydroacoustic Monitoring Plan

A. **PRIOR TO ~~ISSUANCE~~ COMMENCEMENT OF DEMOLITION AND CONSTRUCTION AUTHORIZED BY COASTAL DEVELOPMENT PERMIT NO. 1-07-046**, the applicant shall submit a Hydroacoustic Monitoring Plan, containing all supporting information and analysis deemed necessary by the Executive Director for the Executive Director's review and approval. Prior to submitting the plan, to the Executive Director, the applicant shall also submit copies of the Plan to the reviewing ~~**fisheries**~~ **marine** biologists of the California Department of Fish & Game and the National Marine Fisheries Service for their review and consideration.

The plan shall be based on the "dual metric **exposure criteria"** set forth below and shall state that exceedance of either criterion, calculated as required herein, shall be deemed ~~**lethal**~~ **as constituting a significant adverse impact** to exposed ~~**fish**~~ **marine mammals** and non-compliant with the Conditions of CDP 1-07-046.

DUAL METRIC EXPOSURE CRITERIA

1) Criteria: ~~**SEL accumulated**~~ **Continuous SPL**:
A ~~**fish**~~ **marine mammal** receiving ~~**an accumulated**~~ **a continuous** Sound ~~**Exposure**~~ **Pressure** Level ~~**(SEL)**~~ **(SPL)** at or above ~~**183 dB referenced to one micropascal squared second**~~ **120 decibels, root mean squared (120 dB_{RMS})** during the ~~**driving**~~ **vibratory extrication or placement** of piles **or rotary augering activities** shall be deemed to have received a ~~**lethal physical injury**~~ **noise impact constituting behavior-altering harassment**. ~~**To estimate the sound energy to which a fish is exposed during multiple hammer strikes, NMFS uses the simple summation procedure where Total SEL = Single Strike SEL + 10_{log} (number of strikes).**~~

2) Criteria: Peak SPL:
A ~~**fish**~~ **marine mammal** receiving a peak sound pressure level (SPL) at or above ~~**206 dB re one micropascal a from a single hammer strike**~~ **180 decibels, root mean squared (180 dB_{RMS}) during the vibratory extrication or placement of piles or rotary augering activities** shall be deemed to have received a ~~**lethal**~~ **non-lethal** physical injury.

At a minimum, the Plan shall:

(1) Establish the field locations of hydroacoustic monitoring stations that will be used to document the extent of the hydroacoustic hazard footprint during ~~**pile-driving**~~ **vibratory extrication or placement of piles or rotary augering** activities, and provisions to adjust the location of the acoustic monitoring stations based on data acquired during monitoring, to ensure that the sound pressure field is adequately characterized;

(2) Describe the method of hydroacoustic monitoring necessary to assess the actual conformance of the proposed ~~**pile-driving**~~ **vibratory extrication or placement of piles or rotary augering** with the dual metric exposure criteria in the vicinity of the ~~**pile-driving**~~ **vibratory extrication or placement of piles or rotary augering** locations on a real-time basis, including relevant details such as the number, location, distances, and depths of hydrophones and associated monitoring equipment;

(3) Include provisions to continuously record ~~**pile strikes**~~ **noise generated by the vibratory extrication or placement of piles or rotary augering** in a manner that enables ~~**the time of each strike, the number of strikes, the**~~ **continuous and** peak sound pressure and other measures of sound energy per strike, or other information required by the Executive Director in consultation with ~~**fisheries**~~ **marine** biologists of the California Department of Fish & Game and the National Marine Fisheries Service, ~~**and the interval between strikes to be determined for all pile-driving activities that may produce measurable acoustic affects in the aquatic environment of Humboldt Bay,**~~ as well as provisions to supply all

monitoring data that is recorded, regardless of whether the data is deemed "representative" or "valid" by the monitor (accompanying estimates of data significance, confounding factors, etc. may be supplied by the acoustician where deemed applicable);

(4) Include provisions for real-time identification and reporting of any exceedance of the dual metric exposure criteria, clear action and notification protocols to stop ~~**pile-driving**~~ **vibratory extrication or placement of piles or rotary augering** in case of such exceedance, and procedures to notify pertinent parties including the Executive Director and other pertinent state and federal agencies immediately after any exceedance of the dual metric exposure criteria. ~~**The plan shall additionally provide a complete explanation and illustration of the method used to analyze the cumulative impact portion (accumulated SEL) of the dual metric exposure criteria threshold.**~~

(5) Include provisions that in the event of an exceedance of either criterion of the dual metric exposure criteria, ~~**pile-driving**~~ **vibratory extrication or placement of piles and rotary augering** operations shall be immediately stopped and shall not recommence unless the Executive Director, in consultation with the ~~**fisheries**~~ **marine** biologists of the California Department of Fish & Game and the National Marine Fisheries Service so authorizes based on the resumption of hydroacoustic monitoring of all ~~**pile-driving**~~ **vibratory extrication or placement of piles and rotary augering** operations and the deployment of additional sound attenuation or other measures deemed likely by qualified technical experts to return the ~~**pile-driving**~~ **vibratory extrication or placement of piles and rotary augering** to conformance with the duel metric exposure criteria;

(6) Include provisions that if the return to ~~**pile-driving**~~ **vibratory extrication or placement of piles and rotary augering** after the implementation of the additional measures discussed in Subparagraph (5) above results in an exceedance of either criterion of the dual metric exposure criteria, ~~**pile-driving**~~ **vibratory extrication or placement of piles and rotary augering** shall be stopped immediately and shall not re-commence until or unless the Commission approves an amendment to CDP 1-09-046 that proposes substantial changes to the proposed project that are deemed by the Executive Director to offer a high likelihood of success in preventing further exceedance of the dual metric exposure criteria.

B. Project activities shall be conducted at all times in accordance with the provisions of the final approved plan. Any proposed changes to the final approved plan shall be reported to the Executive Director. No changes to the final approved plan shall occur without an amendment to CDP 1-07-046 unless the Executive Director determines that no amendment is legally required.

REASON FOR CHANGES: The subject acoustic monitoring special condition as written in the December 24, 2009 staff recommendation report is suited for application to in-water construction projects involving the percussive driving of pilings rather than the vibratory driving and rotary augering excavation methodologies actually proposed for the subject development. In addition, the sound exposure limits of the condition are adjusted to be more appropriate for the protection of the behavior of marine mammals rather than fish species, as there is a greater likelihood of effects on marine mammals than salmonids and other fish species during the August through January work window for subtidal construction activities. The changes in the condition will structure the monitoring to focus on ensuring that appropriate acoustic thresholds which could result in impacts to relevant marine fauna are not persistently exceeded, and adaptive measures are undertaken, as may be needed, to reduce noise exceeding adverse effect thresholds to less than significant impact levels.

- **Revise Special Condition No. 10 to read as follows:**

10. Encroachment Permit

PRIOR TO ~~ISSUANCE~~ COMMENCEMENT OF CONSTRUCTION STAGING AND STORAGE AREA OPERATIONS AUTHORIZED BY COASTAL DEVELOPMENT PERMIT NO. 1-07-046, the applicant shall submit to the Executive Director for review and written approval, evidence **~~of~~ that** an encroachment permit **has been obtained** from the U.S. General Services Administration **or evidence that no such permission is required**. The encroachment permit **~~or exemption~~** shall evidence the ability of the applicant to utilize federal properties for construction staging, as conditioned herein.

REASON FOR CHANGE: To afford the permittee additional time to secure rights to use of federal lands for portions of the proposed construction staging and materials storage area and facilitate issuance of the permit by mid-February so that the applicant can meet grant funding deadlines.

- **Revise Special Condition No. 12 to read as follows:**

12. U.S. Coast Guard District 11 and Group Humboldt Notifications

PRIOR TO ~~ISSUANCE~~ COMMENCEMENT OF DEMOLITION AND CONSTRUCTION AUTHORIZED BY OF COASTAL DEVELOPMENT PERMIT NO. 1-07-046, the applicant shall provide written verification to the California Coastal Commission that the applicant has submitted to the U.S. Coast Guard proper documentation to assure that appropriate notice is provided to mariners and emergency responder agencies of the limitations on use and availability of moorage, embarkment, and disembarkment at Trinidad Pier during project demolition and construction phases. The documentation shall demonstrate that all necessary information has been provided to

allow for publication of an appropriate entry within *Notice to Mariners*, and that all responsible parties at the District 11 Local Notice to Mariners and Waterways Units, and Group Humboldt air and small boat station facilities have been apprised of the affects of harbor construction.

REASON FOR CHANGE: To afford the permittee additional time to provide necessary constructive notice of the altered availability of use of the pier during demolition and construction phases and facilitate issuance of the permit by mid-February so that the applicant can meet grand funding deadlines.

- **Revise Special Condition No. 14 to read as follows:**

14. <u>Archaeological Resources</u>

A. The applicant shall comply with all recommendations and mitigation measures contained in the cultural resources section of the mitigated negative declaration adopted for the project by the City of Trinidad, dated November 14, 2007.

B. If an area of cultural deposits is discovered during the course of the project, all construction shall cease and shall not recommence except as provided in subsection C hereof. A qualified cultural resource specialist shall analyze the significance of the find.

C. An applicant seeking to recommence construction following discovery of the cultural deposits shall submit a supplementary archaeological plan**<u>, prepared pursuant to consultations with the Yurok Tribal Historic Preservation Officer and a representative of the Tsurai Ancestral Society,</u>** for the review and approval of the Executive Director.

(i) If the Executive Director approves the Supplementary Archaeological Plan and determines that the Supplementary Archaeological Plan's recommended changes to the proposed development or mitigation measures are de minimis in nature and scope, construction may recommence after this determination is made by the Executive Director.

(ii) If the Executive Director approves the Supplementary Archaeological Plan but determines that the changes therein are not de minimis, construction may not recommence until after an amendment to this permit is approved by the Commission.

(iii) The applicant shall undertake development in accordance with the approved supplemental Archaeological Plan. No changes to the approved supplementary archaeological plan shall occur without a Commission approved amendment to this coastal development permit unless the

Executive Director determines that no amendment is legally required. **Prior to initiating any changes to the development prompted by the approved supplemental Archaeological Plan, the Yurok Tribal Historic Preservation Officer and the Tsurai Ancestral Society shall be notified of the project modifications.**

REASON FOR CHANGES: To provide an opportunity for tribal authorities and members of the local community possessing site-specific information as to the location and significance of cultural resources in the project area to: (1) provide input in the development of the supplemental archaeological work plan; and (2) assess whether any changes resulting from the plan, such as the relocation of project components, would impact other cultural resources not previously considered that could be avoided.

- **Revise *Public Access* Findings Section IV.B. to read as follows:**

B. Public Access and Coastal Recreational Opportunities.

1. Applicable Coastal Act Policies and Standards

Coastal Act Sections 30210, 30211, and 30212 require the provision of maximum public access opportunities, with limited exceptions.

Coastal Act Section 30210 requires in applicable part that maximum public access and recreational opportunities be provided when consistent with public safety, private property rights, and natural resource protection. Section 30211 requires in applicable part that development not interfere with the public's right of access to the sea where acquired through use (i.e., potential prescriptive rights or rights of implied dedication). Section 30212 requires in applicable part that public access from the nearest public roadway to the shoreline and along the coast be provided in new development projects, except in certain instances, such as when adequate access exists nearby or when the provision of public access would be inconsistent with public safety.

In applying Sections 30210, 30211 and 30212, the Commission is limited by the need to show that any denial of a permit application based on these sections, or any decision to grant a permit subject to special conditions requiring public access, is necessary to avoid or offset a project's adverse impact on existing or potential public access.

2. Consistency Analysis

In addition to providing support facilities for the local commercial fishing fleet, primary objectives of the development include providing enhancements to **existing** public coastal access, recreational, and nature study opportunities in the Trinidad Area. Thus, the development would ~~**establish new**~~ **enhance** publicly-accessible, water-oriented access

facilities and foster ~~**expanded**~~ **continued** use of recreational boating and dockside fishing.

The Commission notes that full utilization of the pier facilities by mariners, including commercial fishers, recreational boaters, public safety first responder, and military entities such as the U.S. Coast Guard, U.S. Immigration and Customs Enforcement, and Humboldt County Sheriff's Boating Unit/Marine Posse, would be limited or altered during the demolition/construction of the replacement pier. To provide constructive notice of these limitations on moorage, embarking, and disembarking at the pier, the Commission attaches Special Condition Nos. 12 and 13. Special Condition No. 12 requires the applicant, prior to commencement of demolition/construction, to provide written verification that proper documentation has submitted to the U.S. Coast Guard to assure that appropriate notice is provided to mariners and first responder agencies of the limitations on use and availability of Trinidad Pier for safe harborage, and search and rescue, interdiction, and national defense operations during project demolition and construction phases. Special Condition No. 13 requires the applicant, within thirty days of completion of construction, to provide written verification that proper documentation has submitted to the U.S. Coast Guard and National Oceanic and Atmospheric Administration (NOAA) to allow for a appropriate revisions to the relevant nautical charts to be published noting the changes in the pier's dimensions.

Therefore, the Commission finds that the proposed project as conditioned, which includes substantial new publicly accessible access facilities, is consistent with the public access and coastal recreation policies of the Coastal Act.

REASON FOR CHANGES: To clarify that the replacement pier will provide for continuation of the existing public access and recreational uses of the existing pier rather than providing entirely new public access and recreational uses. In addition, the changes establish findings for the attachment of permit special conditions for ensuring that adequate notice is provided to mariners, public safety first responder, law enforcement, and military entities of the limited availability of use of the pier during the project demolition and construction phases.

- **Renumber *California Environmental Quality Act* Findings Section IV.H. as Section IV.J.**

REASON FOR CHANGE: To maintain sequential numeration following insertion of additional findings omitted from the December 24, 2009 staff recommendation report (see below).

II. INCLUSION OF ADDITIONAL FINDINGS IN STAFF RECOMMENDATION

- **Insert a new *Protection of Water Quality* Findings Section IV.C. to read as follows:**

C. Protection of Water Quality

1. Applicable Coastal Act Policies and Standards

Section 30230 of the Coastal Act states, in applicable part:

> ***Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.***

Section 30231 of the Coastal Act states:

> ***The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.***

2. Discussion

Coastal Act Sections 30230 and 30231 protect the biological productivity and quality of coastal waters, streams, and wetlands through, among other means, minimizing adverse effects of wastewater discharge, controlling runoff and maintaining natural vegetation.

As detailed in *Site and Project Description* Findings Section IV.A., the development would be located within Trinidad Harbor and the adjacent Harbor Upland Support Area. These water and land areas are situated within the *Trinidad Head* "Area of Special Biological Significance," one of 34 ocean areas designated under the 1972 Ocean Plan to be monitored and maintained for water quality by the State Water Resources Control Board. The Ocean P1an, Section III.E.1., requires that: "Waste

shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas." "Waste" is defined as the "total discharge, of whatever origin." The Ocean Plan also allows the State Board to grant exceptions to this prohibition provided that the exception "will not compromise protection of ocean waters for beneficial uses, and, [t]he public interest will be served."

As described above, the proposed project includes features to improve existing water quality problems at Trinidad Harbor. The proposed project involves the complete replacement of the existing creosote-treated wooden trestle pier with a new poly-urea coated, steel-encased concrete piling-founded and pre-cast concrete deck panel-surfaced structure, as well as installing a stormwater/greywater collection, conveyance, and treatment system which would divert all runoff from the pier into a ground percolation/filtration vault to be sited within the upland harbor support parking area. These design features are intended to both improve the existing water quality of Trinidad Bay through eliminating continued low-level chronic releases of leachate containing polycyclic aromatic hydrocarbons from the treated wooden piles and preventing future discharges into the Trinidad Head ABSB waters from pollutants entrained in precipitation and coliform bacteria-tainted runoff from wash-down operations on the pier.

Insofar as a permit is required for the replacement pier by the U.S. Army Corps of Engineers pursuant to the federal Clean Water Act, the proposed development requires the water quality certification approval of the Regional Water Quality Control Board (Regional Board). The Regional Board staff has reviewed preliminary plans for the project and has indicated to Commission staff that the proposed pier and stormwater treatment system addresses all of the Regional Board's staff concerns with respect to applicable federal and state water quality standards.

As the proposed replacement pier and stormwater treatment system would significantly upgrade the quality of runoff from harbor facilities in a manner that State and Regional Boards indicate would adequately protect water quality, the Commission finds that the proposed development will protect the biological productivity and quality of coastal waters by minimizing adverse effects of waste water discharge consistent with Sections 30230 and 30231 of the Coastal Act.

Although the proposed development is designed to improve existing water quality, construction of the proposed development would have its own water quality impacts if runoff from the construction site is not adequately controlled. Sediment and other pollutants entrained in runoff from the development that reaches the beach and ocean would contribute to degradation of the quality of marine waters and any intervening sensitive habitat. Sediment is considered a pollutant that affects

visibility through the water, and affects plant productivity, animal behavior (such as foraging) and reproduction, and the ability of animals to obtain adequate oxygen from the water. Sediments may physically alter or reduce the amount of habitat available in a watercourse by replacing the pre-existing habitat structure with a stream-bottom habitat composed of substrate materials unsuitable for the pre-existing aquatic community. In addition, sediment is the medium by which many other pollutants are delivered to aquatic environments, as many pollutants are chemically or physically associated with these sediment particles.

To ensure that Best Management Practices (BMPs) are implemented during the project to avoid such impacts, the Commission imposes Special Condition Nos. 3 and 4. Special Condition No. 3 requires that the development be performed consistent with an erosion and runoff control plan, approved by the Executive Director, designed to prevent, intercept, and/or treat a variety of potential pollutants, including sediment, oils and grease, cleaning solvents, and solid wastes. Special Condition No. 4 sets forth various construction-related standards designed to protect the site from habitat and water quality impacts, including: (1) prohibiting the placing and storage of materials outside of areas subject to wave erosion and dispersion; (2) requiring that construction debris be promptly removed from the site upon the completion of construction; (3) excluding construction equipment or machinery from the beach or intertidal zone at any time; (4) prohibiting the use of sand from the beach, cobbles, or shoreline rocks used for construction or landscaping materials; (5) limiting the potential for entrainment of sediment and hydrocarbons in runoff through placing restrictions on construction during wet weather periods; and (6) requiring that staging and storage of construction machinery or materials and storage of debris be restricted to the approved staging/storage area. The implementation of these types of Best Management Practices (BMPs) would result in the interception and containment of sediment during the construction of the project and would also reduce potential erosion prior to the full establishment of permanent vegetation on the exposed embankment.

Therefore, as conditioned, the Commission finds that the biological productivity and quality of coastal waters will be maintained and the project, as conditioned, is consistent with Sections 30230 and 30231 of the Coastal Act.

- **Insert a new *Protection of Environmentally Sensitive Habitat Areas (ESHA)* Findings Section IV.D. to read as follows:**

D. Protection of Environmentally Sensitive Habitat Areas (ESHA)

1. Applicable Coastal Act Policies and Standards

Coastal Act Section 30240(b) states the following:

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Coastal Act Section 30107.5 defines "environmentally sensitive area" as:

…any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

2. Discussion

Section 30240(b) of the Coastal Act states that development in areas adjacent to environmentally sensitive habitat areas must be sited and designed to prevent impacts which would significantly degrade those areas, and be compatible with the continuance of those habitat areas.

The proposed development will include construction of a replacement pier deck above and adjacent to Trinidad Bay. The bay and the surrounding ocean waters are designated by the State Water Resources Control Board as one of 34 "areas of special biological significance" within California which, because of its highly productive aquatic habitat characteristics, warrant enhanced water quality protective measures. Moreover, as detailed within the various biological assessments prepared for the project, the water column and rocky/sandy substrate of Trinidad Bay, together with the adjoining intertidal areas and open ocean waters, provide habitat to a wide diversity of marine organisms, including algal and encrusting organisms, numerous littoral fishes, motile crustaceans, and other invertebrates, many of commercial and recreational fishing importance (see Exhibit No. 8). The harbor waters and surrounding land areas also provide habitat for and assortment of resident and migratory waterfowl, and federal-listed threatened or treaty-protected fish and marine mammal species, including juvenile Chinook salmon (*Oncorhynchus Tshawytscha*), coho salmon (*Oncorhynchus kisutch*), and steelhead trout (*Oncorhynchus mykiss*), Steller sea-lion (*Eumetopias jubatus*), Pacific harbor seal (*Phoca vitulina richardii*) California sea lion (*Zalophus californianus*)and gray whale (*Eschrichtius robustus*). As such, the waters of Trinidad Bay meet the Coastal Act definition of "environmentally sensitive habitat area" and are subject to the protections afforded by Section 30240.

As detailed within the attached resource agency biological review documents, the development as proposed to be undertaken consistent with specified demolition/construction performance standards and conditions, would include

protections against significant disruptions of the bay habitats. To ensure that the protections proposed to be included within the development are carried out in the project, the Commission attaches Special Condition No. 1. Special Condition No. 1 limits the scope of the coastal development permit approval to that proposed by the applicants, including the incorporation of the biological protective measures detailed in the project description documents. Accordingly, the Commission finds the project as conditioned to be conducted with the inclusion of these protections, is consistent with Coastal Act Section 30240(b).

The terrestrial areas within immediate proximity to the project site do not contain any known environmentally sensitive habitat areas. However, according to the California Native Plant Society (CNPS 2007), the coastal bluffs in the Trinidad area are known to contain rare plant species including Oregon coast Indian paintbrush (*Castilleja affinis* ssp. *littoralis*), Mendocino coast Indian paintbrush (*C. mendocinensis*), black crowberry (*Empetrum nigrum* ssp. *hermaphroditum*), and Wolf's evening-primrose (*Oenothera wolfii*).

All of the land-based portions of the development, including the reconstruction of the approach to the pier, the installation of the stormwater/greywater treatment system, and the construction staging/storage operations would be well removed from these bluff areas where rare plant species might be found. As the project entails construction in currently graded and cleared and/or surfaced areas, no post-construction landscaping is included and existing overburden would be used as for recovering project excavations, no soils or other fill materials would be imported to the site which might contain problematic exotic-invasive plant materials.

With the mitigation measures discussed above, which are designed to protect sensitive marine habitat and rare terrestrial plant species, the project as conditioned will prevent impacts that would significantly degrade those adjacent ESHA and will be compatible with the continuance of the habitat areas. Therefore, the Commission finds that the project as conditioned is consistent with Coastal Act Section 30240(b).

- **Insert a new *Filling, Dredging, and Diking of Wetlands and Open Coastal Waters* Findings Section IV.E. to read as follows:**

E. Dredging, Diking, and Filling of Wetlands and Open Coastal Waters

1. Applicable Coastal Act Policies and Standards

Section 30233 of the Coastal Act provides as follows, in applicable part:

> ***(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other***

applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(l) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(6) Restoration purposes.

(7) Nature study, aquaculture, or similar resource dependent activities…

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary… **[Emphases added.]**

2. Discussion

The above policies set forth a number of different limitations on what development projects may be allowed in coastal wetlands. For analysis purposes, the limitations can be grouped into four general categories or tests. These tests are:

- **The purpose of the filling, diking, or dredging is for one of the uses enumerated in Section 30233(a);**

- **The project has no feasible less environmentally damaging alternative;**

- **Feasible mitigation measures have been provided to minimize adverse environmental effects; and**

- **The biological productivity and functional capacity of the habitat shall be maintained and enhanced where feasible.**

1. Permissible Use for Fill

The first test for a proposed project involving fill is whether the fill is for one of the seven allowable uses under Section 30233(a). The project involves the construction of public accessible coastal-dependent pier facilities and related wastewater treatment, seawater intake, and of scientific instrumentation improvements along the shoreline and within the open waters of Trinidad Harbor. Among the allowable uses involving dredging, diking, and filling in wetlands which most closely match the project objectives are a combination of "expanded port… and coastal-dependent industrial facilities, including commercial fishing facilities," "new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities," and "[i]ncidental public service purposes, including but not limited to, … pipes … and maintenance of existing intake … lines," enumerated as Section 30233(a), sub-sections (1), (3), and (4). Therefore, the Commission finds that the proposed placement of fill within coastal waters and wetlands for purposes of reconstructing the Trinidad Pier is for several of the allowable uses for dredging, diking, and filling of coastal waters pursuant to Section 30233(a)(7) of the Coastal Act.

2. Least Environmentally Damaging Feasible Alternative

The second test of Section 30233(a) is whether there are feasible less environmentally damaging alternatives to the proposed project. In this case, the Commission has considered project options, and determines that there are no feasible less environmentally damaging alternatives to the project as conditioned. Alternatives that have been identified include: (1) reconstructing the pier with foundation piling that would result in no net increase in marine subtidal fill; and (2) the "no project" alternative.

a. Alternate Pier Configurations that Fully Avoid Additional Wetland Fill

As disclosed in the project description, the development entails the replacement of the existing pier's 215 12-inch-diameter treated wooded piles with 110 18-inch-diameter steel-encased concrete pilings and 53 10-inch diameter bumper piles, which would result in a net increase of approximately 55 additional square feet of marine subtidal wetland being filled. One alternative to avoid the proposed additional fill would be to

reduce the size of the pier or further reconfigure the decking to bear on piles of a number and/or size such that no net increase of wetland fill would result.

At 24 to 26-feet in width, and with a 540-foot length, both the existing and proposed replacement pier are quite modest in size. Further reduction to either the replacement pier width or length would significantly affect its functionality in terms of extending to water depths to accommodate the drafts of larger commercial fishing boats and other types of sea-going vessels, and would hamper the piers ability for accommodating simultaneous two-way vehicular circulation and lateral pedestrian movements. Accordingly, a reduction in the dimensions of the pier deck surfacing would have significant adverse impacts the continued viability of the Trinidad Harbor as a commercial and recreational fishing and boating facility.

With respect to reducing the size or number of piles, the applicant's engineer has indicated that such a reconfiguration would not meet established engineering standards for the static, dynamic, and lateral loads associated with supporting the pier deck. As a result, such a modification would compromise the structural integrity of the facility and expose pier users and shoreline infrastructure to a greater risks of injury and damage, respectively. Therefore, when all economic, environmental, technological and social factors are considered, narrowing, shortening, and/or reconfiguration of the replacement pier's structural components is not a feasible less environmentally damaging alternative.

b. No Project Alternative

The no project alternative means that no reconstructed pier would be developed in Trinidad Harbor. The objective of the proposed project —to provide long-range replacement port facilities to sustain existing commercial and recreational coastal-dependent uses— would not be met. Without the proposed filling of the additional small area of wetlands, no feasible replacement pier structure could be developed. As a result, pier users would be limited to continued utilization of the existing, unstable pier until such time that it experiences damage that would necessitate its closure. At such time when use of the pier became unavailable, commercial fishing interests requiring drayage and other on- and off-loading facilities, would be redirected to such services located at either Eureka, 25 miles to the south, or Crescent City, 40 miles to the north. Recreational boaters and fishers would be limited to launching their watercraft either at the nearby beach ramp or the adjoining fee boat hoist facilities. Accordingly, taking into consideration the economic, environmental, and social factors, the no project option is not a feasible less environmentally damaging alternative.

Thus, based on the alternatives analysis above, the Commission concludes that the proposed project is the least environmentally damaging feasible alternative.

3. Feasible Mitigation Measures

The third test set forth by Section 30230 and 30233 is whether feasible mitigation measures have been provided to minimize significant adverse environmental impacts.

Depending on the manner in which the proposed pier facilities are constructed and maintained, the proposed project could have potential adverse effects on the marine and intertidal aquatic, environments of Trinidad Harbor, and the project site environs by: (a) filling 55 square-feet of marine subtidal wetlands from construction of the replacement pier's piling foundation; (b) polluting marine aquatic fish and wildlife habitat with sediment, debris, or hazardous materials originating from the project's demolition and construction activities; and (c) acoustic impacts to marine mammals from underwater and subaerial demolition and/or construction noise.

a. Filling of Marine Subtidal Wetlands

Although the demolition of the existing pier would entail the removal of its 215 creosote-treated, 12-inch-diameter piles, representing roughly 169-square feet of bay floor coverage, an additional approximately 55-square-foot area of marine subtidal wetland would unavoidably be filled in the placement of the replacement pier's foundation and bumper pilings. The Commission notes that while this small areal loss of bay floor sandy subtidal habitat would result from the additional piling cross-sectional area, an increase of approximately 3,400 square-feet of new subtidal habitat would result from the development, in the form of the vertical surfaces on the exterior of the replacement coated steel-encased concrete piles. Unlike the existing pier's creosote-treated wooded underpinnings, the poly-urea coating of the replacement pier piles is inert with respect to its anti-fouling potential, and would be available for use by encrusting organisms, such as enchinoderms, bivalves, and other sessile suspension feeders. Accordingly, the loss of horizontal sandy bottom substrate would be compensated for by the creation of new, vertical, rock-like substrate, water column habitat at an approximately 62:1 replacement ratio.

b. Impacts to Estuarine Water Quality and Aquatic Habitat

Construction activities in and adjacent to the harbor could result in degradation of water quality through the entry of soil materials either directly or entrained in runoff passing over ground disturbed areas. To

prevent sediment and other discharge from upland sources into Trinidad Harbor, the applicant proposes the following mitigation measures:

- **Protective measures will be put into place during construction to prevent or minimize contamination of aquatic areas from entry of demolition debris materials, operation of construction equipment, disturbance of marine vegetation and/or the entry of runoff from ground disturbed sites.**
- **Silt fences, haybales, floatation booms, and/or other barriers will be used to retain disturbed soils and prevent soils from entering Trinidad Bay. The fences or barriers will remain in place until ground disturbing grading work is completed.**
- **Equipment refueling will be done only in upland staging areas. Equipment will be properly maintained and reasonably clean of grease and oil prior to entering construction area.**
- **Hazardous materials spill abatement equipment will be kept on site at all times.**

The Commission has further conditioned the permit to ensure that all potentially significant adverse impacts to coastal water quality are minimized: Special Condition No. 3 requires the applicant, prior to permit issuance, to submit, for the Executive Director's review and approval, an erosion and runoff control plan that includes certain specified water quality best management practices for minimizing impacts to coastal waters associated with the filling and construction activities to be conducted in proximity to Trinidad Harbor. As the water quality measures proposed by the applicant were somewhat vague and lacked specificity as to the locations and types of measures to be employed, development of a formal erosion and runoff control plan is necessary to address those deficiencies.

c. Acoustic Impacts to Marine Mammals

Based upon the biological assessments provided by the applicant, the National Marine Fisheries Service has determined that, due to the timing of development work and construction methodologies to be employed, significant adverse impacts to sensitive fish and wildlife, including protected anadromous salmonids and marine mammals would not likely result. The acoustic evaluation concluded that, given the time of year and presence of human activity, no noise-sensitive marine mammals would likely come within proximity to the project site, or that the proposed vibratory pile extrication/placement and rotary auger excavation work would exceed harmful noise thresholds. However, the possibility exists that marine mammals might still enter the area and be exposed to underwater sound levels that could adversely affect their behavior or result in temporary or

permanent hearing losses. Accordingly, the applicant has proposed, and the Commission has required through the attachment of Special Condition Nos. 1, 5 and 6, that the permittee not deviate from the project as described in the permit application materials, including the inclusion of various mitigation measures and monitoring programs, and that certain construction performance standards and acoustic monitoring protocols be followed during the demolition and construction of the replacement pier to ensure that impacts of underwater and subaerial noise do not impact sensitive marine fauna. These requisite protective measures include:

- **Limiting subtidal construction activities to August 1 to January 31, 7:00 a.m to 7:00 p.m.**
- **Specifying the exclusive use of vibratory hammer pile-driving equipment rather than an impact driver.**
- **Daily limits on the number of piles to be extricated or installed and augered.**
- **Provisions for ceasing construction activities if marine mammals enter the project site vicinity until they disperse.**
- **Conducting continuous and peak underwater noise monitoring with provisions for ceasing construction operations and adaptive management reevaluation of construction logistics if harmful thresholds are exceeded.**

d. Mitigation Conclusion

Therefore as proposed and further conditioned as described above, the Commission finds that feasible mitigation is included within the project design to minimize all significant adverse impacts associated with the proposed filling of coastal waters.

4. Maintenance and Enhancement of Marine Habitat Values

The fourth general limitation set by Section 30233 is that any proposed filling in tidal waters or submerged land must maintain and enhance the biological productivity and functional capacity of the habitat, where feasible.

As discussed above, the project will not have significant adverse impacts on the marine resources of Trinidad Harbor. The mitigation measures incorporated into the project and required by the Special Conditions discussed above will ensure that the construction of the pier and water quality treatment facilities and other related improvements would not significantly adversely affect the biological productivity and functional capacity of the tidal waters or marine resources. Furthermore, by removing of existing creosote-treated wooden piling and pressure-treated decking timbers, the project would improve the overall water quality of the *Trinidad Head*

Area of Special Biological Significance by eliminating a source of low-level chronic releases of poly-cyclic aromatic hydrocarbons into these coastal waters. Therefore, the Commission finds that the project, as proposed and conditioned, will maintain and enhance the biological productivity and functional capacity of the habitat consistent with the requirements of Section 30233 of the Coastal Act.

5. Conclusion

The marine subtidal wetland fill associated with the project is for one of the allowable uses enumerated in Coastal Act at Section 30233(a), sub-sections (1), (3), and (4) Furthermore , the applicant has documented that there are no other less damaging alternatives available to further reduce or avoid the subject filling of wetlands. Moreover, as proposed and augmented by the attachment of additional special conditions to the permit's approval, all feasible mitigation measures have been provided to minimize the environmental impacts of the project and maintain and enhance the biological productivity and quality of coastal waters. Therefore, the Commission finds the project to be consistent with Section 30233 of the Coastal Act.

- **Insert a new *Priority Uses* Findings Section IV.F. to read as follows:**

F. Priority Uses

1. Applicable Coastal Act Policies and Standards

Coastal Act Section 30234 states the following:

> ***Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.***

Coastal Act Section 30222 states the following:

> ***The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.***

2. Discussion

Sections 30234 and 30222 give priority to commercial fishing, recreational boating, visitor-serving commercial recreation, and public access over other potential uses of coastal lands.

Trinidad Harbor comprises a small coastal community seaport with significant use by both commercial fishing and recreational boaters. The harbor is also a regionally significant visitor destination, that, in addition to the pier itself comprises a restaurant, vacation lodging, and other commercial recreational facilities that serve coastal visitors. Furthermore, the waterfront to the east and west of the harbor contains beach areas primarily in open space uses. These beaches include Indian Beach, the site of the Yurok village of *t'surai*, located approximately ⅛ mile to the east, and Trinidad State Beach, located approximately ¼ mile to the northwest of the project site. Thus, the harbor supports commercial fishing, recreational boating, visitor-serving commercial recreation, and public access consistent with the priority use policies of the Coastal Act.

The proposed project is designed to improve and provide services that will support the priority uses of the harbor. The replacement pier will upgrade docking facilities at the harbor and be available to commercial fishermen, recreational boaters, and visitors to the area. The new advanced stormwater/greywater treatment system will ensure that polluted runoff and wash waster generated by priority uses at the pier will be adequately treated.

Therefore, the Commission finds that the proposed project will provide services that support commercial fishing, recreational boating, visitor-serving commercial recreation, and public access consistent with the priority use provisions of Sections 30234 and 30222 of the Coastal Act.

- Insert a new *Visual Resources* Findings Section IV.G. to read as follows:

G. Visual Resources

1. Applicable Coastal Act Policies and Standards

Section 30251 of the Coastal Act states:

> ***The scenic and visual qua1ities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to***

be visually compatible with the character of surrounding areas and, where feasible, to restore and enhance visual qua1ity in visually degraded areas. New development in highly scenic areas…shall be subordinate to the character of its setting.

2. Discussion

Section 30251 of the Coastal Act states that the scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance and requires, in applicable part, that permitted development be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, and to be visually compatible with the character of surrounding areas.

The proposed development involves the installation of replacement shoreline pier facilities that will continue to be visible from a variety of public vantage points upon the completion of the project. Specifically, the proposed pier structure, storage buildings, and associated railing, hoist, and float dock components will be permanently visible, just as the existing pier facilities are visible, from numerous public vantage points in and around Trinidad Harbor, including the southeastern portions of the parking lot within the Harbor Upland support Area, the beaches adjacent to the pier, the hiking trails on the eastern side of Trinidad Head, from public streets on the bluff to the north of the harbor, from the adjoining open bay and ocean waters, and distantly from vista points along Scenic Drive south of the City. Lighting of the pier is visible from northbound Highway 101 and the McKinleyville vista point at the southern end of Clam Beach, over five miles south of the project site.

As proposed, the project is designed to reduce visual impacts. The above grade portions of the development will be constructed of the same open trestle style as the existing pier, with a reduced number of, albeit larger diameter, pile members. This design feature will ensure the structure will not significantly increase the degree of blocked views to the bay from adjacent areas than that currently obstructed by the existing pier pilings. For compatibility with the character of surrounding development, the reconstructed pier will be constructed of dark to neutral hued coated steel and concrete pile and bents, respectively, that will approximate the appearance of the surrounding Franciscan greywacke rock that comprises Trinidad Head and Little Head landforms. In addition, the pier's concrete decking will be surfaced with a textured, stone-like veneer colored in various dark grays as approved by the Trinidad Design Review Committee (see Exhibit No. 7). These surface materials are designed to help the pier to blend its natural surroundings.

No specific lighting improvements have been proposed. However, some lighting of the pier work areas is desirable to facilitate the safe loading and unloading of boats.

To prevent the installation of lighting that would create unnecessary glare and detract from the visual compatibility of the development with its surroundings, the Commission attaches Special Condition No. 2. The special condition requires that all exterior lights shall be the minimum necessary for the safe ingress, egress, and use of the pier facility, and shall be low-wattage, non-reflective, shielded, and have a directional cast downward such that no light will be directed to shine beyond the boundaries of the immediate pier deck and docking area.

Section 30251 requires that the alteration of natural land forms be minimized. The proposed development would not entail above-grade alterations of terrain to construct the replacement pier nor further excavation into the base of the hillside adjoining the harbor upland support area to allow for installation of the stormwater/greywater treatment system. A small amount of grading will be required along the side of the adjoining Seascape Restaurant to form a ramp up from the harbor parking area up onto the slightly higher (by 2 feet) pier. However, this grading will be of a low gradient to allow for vehicular and pedestrian ingress/egress and would not involve only the existing graded and paved approach to the pier. Therefore, the development minimizes the alteration of natural land forms.

The Commission finds that the project, as conditioned, is consistent with Section 30251 of the Coastal Act as the project will not adversely affect any existing views to or along the coast, will be compatible with the character of the surrounding area, and will minimize the alteration of natural land forms.

- **Insert a new *New Development* Findings Section IV.H. to read as follows:**

H. Planning and Siting New Development.

1. Applicable Coastal Act Policies and Standards

Section 30250(a) of the Coastal Act states in applicable part that:

> ***New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources.***

2. Discussion

The intent of this policy is to direct development toward areas where community services are provided and potential impacts to resources are minimized.

The proposed development is situated within Open Space (pier) and Commercial (stormwater treatment system, staging area) zoning districts where visitor-serving accommodation are conditionally permitted uses as shoreline related recreation uses, including improvements to existing facilities, structures and improvements, such as seawalls and revetments, and structures accessory to uses and buildings. The project is located in a developed area that is adequately served with water, public road access, and other municipal services. Once the related stormwater treatment facilities have been installed, the project would be provided with adequate wastewater treatment capacity.

Based on the above conditions, the proposed development is consistent with Coastal Act Section 30250(a) to the extent that it is located in a developed area with adequate water, sewer, utility, transportation, and other public service capabilities, and as conditioned herein, will not have significant adverse effects, either individually or cumulatively, on coastal resources. Therefore, Commission finds that the proposed project is consistent with Section 30250 of the Coastal Act.

- **Insert a new *Archaeological and Cultural Resources* Findings Section IV.I. to read as follows:**

I. Archaeological and Cultural Resources.

1. Applicable Coastal Act Policies and Standards

Section 30244 of the Coastal Act states:

> ***Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.***

2. Discussion

The proposed project area is located within the ethnographic territory of the Yurok peoples. The Yurok are known to have settled along the Humboldt County coast within the general vicinity of the subject property. The Yurok tribe had settlements extending north from Little River State Beach several miles to the south of the project site, to areas within southern Del Norte County, including over fifty named villages clustered along the Klamath River and coastal lagoons and creeks, including 17 villages on the coast.

The proposed development is not located within 100 feet of known archaeological/cultural resources such as the Tsurai Study Area. However, the site is located within a culturally sensitive area where the possibility exists that cultural or archaeological resources could be uncovered during grading activities.

To ensure protection of any cultural resources that may be discovered during construction of the proposed project, staff recommends Special Condition No. 14, which requires that the development be undertaken pursuant to the cultural resources mitigation measures identified in the Mitigated Negative Declaration environmental review document adopted by the City of Trinidad for the project. The mitigation and monitoring program includes to measures addressing potential impacts to cultural resources:

> **MITIGATION V-1: The Trinidad Rancheria will employ an elder of the Yurok Tribe qualified by the State Historical Preservation Officer to monitor the construction site for cultural and archeological resources. The monitor will be present during pile removal and pile installation activities. The Tribe monitor will inspect the sediment removed from the construction area for cultural or archeological resources. The Tribe monitor will inspect the material as it is bored out of the holes and will also be able to continuously inspect the material at the temporary stockpiling location.**
>
> **MITIGATION V-2: The Contractor will be notified of, and required to monitor for signs of potential undiscovered archeological, ethnic, religious, or paleontological resources. If cultural/archeological resources are discovered during pile removal or pile installation, operations will be halted until a qualified cultural resources specialist is consulted. Subsurface surveys shall be conducted to determine the boundaries of the resource. If human remains are discovered, the County Coroner must be contacted. Required procedures to be followed in the event of accidental discovery of cultural materials or human remains are described in sections 15064.5(e) and 1564.5(f) of the State CEQA Guidelines (California Code of Regulations, Title 14, Sec 15000-15387). A protocol to follow in the event that cultural/archeological resources are discovered shall be prepared by the contractor prior to commencement of the project. A copy of this protocol shall be submitted to the City of Trinidad and the Yurok Tribe.**

In addition, Special Condition No. 14 also provides that, if an area of cultural deposits is discovered during the course of the development, all construction shall cease and a qualified cultural resource specialist must analyze the significance of the find. To recommence construction following discovery of cultural deposits, the permittee is required to submit a supplementary archaeological plan, prepared in consultation with the Yurok Tribal Historic Preservation Officer – the locally delegated State Historical Preservation Office entity[1] – and a representative of the Tsurai Ancestral Society, comprising direct descendents of the residents of the nearby *t'surai* village site, for the review and approval of the Executive Director to determine whether the changes are *de minimis* in nature and scope, or whether an

amendment Coastal Development Permit No. 1-07-046 is required. Special Condition No. 14 also provides that these parties be apprised of any project changes that might arise from the approved supplemental archaeological work plan. These requirements will provide an opportunity for tribal authorities and members of the local community possessing site-specific information as to the location and significance of cultural resources in the project area to provide input in the development of the supplemental archaeological work plan and to assess whether any project changes resulting from the plan, such as the relocation of project components, would impact other cultural resources not previously considered might be avoided.

Therefore, the Commission finds that the proposed project, as conditioned, is consistent with Coastal Act Section 30244, as the development will not adversely impact archaeological resources.

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1 In April 2000, subject to the provisions of a memorandum of agreement with the Northwest California Information Center, Sonoma State University (NWIC), the Yurok Tribe assumed cultural resources review authority for purposes of compliance with the California Environmental Quality Act and other state and federal statutes. Over the last decade, the Yurok Tribal Historic Preservation Officer (YTHPO) has conducted archaeologic reviews for much of coastal northern Humboldt County as the "Northcoast Information Center" (NCIC), one of a dozen such centers statewide that form the "California Historical Resources Information System" repository. Pursuant to the National Historic Preservation Act, the Trinidad Rancheria is currently in the process of developing its own tribal historic preservation program and, as a training exercise, will participate with the YTHPO in the monitoring of the project work.

II. ATTACHMENT

1. Applicant Correspondence

Letter from Jason Berrey, Pacific Affiliates, dated January 5, 2010, received January 7, 2010, containing a summary of amendments to the project description.

PACIFIC AFFILIATES, INC.
A CONSULTING ENGINEERING GROUP
990 W. WATERFRONT DRIVE • EUREKA • CA • 95501 • PH (707) 445-3001 • FAX (707) 445-3003

DAVID L. SCHNEIDER R.C.E. 27285
TRAVIS L. SCHNEIDER R.C.E. 67393

January 5, 2010

Mr. Jim Baskin, AICP, Coastal Planner
California Coastal Commission
North Coast District Office
710 E Street, Suite 200
Eureka, CA 95501

Re: Trinidad Pier Reconstruction Project
Updated Narrative

Mr. Baskin:

As per your request, an updated narrative for the Trinidad Pier Reconstruction Project is as follows:

Existing pier improvements are proposed to be replaced one-to-one with approximately 13,500 ft^2 (1,254m^2) of pre-cast concrete decking, 110 Cast-In-Steel-Shell (CISS) concrete piles coated with polyurea including batter and moorage piles (18 inches in diameter), four hoists, standard lights, guardrail, and dock utility pipes including water, power and phone. In addition, 53 plastic fender piles with fiberglass rebar (10 inches in diameter) separated 5 ft (1.5m) apart will be installed where hoists and ladders will be located. A new stormwater collection system will be incorporated into the reconstructed pier design.

The 540' long pier will consist of 30' spacing between the bents for the first 440' of the pier and 25' spacing for the last 100' of the pier. The width of the pier will be 24' for the first 440' of the pier and 26' wide for the last 100' of the pier.

The project will commence on August 1, 2010 and terminate on April 30, 2011.

Should you have any questions please contact me at (707) 445-3001 or via email to jberrey@pa-schneiderdock.com

Respectfully,

Jason Berrey
L.S.I.T. 7893

cc: Jacque Hostler – Trinidad Rancheria

ATTACHMENT NO. 1

CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
710 E STREET • SUITE 200
EUREKA, CA 95501
VOICE (707) 445-7833
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F13a

Filed: November 2, 2009
49th Day: December 21, 2009
180th Day: May 1, 2010
Staff: James R. Baskin AICP
Staff Report: December 23, 2009
Hearing Date: January 15, 2010
Commission Action:

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.:	**1-07-046**
APPLICANT:	**Cher-ae Heights Indian Community of the Trinidad Rancheria**
PROJECT LOCATION:	Along the Trinidad Pier and within the adjoining Upland Support Area, at Trinidad Harbor, 1 Bay Street, Trinidad, Humboldt County. APNs 42-071-01, -08, -09, -12, -13, & -14.
PROJECT DESCRIPTION:	*Trinidad Pier Reconstruction Project* entailing: (1) demolition and reconstruction of the Trinidad Pier; (2) construction of an associated stormwater drainage treatment system; and (3) installation of a replacement seawater intake pump to serve Humboldt State University's Marine Lab.
LOCAL APPROVALS RECEIVED:	City of Trinidad Conditional Use Permit No. 2007-07, Design Review Approval No. 2007-07-DR (pier materials), and Design Review Approval No. 2009-03-DR (project signage).
OTHER APPROVALS RECEIVED:	(1) Regional Water Quality Control Board 401 Water Quality Certification; NOAA Fishers Endangered Species Act and Essential Fish Habitat Consultation.

OTHER APPROVALS REQUIRED:	(1) U.S. Army Corps of Engineers Permit FCWA Section 10 and Section 404 Individual Permit, File No. 400318N (Pending) (2) NOAA Fishers Marine Mammal Protection Act Consultation; (3) U.S. General Service Administration encroachment permit; (4) State Lands Commissions approval.
SUBSTANTIVE FILE DOCUMENTS:	*Trinidad Rancheria – Trinidad Pier Reconstruction Project* [Construction, Drainage, and Preliminary Runoff and Erosion Control Plans] (Pacific Affiliates, November 15, 2007); *Foundation Investigation Trinidad Pier Replacement Trinidad California* (Taber Consultants, September 2007); *Biological Assessment Trinidad Pier Replacement* (Jones and Stokes, May 2009; *Grey Whale and Harbour Seal Distribution and Abundance in Northern California – A Report to Supplement the Trinidad Pier Reconstruction Project* (Dawn Goley Ph.D., June 15, 2007); *Trinidad Pier Reconstruction Project Fish Species* (Dr. Tim Mulligan, July 9, 2007); *Trinidad Pier Intertidal Assessment* (Dean Jiack, Curtney Herman, and Dr. Sean F. Craig, May 2007); *Subtidal Resources Assessment Around Trinidad Pier – A Report to Pacific Affiliates for the Trinidad Pier Reconstruction Project* (Megan Donahue, June 23, 2007); *River Otters and the Proposed Pier Replacement at Trinidad Bay, California* (J. Scott Shannon, June 9, 2007); and *Mitigated Negative Declaration – Trinidad Pier Reconstruction Project* (City of Trinidad, August 2007).

SUMMARY OF STAFF RECOMMENDATION

Staff recommends that the Commission approve with conditions this application for the reconstruction of the Trinidad Pier.

The project would entail the complete reconstruction of the existing 540-foot-long, 24- to 26-foot wide wooden trestle and plank facility. The existing pier structure, comprised of 215 12-inch-diameter creosote-treated piles, would first be extricated from their intertidal and submerged locations, as part of a grant-funded brownfields cleanup remediation project, removing a significant source of chronic low-level marine pollution. The

existing pier would then be replaced with a new framework and surface consisting of 18-inch-diameter steel encased concrete pile foundation, cast-in-place concrete traverse framework "bents", and pre-fabricated, textured-surface, concrete decking replacement structure, of approximately the same exterior dimensions. In addition, several new small storage sheds and mechanical housing structures would be erected on the new pier, with existing drayage cranes, utility services, marine laboratory seawater intake lines and water quality monitoring probes upgraded and replaced. The project also includes the construction of a stormwater runoff collection, conveyance, and treatment system for meeting the "no discharges" prohibition established for the "Trinidad Head Area of Special Biological Significance" in which the project site is located.

The project site is located within the open ocean waters of Trinidad Bay. The Trinidad harbor area includes several environmentally sensitive habitat areas (ESHA) including rocky habitat that supports a wide diversity of nearshore marine biota. In addition, the inner Trinidad Harbor area and other portions of Trinidad Bay support sensitive anadromous salmonid species and provide habitat to several protected marine mammals, including Steller sea-lions and harbor seals, which also qualify as ESHA under the Coastal Act.

Notwithstanding the significant public benefits the project would afford, if not conducted and maintained properly, the project could have significant direct and cumulative adverse impacts on these sensitive environmental resources. The development requires approximately 55 square-feet of marine subtidal wetland fill for the proposed upgraded pier pilings that cannot feasibly be avoided. In addition, construction, grading, and surfacing activities would be undertaken partially within and/or in close proximity to intertidal wetlands and open coastal water and other terrestrial environmentally sensitive habitat areas, particularly marine mammal habitat.

Staff believes the relatively small amount of wetland fill associated with the project is for a permissible use consistent with Section 30233(a)(1) of the Coastal Act as "new or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities." Staff is recommending 15 special conditions to ensure that environmentally sensitive resources, water quality, and other coastal resources in the project area are adequately protected such that potential significant impacts are avoided and/or reduced to insignificant levels, and that all necessary property rights to conduct the project have been secured:

Special Condition No. 1 sets limitations on the approval of the development to that specifically described within the project application materials. Prior to undertaking any modifications to the project, the revisions shall first be reviewed by the Executive Director and a determination made as to whether a permit amendment or additional authorizations would be required.

Special Condition No. 2 requires that, prior to the permit issuance, that the applicant submit for the review and approval of the Executive Director, final development plans conforming to the amended project description and permit conditions regarding the pile field modifications, exterior lighting, and building material specifications.

Special Condition No. 3 requires the applicant to prepare and submit for the Executive Director's approval a stormwater runoff and erosion control plan, identifying appropriate construction-phase and permanent water best management practices to be incorporated into the project to prevent potential impacts to water quality consistent with the areas special biological area designations, and a hazardous materials spill prevention and clean-up plan detailing both the efforts to be taken and the materials and equipment available for preventing and responding to any accidental release of hazardous materials during construction of the coastal access facilities.

Special Condition No. 5 sets specific construction phase performance standards to be followed during demolition and placement of the pier pilings to further ensure that environmentally sensitive habitat and water quality impacts are avoided and minimized.

Special Condition No. 6 requires the applicant, prior to conduct hydro-acoustic monitoring to ensure that pile driving activities do not significantly adversely affect environmentally sensitive marine organisms.

Special Condition No. 7 directs that the development be constructed in conformance with the recommendations of the approved geo-technical report prepared for the project, as modified by a supplemental report prepared by the project engineer.

Special Condition No. 8 states that, upon accepting the permit the applicant acknowledges and accepts the inherent risks of developing the pier improvements in an area exposed to a variety of natural hazards.

Special Condition No. 9 requires the applicant to demonstrate that all authorizations to construct the project have been received from the State Lands Commission.

Special Condition No. 10 requires the applicant to demonstrate that all property rights have been secured from the U.S. Government to allow for conducting construction staging activities on adjacent federal lands.

Special Condition No. 11 requires, prior to instigation of construction, that the applicant provide a copy of the U.S. Army Corps of Engineers Clean Water Act Section 404 individual permit for the review of the Executive Director to ensure that the project has been consistently authorized.

Special Condition Nos. 12 and 13 require the applicant to demonstrate that they have complied with all National Oceanographic and Atmospheric Administration and U.S.

Coast Guard requirements for ensuring that constructive noticing of the development project's effects on the availability of use of the pier during its reconstruction have been met, and that relevant nautical charts have been updated as needed.

Special Condition No. 14 requires the permittee to utilize various protective measures and procedures to ensure that impacts to archaeological resources do not result.

Special Condition No. 15 requires, prior to issuance of the permit, that the applicant provide a copy of an agreement issued by NOAA Fisheries concerning consultation on the impacts of the project on marine mammals and requires the applicant inform the Executive Director of any changes required by NOAA Fisheries to ensure that the need for any permit amendment to the coastal development permit can be considered.

Staff recommends that the Commission find the project, as conditioned, consistent with the Chapter 3 policies of the Coastal Act.

The motion to adopt the Staff Recommendation of Approval with Conditions is found on page 6.

STAFF NOTE

1. Jurisdiction and Standard of Review.

The proposed project is located within the incorporated boundaries of the City of Trinidad and is situated both within the waters of the Pacific Ocean, the original jurisdiction of the Commission, and the upland area of Trinidad Harbor, in Humboldt County. The City of Trinidad has a certified LCP, but the on-land portions of the project site are within the "Trinidad Harbor and Upland Support Area," an Area of Deferred Certification (ADC) over which the Commission retains coastal development permit jurisdiction. Therefore, the standard of review that the Commission must apply to the whole of the project is the Coastal Act.

2. Addendum.

This staff report does not contain the complete findings for approval of the project. Staff was unable to complete the findings prior to the mailing of the staff report. However, staff will present the remaining portion of the recommended findings for approval of the project as part of the addendum at the Commission meeting. The summary of the staff recommendation in this report reflects the basis for approval with conditions contained in the existing findings of this report and the findings that will be contained in the addendum.

I. MOTION, STAFF RECOMMENDATION, AND RESOLUTION

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve Coastal Development Permit No. 1-07-046 pursuant to the staff recommendation.

Staff Recommendation of Approval:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution to Approve Permit:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either: (1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment; or (2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS: See attached.

III. SPECIAL CONDITIONS:

1. Future Development Restriction

This permit is only for the development described in Coastal Development Permit Application No. 1-07-046. All development authorized by Coastal Development Permit No. 1-07-046 must occur in strict compliance with the proposal set forth in the application for the permit as modified by the special conditions. Any deviation from the project proposal, including a change in the location or extent of the replacement pier and support facilities, or staging area, increases in the intensity, density, or specific use of the site, or any other changes to the proposed project shall require an amendment to Permit No. 1-07-046 from the Commission unless the Executive Director determines that no amendment is legally required.

2. Revised Design and Construction Plans

A. **PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-07-046**, the applicant shall submit revised final design and construction plans for the review and approval of the Executive Director. The plans shall be consistent with the Commission's action on Coastal Development Permit No. A-1-07-046 and shall substantially conform with the preliminary plans prepared by Pacific Affiliates, dated November 15, 2007 and attached as Exhibit No. 7 of the staff recommendation except that the revised plans shall also provide for the following:

1) Foundation and Structural Revisions

a. All site development plans shall be consistent with the revised project description letter submitted by Pacific Affiliates, dated December 14, 2009, attached as Exhibit No. 6.

b. Evidence that an appropriate licensed professional has reviewed and approved all final design and construction plans and certified that each of those final plans is consistent with all of the recommendations specified in the *Foundation Investigation* prepared by Taber Consultants and dated September 2007, approved by the California Coastal Commission for the project site.

2) Lighting Revisions

a. All exterior lights, including lights attached to the outside of any structures, shall be low-wattage, non-reflective and have a directional cast downward and shielded so as not to illuminate land and water areas outside the immediate pier ingress/egress routes and dockside mooring slips; and

b. A revised site plan map and building elevations depicting the location of all exterior pier lighting, accompanied by manufacturer's specifications and "typicals" for each type of fixture that demonstrate that the lights will be low-wattage, non-reflective and have a directional cast downward.

3) Exterior Materials Specifications Revisions

a. All exterior shed and mechanical housing structural materials, including the siding and roofing materials, and windows, shall be non-reflective to minimize glare; and

b. Decking shall be limited to the textured and colored concrete materials approved by the City of Trinidad Design Review Committee on October 21, 2009.

B. The permittee shall undertake development in accordance with the approved revised plans. Any proposed changes to the approved revised plans shall be reported to the Executive Director. No changes to the approved revised site plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

3. Erosion and Run-Off Control Plans

A. **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-07-046,** the applicant shall submit, for review and approval of the Executive Director, a plan for erosion and run-off control.

1. EROSION CONTROL PLAN

a. The erosion control plan shall demonstrate that:

(1) During construction, erosion on the site shall be controlled to avoid adverse impacts on adjacent environmentally sensitive resource areas;
(2) The following temporary erosion control measures shall be used during construction: hay bale and/or silt fence barriers around all ground-disturbed excavations and stormwater drainage inlets;
(3) Following construction, erosion on the site shall be controlled to avoid adverse impacts on adjacent environmentally sensitive resource areas;
(4) The erosion control plan is consistent with all terms and conditions of the permit.

b. The plan shall include, at a minimum, the following components:

(1) A narrative report describing all temporary run-off and erosion control measures to be used during construction and all permanent erosion control measures to be installed for permanent erosion control;
(2) A site plan showing the location of all temporary erosion control measures;
(3) A schedule for installation and removal of the temporary erosion control measures;

(4) A site plan showing the location of all permanent erosion control measures; and
(5) A schedule for installation and maintenance of the permanent erosion control measures.

2. RUN-OFF CONTROL PLAN

a. The run-off control plan shall demonstrate that:

(1) Runoff from the project shall not increase sedimentation into coastal waters;
(2) Runoff from all pier decking and improvement impervious surfaces shall be directed/collected and conveyed into the centralized stormwater treatment system as illustrated on the approved project plans, consistent with the Trinidad Head Kelp Beds ASBS discharge prohibitions;
(3) Stormwater run-off from all parking areas, driveways and other impervious surface improvements within the upland support facilities project area shall be collected and conveyed into either the centralized stormwater treatment system as illustrated on the approved project plans or into other SWRB-approved centralized bio-filtration detention/treatment basin consistent with the Trinidad Head Kelp Beds ASBS discharge prohibitions; and
(4) The proposed runoff control plan is consistent with all terms and conditions of the permit.

b. The plan shall include, at a minimum, the following components:

(1) A schedule for installation and maintenance of the stormwater collection, conveyance, and treatment systems; and
(2) A site plan showing finished grades (at one-foot (1´) contour intervals) and the location of the drainage improvements.

B. The erosion and runoff control plans shall, prior to submittal to the Executive Director, be reviewed and certified by a qualified professional to ensure that the plans are consistent with the drainage requirements of the City of Trinidad Public Works Department and the stormwater runoff treatment standards as established by the State Water Resources Board for the Trinidad Head Kelp Beds Area of Special Biological Significance.

C. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a

Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

4. Construction Responsibilities and Debris Removal

The permittee shall comply with the following construction-related requirements:

A. No construction materials, debris, or waste shall be placed or stored where it may be subject to wave erosion and dispersion;

B. Any and all debris resulting from construction activities shall be removed from the coastal waters immediately;

C. Sand from the beach, cobbles, or shoreline rocks shall not be used for construction material;

D. Staging and storage of construction machinery and storage of debris shall not take place on any adjacent coastal access support facilities (e.g., parking lots, bike paths, or walkways);

E. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete, oil or petroleum products, or other organic or earthen material from any grading and construction activities shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into coastal waters;

F. Any fueling of construction equipment shall occur on the paved areas within the approved staging area at a minimum of 100 feet landward from the Mean High High Water (MHHW) line;

G. Silt screens, straw bales, and/or coir-rolls appropriate for use in shoreline settings applications shall be installed around the perimeter of the areas to be graded and excavated prior to the initiation of grading and excavation activities and shall be maintained throughout project construction. Additional silt and sediment barrier materials shall be kept at the site and deployed as needed to reinforce sediment containment structures should unseasonable rainfall occur;

H. If rainfall is forecast during the time construction activities are being performed: (i) all exposed soils materials excavated to form the pier approach and Stormwater drainage treatment improvements shall be covered with minimum 10-mil plastic sheeting, secured with sand bagging or other appropriate materials, and (ii) any other exposed soil areas shall be promptly mulched before the onset of precipitation;

I. Mechanized heavy equipment, including excavation, paving, and materials delivery vehicles used during the construction process shall not be staged, operated, stored, or re-fueled within 100 feet of the waters of Trinidad Harbor or the Pacific Ocean;

J. To minimize the entrainment and entry of hydrocarbon-tainted runoff into coastal waters, asphaltic concrete paving operations shall be performed during dry-weather periods when the National Weather Service's Northwestern California forecast for the McKinleyville sub-area of the Redwood Coast predicts a less than 50 percent chance of precipitation for the timeframe in which the paving work is to be conducted; and

K. Fuels, lubricants, and solvents shall not be allowed to enter the waters of Trinidad Harbor. Hazardous materials management equipment including oil containment booms and absorbent pads shall be available immediately on-hand at the project site, and a registered first-response, professional hazardous materials clean-up/remediation service shall be locally available on call. Any accidental spill shall be rapidly contained and cleaned up. All heavy equipment operating in or near the water's edge shall utilize vegetable-based oil as hydraulic fluid.

5. <u>Pile-Driving Limitations</u>

A. All pile-driving activities shall be performed in full accordance with the following pile-driving requirements:

1. Underwater construction activities (pile removal and installation, concrete pumping) occurring between August 1 and January 31 shall be limited to the period between 7 a.m. and 7 p.m.;
2. A vibratory hammer shall carefully remove and install piles;
3. Debris collection devices above, and on the surface of, the water shall be employed to collect any material generated during removal of the wooden deck and pilings;
4. All activities in the staging area shall incorporate erosion control and sediment detention devices (e.g., silt fences, straw bales, or equivalent similar structure that meet sediment and water control requirements) to reduce the discharge of materials into the nearshore waters of Trinidad Bay;
5. Any fueling of equipment shall occur in the staging area or offsite, and equipment will be maintained to ensure that there is no leakage of fuels, lubricants or other similar material; and
6. An emergency spill clean up plan, response training, and clean up material shall be on site.

B. Pile-driving shall be conducted at all times in accordance with these provisions.

Any proposed changes to these pile-driving requirements and limitations shall be reported to the Executive Director. No changes to the requirements of the special condition shall be made without a Coastal Commission approved amendment of CDP 1-07-046 unless the Executive Director determines that no amendment is legally required.

6. Hydroacoustic Monitoring Plan

A. **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-07-046**, the applicant shall submit a Hydroacoustic Monitoring Plan, containing all supporting information and analysis deemed necessary by the Executive Director for the Executive Director's review and approval. Prior to submitting the plan, to the Executive Director, the applicant shall also submit copies of the Plan to the reviewing fisheries biologists of the California Department of Fish & Game and the National Marine Fisheries Service for their review and consideration.

The plan shall be based on the "dual metric exposure criteria" set forth below and shall state that exceedance of either criterion, calculated as required herein, shall be deemed lethal to exposed fish and non-compliant with the Conditions of CDP 1-07-046.

DUAL METRIC EXPOSURE CRITERIA

1) Criteria: SEL-accumulated:
A fish receiving an accumulated Sound Exposure Level (SEL) at or above 183 dB re one micropascal squared-second during the driving of piles shall be deemed to have received a lethal physical injury. To estimate the sound energy to which a fish is exposed during multiple hammer strikes, NMFS uses the simple summation procedure where Total SEL = Single Strike SEL + 10log (number of strikes).

2) Criteria: Peak SPL:
A fish receiving a peak sound pressure level (SPL) at or above 206 dB re one micropascal from a single hammer strike shall be deemed to have received a lethal physical injury.

At a minimum, the Plan shall:

(1) Establish the field locations of hydroacoustic monitoring stations that will be used to document the extent of the hydroacoustic hazard footprint during pile-driving activities, and provisions to adjust the location of the acoustic monitoring stations based on data acquired during monitoring, to ensure that the sound pressure field is adequately characterized;

(2) Describe the method of hydroacoustic monitoring necessary to assess the actual conformance of the proposed pile-driving with the dual metric exposure criteria in the vicinity of the pile-driving locations on a real-time basis, including relevant details such as the number, location, distances, and depths of hydrophones and associated monitoring equipment;

(3) Include provisions to continuously record pile strikes in a manner that enables the time of each strike, the number of strikes, the peak sound pressure and other measures of sound energy per strike, or other information required by the Executive Director in consultation with fisheries biologists of the California Department of Fish & Game and the National Marine Fisheries Service, and the interval between strikes to be determined for all pile-driving activities that may produce measurable acoustic affects in the aquatic environment of Humboldt Bay, as well as provisions to supply all monitoring data that is recorded, regardless of whether the data is deemed "representative" or "valid" by the monitor (accompanying estimates of data significance, confounding factors, etc. may be supplied by the acoustician where deemed applicable);

(4) Include provisions for real-time identification and reporting of any exceedance of the dual metric exposure criteria, clear action and notification protocols to stop pile-driving in case of such exceedance, and procedures to notify pertinent parties including the Executive Director and other pertinent state and federal agencies immediately after any exceedance of the dual metric exposure criteria. The plan shall additionally provide a complete explanation and illustration of the method used to analyze the cumulative impact portion (accumulated SEL) of the dual metric exposure criteria threshold.

(5) Include provisions that in the event of an exceedance of either criterion of the dual metric exposure criteria, pile-driving operations shall be immediately stopped and shall not recommence unless the Executive Director, in consultation with the fisheries biologists of the California Department of Fish & Game and the National Marine Fisheries Service so authorizes based on the resumption of hydroacoustic monitoring of all pile driving operations and the deployment of additional sound attenuation or other measures deemed likely by qualified technical experts to return the pile-driving to conformance with the duel metric exposure criteria;

(6) Include provisions that if the return to pile-driving after the implementation of the additional measures discussed in Subparagraph (5) above results in an exceedance of either criterion of the dual metric exposure criteria, pile-driving shall be stopped immediately and shall not re-commence until or unless the Commission approves an amendment to

CDP 1-09-046 that proposes substantial changes to the proposed project that are deemed by the Executive Director to offer a high likelihood of success in preventing further exceedance of the dual metric exposure criteria.

B. Project activities shall be conducted at all times in accordance with the provisions of the final approved plan. Any proposed changes to the final approved plan shall be reported to the Executive Director. No changes to the final approved plan shall occur without an amendment to CDP 1-07-046 unless the Executive Director determines that no amendment is legally required.

7. Conformance of Design and Construction Plans to Geotechnical Report Geologic Hazard

A. All final design and construction plans, including foundations, grading and drainage plans, shall be consistent with all recommendations contained in the engineering geologic report titled *Foundation Investigation Trinidad Pier Replacement Trinidad California*, prepared by Taber Consultants and dated September 2007. **PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-07-046**, the applicant shall submit, for the Executive Director's review and approval, evidence that an appropriate licensed professional has reviewed and approved all final design and construction plans and certified that each of those final plans is consistent with all of the recommendations specified in the above-referenced geologic evaluation approved by the California Coastal Commission for the project site as applicable to the revised bridge span and relocated abutments.

B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

8. Assumption of Risk, Waiver of Liability and Indemnity Agreement

By acceptance of this permit, the applicant acknowledges and agrees (i) that the site may be subject to hazards from waves, storm surge, and flooding; or, erosion and earth movement; (ii) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of

such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

9. State Lands Commission Review

PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-07-046, the applicant shall submit to the Executive Director a written determination from the State Lands Commission that:

A. No State or public trust lands are involved in the development; or

B. State or public trust lands are involved in the development and all permits required by the State Lands Commission have been obtained; or

C. State or public trust lands may be involved in the development, but pending a final determination an agreement has been made with the State Lands Commission for the project to proceed without prejudice to that determination.

10. Encroachment Permit

PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-07-046, the applicant shall submit to the Executive Director for review and written approval, evidence of an encroachment permit from the U.S. General Services Administration. The encroachment permit or exemption shall evidence the ability of the applicant to utilize federal properties for construction staging, as conditioned herein.

11. U.S. Army Corps of Engineers Approval

PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION, the permittee shall provide to the Executive Director a copy of a permit issued by the Army Corps of Engineers, or letter of permission, or evidence that no permit or permission is required. The applicant shall inform the Executive Director of any changes to the project required by the Army Corps of Engineers. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

12. U.S. Coast Guard District 11 and Group Humboldt Notifications

PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-07-046, the applicant shall provide written verification to the California Coastal Commission that the applicant has submitted to the U.S. Coast Guard proper documentation to assure that appropriate notice is provided to mariners and emergency responder agencies of the limitations on use and availability of moorage, embarkment, and disembarkment at Trinidad Pier during project demolition and construction phases. The documentation

shall demonstrate that all necessary information has been provided to allow for publication of an appropriate entry within *Notice to Mariners*, and that all responsible parties at the District 11 Local Notice to Mariners and Waterways Units, and Group Humboldt air and small boat station facilities have been apprised of the affects of harbor construction.

13. NOAA Nautical Chart Revision

WITHIN 30 DAYS OF THE COMPLETION OF THE APPROVED DEVELOPMENT, the applicant shall provide written verification to the California Coastal Commission that the applicant has submitted to the U.S. Coast Guard and the National Oceanic and Atmospheric Administration (NOAA):

a. As-built drawings, blueprints, or other engineering documents which depict the completed development;

b. Geographic coordinates of the location, using a Differential Geographic Positioning System (DGPS) unit or comparable navigational equipment; and

c. The applicant's point of contact and telephone number.

14. Archaeological Resources

A. The applicant shall comply with all recommendations and mitigation measures contained in the cultural resources section of the mitigated negative declaration adopted for the project by the City of Trinidad, dated November 14, 2007.

B. If an area of cultural deposits is discovered during the course of the project, all construction shall cease and shall not recommence except as provided in subsection C hereof. A qualified cultural resource specialist shall analyze the significance of the find.

C. An applicant seeking to recommence construction following discovery of the cultural deposits shall submit a supplementary archaeological plan for the review and approval of the Executive Director.

(i) If the Executive Director approves the Supplementary Archaeological Plan and determines that the Supplementary Archaeological Plan's recommended changes to the proposed development or mitigation measures are *de minimis* in nature and scope, construction may recommence after this determination is made by the Executive Director.

(ii) If the Executive Director approves the Supplementary Archaeological Plan but determines that the changes therein are not *de minimis*, construction may not recommence until after an amendment to this permit is approved by the Commission.

(iii) The applicant shall undertake development in accordance with the approved supplemental Archaeological Plan. No changes to the approved supplementary archaeological plan shall occur without a Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

15. NOAA Fisheries Marine Mammal Consultation

PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit a copy of an agreement issued by NOAA Fisheries concerning consultation on impacts of the project on marine mammals, or evidence that no such consultation is required. The permittee shall inform the Executive Director of any changes to the Commission-approved project required by NOAA Fisheries. Such changes shall not be incorporated into the project until the permittees obtain a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

IV. FINDINGS AND DECLARATIONS.

A. Site and Project Description.

Trinidad Bay, a commercial port located between Humboldt Bay and Crescent City, contains numerous vessel moorings which include permanent commercial fishing vessel anchors as well 100 moorings for recreational vessel owners. The Trinidad Rancheria pier serves commercial fisherman, recreational boaters, kayakers, whale watching cruises, and institutional education and provides services for research uses by housing the Humboldt State University (HSU) Telonicher Marine Laboratory's saltwater intake pipe and the California Center for Integrated Technology (CICORE) water quality data sonde.

The Project area is comprised of the 0.31-acre pier over marine habitats and a staging area (the gravel parking lot located west of the pier) covering 0.53 acres of upland area. The scope of the project is to demolish the existing wooden structure, construct a new pier and upgrade pier utilities (water, sewer, electricity, telephone). The new 54-foot-long, 24- to 26-foot wide pier would be constructed roughly within the existing pier footprint. Prior to demolition, all utilities (water, electrical, power and phone lines) and structures (ladders hoists, sheds, benches) would be removed. A total of 205 12-inch-

diamter wooden piles would be removed using a vibratory hammer. A total of 110 cast-in-steel-shell (CISS) 18-inch diameter concrete piles would be installed by a combination of use of a vibratory hammer and pile driver. Installation of the CISS piles will require (1) removal of 100 cubic yards of sediment by augering followed by dewatering of the shells and pouring of concrete within the reinforced steel bar cages placed within the steel shells. Sets of five CISS concrete piles will be placed at five-foot intervals along each 25-foot length of the transverse concrete bents. A total of 22 bents with 30-foot spacing between the bents for the first 440 lineal feet of the pier and 25-foot spacing for the last 100 lineal feet of the pier would be used. The approximately 13,500 square-feet of decking for the new pier would be constructed of 20-foot-long concrete sections. Lighting will be embedded in the decking and railing of the pier to minimize light pollution from the pier. The pier decking will be sloped to the west in order to direct stormwater and wash runoff to a collection pipe then and conveyed by gravity to a new upland manhole and baffled vault chamber containing treatment media. The new saltwater intake pumps for HSU will be screened in accordance with standards established by NOAA Fisheries for such intakes.

Refer to Exhibit Nos. 6-9 for detail descriptions of the development project and the mitigation measures to be employed during its construction and incorporated into the project design and operations.

B. Public Access and Coastal Recreational Opportunities.

1. Applicable Coastal Act Policies and Standards

Coastal Act Sections 30210, 30211, and 30212 require the provision of maximum public access opportunities, with limited exceptions.

Coastal Act Section 30210 requires in applicable part that maximum public access and recreational opportunities be provided when consistent with public safety, private property rights, and natural resource protection. Section 30211 requires in applicable part that development not interfere with the public's right of access to the sea where acquired through use (i.e., potential prescriptive rights or rights of implied dedication). Section 30212 requires in applicable part that public access from the nearest public roadway to the shoreline and along the coast be provided in new development projects, except in certain instances, such as when adequate access exists nearby or when the provision of public access would be inconsistent with public safety.

In applying Sections 30210, 30211 and 30212, the Commission is limited by the need to show that any denial of a permit application based on these sections, or any decision to grant a permit subject to special conditions requiring public access, is necessary to avoid or offset a project's adverse impact on existing or potential public access.

2. Consistency Analysis

In addition to providing support facilities for the local commercial fishing fleet, primary objectives of the development include providing enhancements to public coastal access, recreational, and nature study opportunities in the Trinidad Area. Thus, the development would establish new publicly-accessible, water-oriented access facilities and foster expanded use of recreational boating and dockside fishing. Therefore, the Commission finds that the proposed project as conditioned, which includes substantial new publicly accessible access facilities, is consistent with the public access and coastal recreation policies of the Coastal Act.

I. California Environmental Quality Act.

The City of Trinidad served as the lead agency for the project for CEQA purposes. The City adopted a mitigated negative declaration for the project on November 14, 2007.

Section 13906 of the Commission's administrative regulation requires Coastal Commission approval of Coastal Development Permit applications to be supported by a finding showing the application, as modified by any conditions of approval, is consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are any feasible alternatives or feasible mitigation measures available, which would substantially lessen any significant adverse effect the proposed development may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. Those findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As discussed above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. As specifically discussed in these above findings, which are hereby incorporated by reference, mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no other feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impacts, which the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act and to conform to CEQA.

EXHIBITS:

1. Regional Location Map
2. Vicinity Map
3. Site Aerial Photograph - Plan View

4. Site Aerial Photograph – Oblique View
5. *Trinidad Head Kelp Beds* ASBS/ *Trinidad Head* CCA Map
6. Project Description Narratives
7. Project Site Plans
8. Biological Assessment
9. Mitigation and Monitoring Program
10. Excerpt, Geotechnical Investigation
11. Agency Review Correspondence

APPENDIX A

STANDARD CONDITIONS

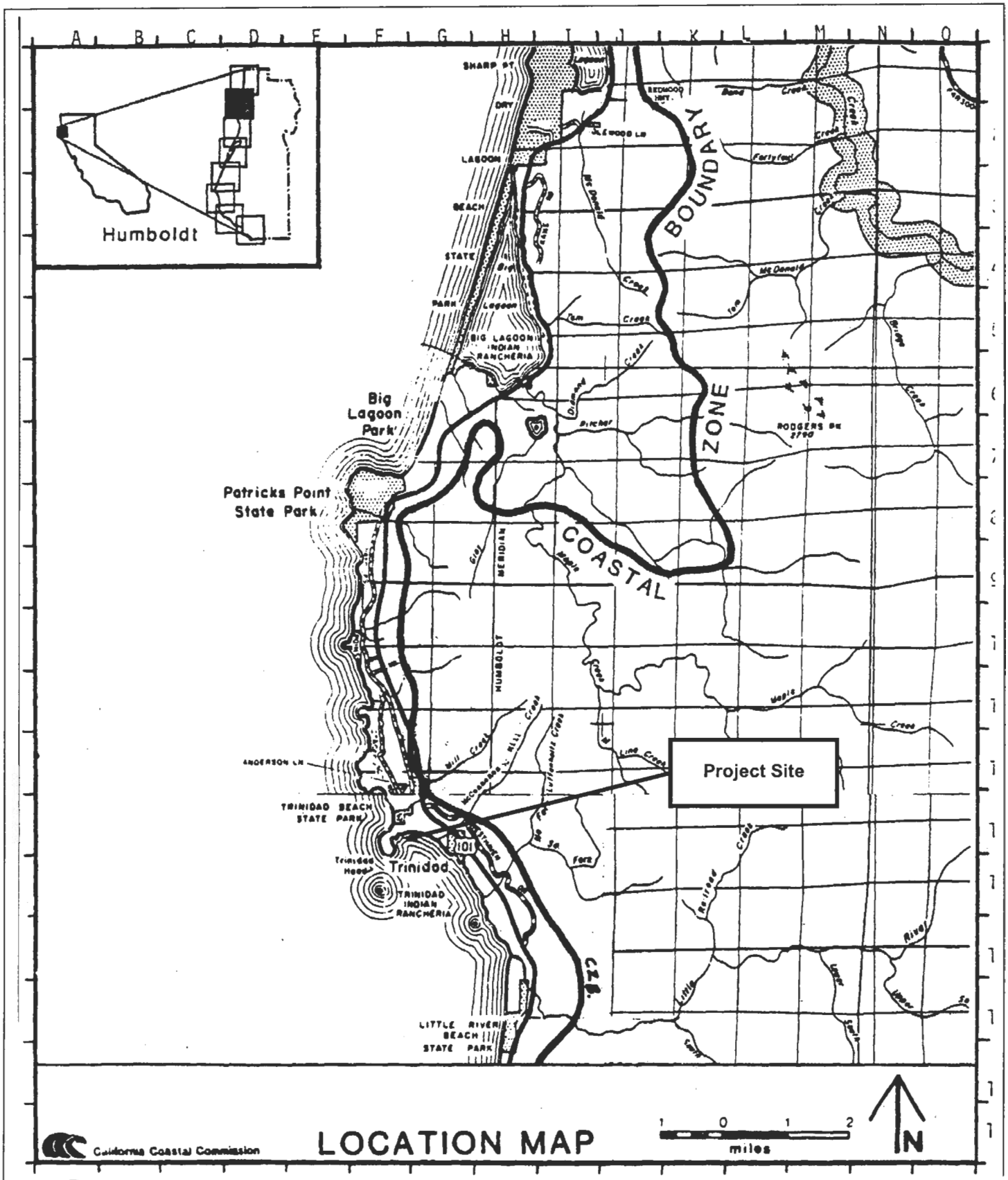
1. Notice of Receipt and Acknowledgement. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable amount of time. Application for extension of the permit must be made prior to the expiration date.

3. Interpretation. Any questions of intent of interpretation of any condition will be resolved by the Executive Director of the Commission.

4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.



County of Humboldt

EXHIBIT NO. 1

APPLICATION NO.

1-07-046

CHER-AE HEIGHTS INDIAN COMMUNITY

REGIONAL LOCATION MAP

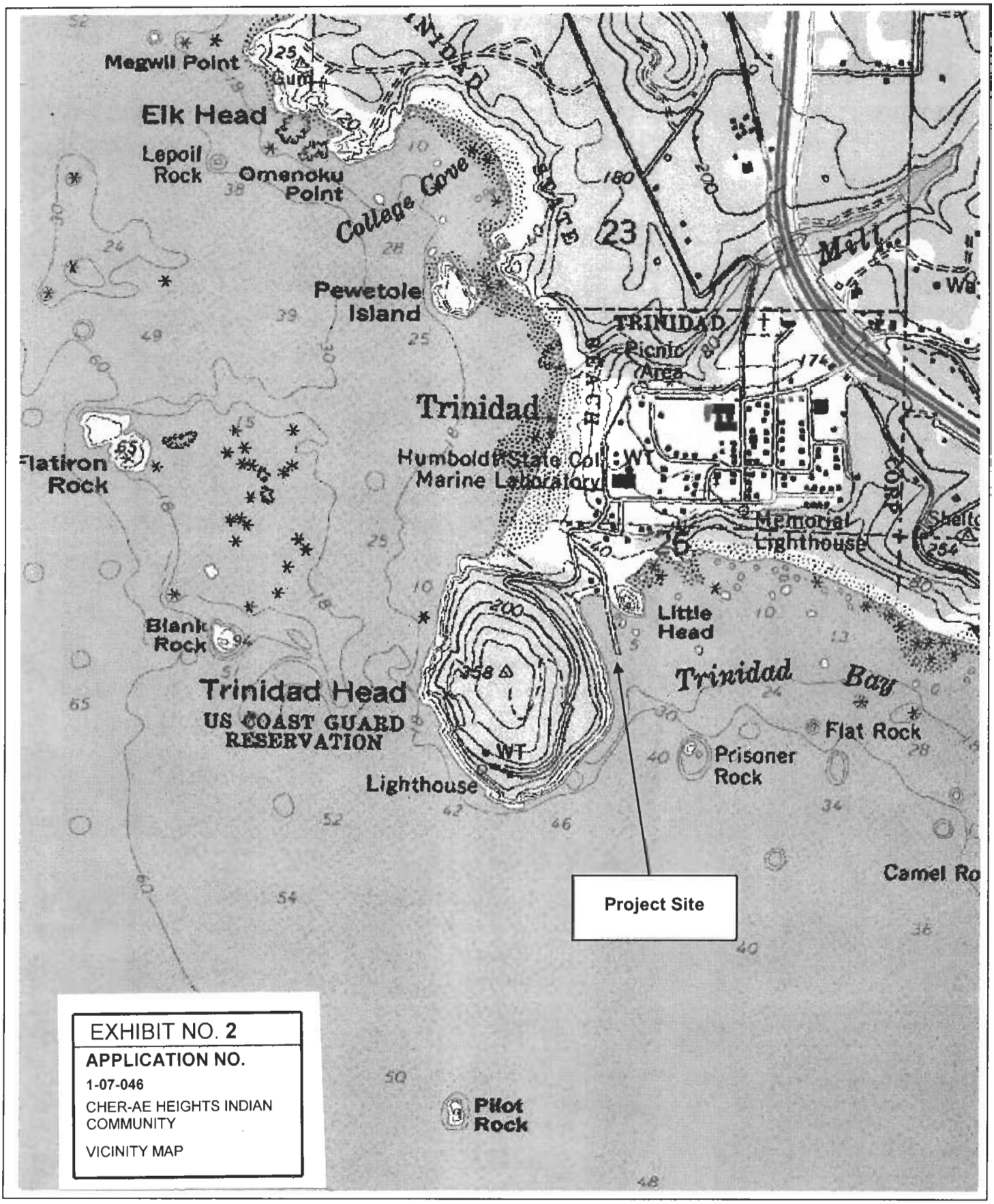


EXHIBIT NO. 2

APPLICATION NO.

1-07-046

CHER-AE HEIGHTS INDIAN COMMUNITY

VICINITY MAP

EXHIBIT NO. 3

APPLICATION NO.

1-07-046

CHER-AE HEIGHTS INDIAN COMMUNITY

SITE AERIAL PHOTOGRAPH – PLAN VIEW

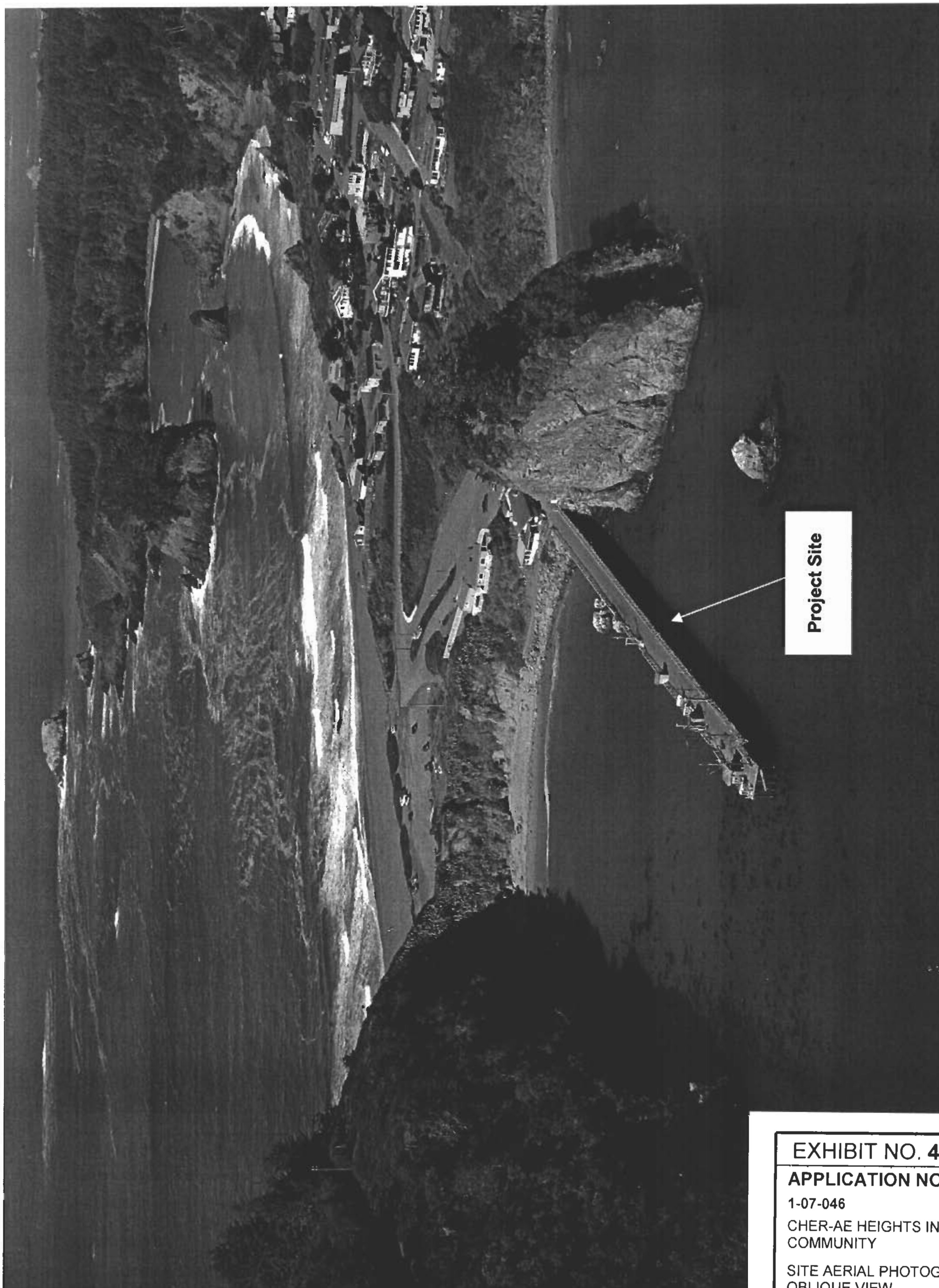


EXHIBIT NO. 4

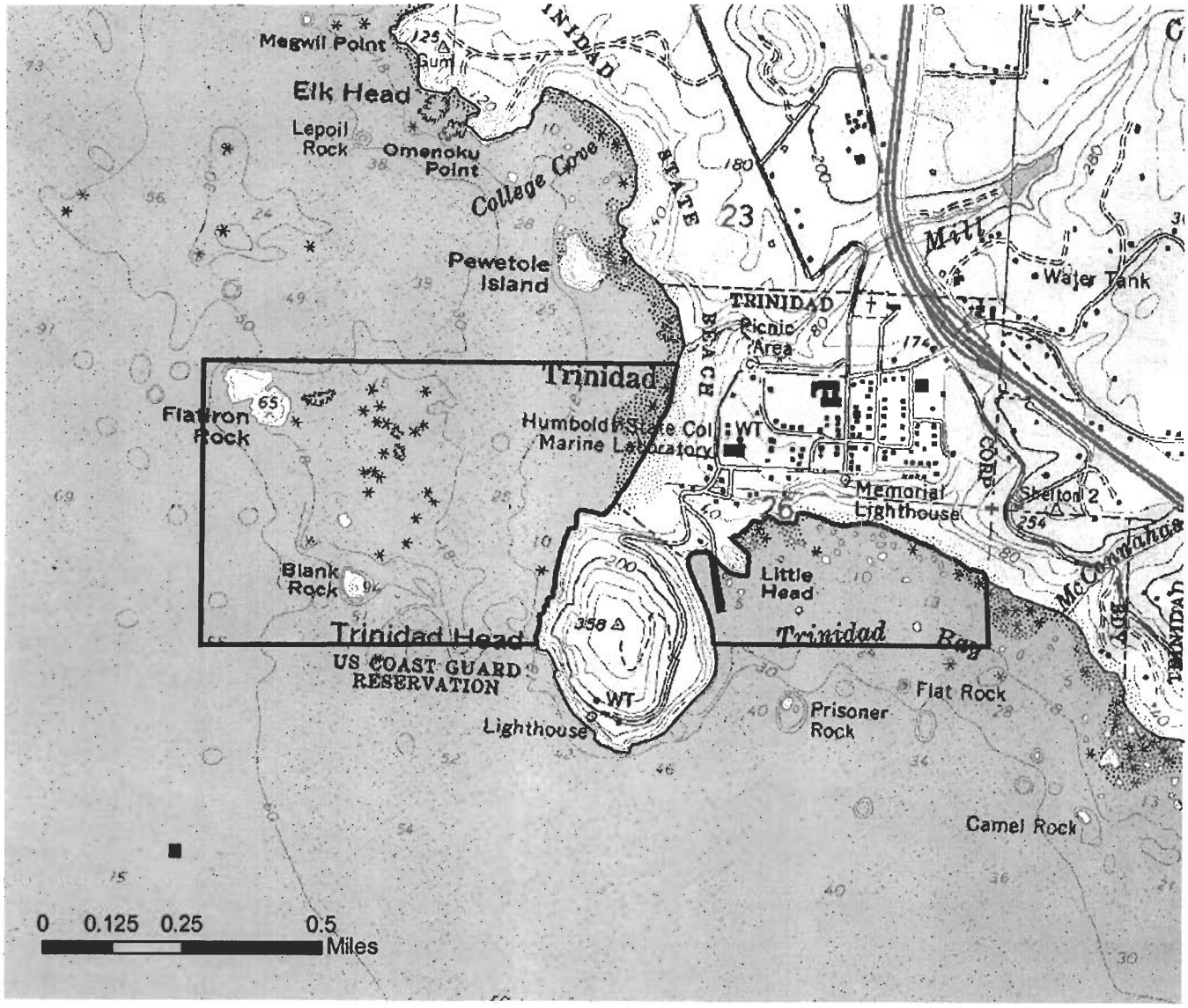
APPLICATION NO.

1-07-046

CHER-AE HEIGHTS INDIAN COMMUNITY

SITE AERIAL PHOTOGRAPH – OBLIQUE VIEW

North Coast Regional Water Quality Control Board
State Water Quality Protection Area
Area of Special Biological Significance No. 6
Kelp Beds at Trinidad Head



Ref. Map: USGS Trinidad, CA

D. E. Gregorio
C. S. Bianchi
Division of Water Quality
January 2003

EXHIBIT NO. **5**
APPLICATION NO.
1-07-046 - CHER-AE HEIGHTS INDIAN COMMUNITY
TRINIDAD HEAD KELP BEDS ASBS / *TRINIDAD HEAD* CCA MAP

PACIFIC AFFILIATES, INC.
A CONSULTING ENGINEERING GROUP

DAVID L. SCHNEIDER R.C.E. 27285
TRAVIS L. SCHNEIDER R.C.E. 67393

990 W. WATERFRONT DRIVE • EUREKA • CA • 95501 • PH (707) 445-3001 • FAX (707) 445-3003

December 14, 2009

Mr. Jim Baskin, AICP, Coastal Planner
California Coastal Commission
North Coast District Office
710 E Street, Suite 200
Eureka, CA 95501

Re: Trinidad Pier Reconstruction Project
Amendment to Pier Construction

Mr. Baskin:

We would like to inform you of recent design changes to the above referenced project. The new design of the pier incorporates 30' spacing between the bents for the first 440' of the pier and 25' spacing for the last 100' of the pier. The original design incorporated 25' spacing between the bents for the entire length of the pier. Because of the decreased total number of piles, this change allows for an additional expansion joint to be installed in the middle of the pier.

The changing of the spacing combined with the addition of the expansion joint will eliminate a total of five 18" diameter CISS piles. The width and total length of the pier will not be altered. There will, however, be an increase in overall height (2") of the pier due to the increase of thickness of the precast slabs to account for the change in spacing. Since there will be fewer piles there will be less materials, decreased cost, fewer ground disturbance, a reduced amount of over water construction, and less possible environmental impacts. There will also be a smaller amount of underwater noise, less subaerial noise, decreased turbidity from pile installation, and a reduced chance that the construction would adversely affect Chinook Salmon, Coho Salmon, Steelhead, & Stellar Sea Lion habitat.

Should you have any questions please contact me at (707) 445-3001 or via email to jberrey@pa-schneiderdock.com

Respectfully,

Jason Berrey
L.S.I.T. 7893

cc: Jacque Hostler – Trinidad Rancheria
Trever Parker – Streamline Planning Consultants
David Ammerman – USACOA
Diane Ashton – NMFS
Monica DeAngelis – NMFS
Dean Prat - RWQCB

EXHIBIT NO. **6**
APPLICATION NO.
1-07-046
CHER-AE HEIGHTS INDIAN COMMUNITY
PROJECT DESCRIPTION NARRATIVES (1 of 36)

Trinidad Pier Reconstruction Project
CCC - Application for Coastal Development Permit
Attachment I – Project Description

November 5, 2007

A. Project Description

Existing pier improvements are proposed to be replaced one-to-one with approximately 13,500 ft^2 (1,254m^2) of pre-cast concrete decking, 115 Cast-In-Steel-Shell (CISS) concrete piles including batter and moorage piles (18 inches (45.7cm) in diameter), four hoists, standard lights, guardrail, and dock utility pipes including water, power and phone. In addition, 53 plastic fender piles (10 inches (25.4cm) in diameter) separated 5 ft (1.5m) apart will be installed where hoists and ladders will be located (see Sheet 4). A new stormwater collection system will be incorporated into the reconstructed pier design (see attachment VI – Permanent Drainage Plan). The new (CISS) concrete piles will be separated at 5 ft. (1.5m) intervals along 25 ft. - long (7.6m) concrete bents. A total of 23 bents separated 25 ft. (7.6m) apart shall be used (the northern most bent of the pier is adjacent to the edge of pavement). The decking of the new pier will be constructed of pre-cast 20 ft. - long (6.1m) concrete sections. The new pier will be 540 ft. (164.6m) - long and will vary in width. The southern part of the pier will be 26 ft. (7.9m) - wide and the remaining part of the pier will be 24 ft. (7.31m) - wide (corresponding to the existing footprint).

An additional pile bent will be installed at the existing elevation of the lower deck to provide access to the floating dock. The decking of the pier will be constructed at an elevation of 21.0 ft. above Mean Lower Low Water (MLLW). The top of the decking will be concrete poured to create a slope for drainage and to incorporate a pattern and a color into the concrete surface in order to provide the pier with an aesthetical pleasing look. An open guardrail, 42 inches (106.7 cm) in height shall be constructed of tubular galvanized steel rail bars (approximately 3/4 inch ((1.2cm)) - diameter)) uniform in shape throughout the length of pier (see Sheet 5 for detail). Lighting will be installed in the decking (and railing in the landing area) along the length of the pier to prevent light pollution with additional lighting at the southern part of the pier where the fisherman working area is located.

Existing shed footprints to be replaced are 6ft x 10ft and 6ft x 35 ft for the Marine Lab shed that will accommodate their 20 Hp pump and a shed for storage of the HSU water quality sonde equipment and pier equipment respectively. A third shed will have a footprint of 20ft x 12 ft and shall be located at the south end of the pier where it will be used for boat storage. Four hoists shall be installed at their current locations. Three of the hoists are used to load and unload landings up to 2,000 lbs and the fourth hoist is used for loading and unloading skiffs up to 1,000 lbs. En existing 1.5 Hp pump on the pier will be mainatined. A new fish cleaning station will be constructed on the upland area (as a separate project). All design specifications shall conform to the Uniform Building Code.

HSU Marine Lab leases space on Trinidad Pier for placement of a pump and associated plumbing to obtain seawater for the Telonicher Marine Laboratory which will also be replaced. The existing saltwater intake PVC pipes, located directly under the decking of the pier, will be replaced and their size shall be reduced to 4-inches (10.2cm) in diameter. A new utility trench to house and allow access to the pipes will be built into the pier. The discharge pipe from the saltwater intake pump shall be replaced.

CICORE have an Acrylonitrile-Butadiene-Styrene (ABS) pipe attached to a piling on the Trinidad pier that contains the water quality sonde. The proposed water quality sonde system is similar to the existing system and will be composed of the YSI 6600 Extended Deployment System, 6200 Data Acquisition System and two solar panels.

The project is expected to be completed within nine months. Reconstruction of the pier is proposed to commence on August 1st, 2008 and terminate on May 1st, 2009. Excluding Sundays and holidays, a total of 234 working days will be available for work during this period. Public access during crab and salmon season will be maintained to the extent possible. During the winter months (November – March) severe weather conditions are expected to occur periodically at the project site. The Contractor may have to halt

the work during pile installation due to strong gales winds, large swells, and/or heavy precipitation. Construction of the rest of the pier should not be interfered by large swells, but may be halted due to strong winds or precipitation. The Contractor will work six days per week from 7 a.m. to 7 p.m.

The staging area utilized for the project consists of the gravel parking lot located west of the pier and is approximately 0.53 acres. The Contractor shall utilize the staging area to store construction equipment and materials. Removed sediment from CISS pile and fender pile installations (±10 - 115 yd^3, (7.7 - 87.9 m^3)) will also be temporarily stockpiled at the staging area until transported by the Contractor to an approved upland disposal site. Seawater removed from the holes will be discharged through percolation at the staging area. The edge of the staging area will be at least 50 ft. (15m) from the beach to the west in order to prevent impacts to the beach. See Attachment II for complete description of staging area.

B. Construction Methodology

1. Surveys Test Borings. Accurate information for the proposed pier location is required prior to completing the pier design. A geotechnical investigation was conducted between June 24th -28th, 2007. The data generated during this investigation was used for a structural foundation study, which included the testing of the rock/soil material. The Final Site Investigation is presented in Attachment V.

2. Pier Demolition Methodology

Removal of the existing pier and construction of the new pier shall occur simultaneously. Construction shall begin from the south end of the pier. All pier utilities and structures located on the section of the pier being worked on (active construction area) shall first be removed. Utilities to be removed include water, electrical, power and phone lines, temporary bathroom, ladders and pier railing. Structures to be removed include four hoists, two wood sheds, HSU's 20hp (14.9kW) pump and saltwater intake pipes, CICORE's water quality sonde, and a concrete bench. Then the existing pressure treated decking, joists, and bent beams shall be removed and transported on a truck to the upland staging area for temporary storage.

Existing piles located in the active construction area will then be removed by vibratory extraction. Vibratory extraction is a common method for removing both steel and timber piling. The vibratory hammer is a large mechanical device mostly constructed of steel (weighing 5 to 16 tons, (4.5t – 14.5t)) that is suspended from a crane by a cable. The vibratory hammer is deployed from the derrick and positioned on the top of the pile. The pile will be unseated from the sediment by engaging the hammer and slowly lifting up on the hammer with the aid of the crane. Once unseated, the crane will continue to raise the hammer and pull the pile from the sediment. When the bottom of the pile reaches the mudline, the vibratory hammer will be disengaged. A choker cable connected to the crane will be attached to the pile, and the pile will be lifted from the water and placed upland. This process will be repeated for the remaining piling. Extracted pilings will be stored upland, at the staging area, until the piles are transferred for upland disposal.

Douglas-fir pilings are particularly prone to breaking at the mud line due to damage from vessel impacts. In some cases, removal with a vibratory hammer is not possible because the pile will break apart due to the vibration. Broken or damaged piles will be cut off below the mudline and the remainder of the pile left in place in order to reduce turbidity effects.

BMPs. A floating oil containment boom surrounding the work area will be used during creosote-treated timber pile removal. The boom will also collect any floating debris. Oil-absorbent materials will be employed if a visible sheen is observed. The boom will remain in place until all oily material and floating debris has been collected and sheens have dissipated. Used oil-absorbent materials will be disposed at an

approved upland disposal site. The contractor shall also follow the procedures listed in BMPs: NS-14, Material Over Water, NS-15, Demolition adjacent to Water, and WM-4 – Spill Prevention and Control as listed in Attachment III-1-Best Management Practices.

The existing Douglas-fir (*Pseudotsuga menziesii*) piles are creosote treated. The depth of creosote penetration into the piles varies from 0.25 to 2 inches (6.4 to 51mm). Creosote is composed of a mixture of chemicals that are potentially toxic to fish, other marine organisms and humans. Polycyclic aromatic hydrocarbons (PAH), phenols and cresols are the major chemicals in creosote that can cause harmful health effects. In Puget Sound, for example, the use of creosote-treated wood in the water is prohibited. Since 2000, the Washington State Ferries (WSF) removed 831,000 board ft. (253,288m) of creosote-treated timber and pilings from Puget Sound and plan to remove an additional 14.0 million board ft. (4.27 million m) of creosote-treated timber over the next 10 years at 13 terminals (Washington State Department of Transportation, 2007). The replacement of the creosote treated piles with cast-in-steel-shell (CISS) concrete piles is expected to eliminate potential contamination of the water column by PAH, phenols and cresols from the existing treated wood piles.

Disposal. All removed piles shall be temporarily stored at the upland staging areas until all demolition activities are complete (approximately 6 months). It is estimated that the 12-inch (30.5cm) diameter piles to be removed extend to a maximum depth of 20 ft. (6.0m) below the mud and are approximately 40 ft. (12.2m) long. There are approximately 205 piles to be removed for a total of approximately 8,200 linear ft. (2500m) of piles. The estimated weight of each pile, assuming the pile is dry is approximately 4,056 lbs. (1,840kg). The total estimated weight of all removed piles is 415 tons (377.2t). Following the cessation of demolition activities, the creosote treated piles will be transported by the Contractor to Anderson Landfill located at 18703 Cambridge Road Anderson in Shasta County. The landfill is located a distance of 167 mi. (269km) from the Trinidad Pier. This landfill is approved to accept construction demolition, wood wastes, and nonhazardous/nondesignated sediment.

The pressure treated 2 inch. x 4 inch. Douglas-fir decking will also be stored on the staging area until demolition is complete. The partially pressure treated decking and railing may be reused and will be kept by the Trinidad Rancheria for further use.

3. Pile Composition. Two 18 inches (45.7cm) in diameter battered piles, which are designed to resist lateral load, will be located on both sides of the pier at a 12:1 slopes (Sheet 5). Three vertical piles, which are designed to support 50 tons (45.4t) of vertical loads, will be located between the battered piles separated 5 ft. (1.5m) apart. A total of 115 CISS concrete piles will be installed. The minimum concrete strength for the CISS piles is 2,500 psi. The steel casing shall be coated with a Polyurea Coatings to protect the casings from eroding.

Cast-In-Steel-Shell (CISS) Piles. Following the removal of the existing piles, steel casings will be vibrated to a depth of approximately 2.5 ft. (0.8 meters) above the tip elevation of the proposed pile. The steel shell of ½ inch thickness shall extend from above the water surface to below the upper layer of sediment, which consists of sand, into the harder sediment, which consists mostly of weathered shale and sandstone. The steel shell will be coated with a polymer to protect the piles from deteriorating in the saltwater environment. The steel shell shall be used to augur the holes and then left permanently in the ground to support the integrity of the hole. The steel shell is then cleaned and concrete is poured underwater using a tremie to seal the area below the shell. Steel cages are installed prior to pouring concrete to fill the holes and form the piles. These steps are described in further detail below.

Pile Excavation. Following the installation of the steel casing, the holes will be augured to the required pile depth of 25-35 ft. (7.6-10.7m) below the mud line; minimum penetration of 25 ft. (7.6m) into the bedrock is required (Taber Geotechnical Consultants, August 2007). An augur drill shall be used to excavate the sediment and rock for the proposed CISS piles. "The materials encountered in the test borings are expected to be excavated with moderate difficulty using "typical" heavy duty foundation drilling equipment, though areas of difficult drilling should also be expected. It should be expected that CISS excavations will require core drilling, the use of downhole hammers, or other means to penetrate harder material (Taber, Preliminary Site Investigation, August 2007)."

Steel casing members of ½ inch (1.9cm) thickness shall be used to form the CISS concrete foundation columns in underwater locations. In this technique, inner and outer casings are partially imbedded in the ground submerged in the water and in concentric relationship with one another. The annulus formed between the inner and outer casings is filled with water and cuttings, while the inner casing is drilled to the required depth, and the sediment is removed from the core of inner steel casing. Following removal of the core, the outer casing is left permanently in the boring.

The sediment and cuttings excavated shall be temporarily stockpiled in 55 gallon (208L) drums (or another authorized sealed waterproof container) at the staging area until all excavations are complete and then transferred for upland disposal at the Anderson Landfill or another approved upland sediment disposal site. The Trinidad Rancheria will employ an elder of the Yurok Tribe qualified by the State Historical Preservation Officer to monitor the construction site and inspect the excavated sediment and cuttings for cultural and archeological resources. The cultural monitor will be able to scan the cuttings with a hand tool as it is pumped up to the pier deck and into an open top container before being transferred the staging area in 50 gallon drums. The monitor will be present during pile removal, drilling/auguring, and pile installation activities.

The existing piles extend to approximately 20 ft. (6.1m) below the mud line. Each one of the existing 12 inch (30.5cm) diameter pile has displaced 15.7 ft^3 (0.44m^3) of sediment. There are approximately 205 wood piles to be removed. The total amount of sediment displaced by the exiting piles is approximately 120 yd^3 (92m^3). Each of the proposed CISS piles requires the displacement of approximately 53 ft^3 (1.5m^3) of sediment. There are 115 CISS piles to install. A total of approximately 225 yd^3 (201m^3) of sediment would have to be removed in order to augur 115 holes to a depth of 30 ft. (10.7m) below the mudline.

It is estimated that 10 -115 yd^3 would have to be removed during pile installation. Many new holes will be augured in the location of existing piles where they overlap. As result, less sediment will be required to be removed as would be required for the construction of a new pier, however, the exact location and penetration of the old piles is not recorded and will be determined during reconstruction activities. Therefore, a range of quantity of material to be removed is specified. Existing holes created by old wood piles removed and that do not overlap with the location of holes augured for the new piles will be naturally filled with sediment. The old holes are expected to collapse following the auguring of the adjacent new hole and then naturally filled with the surrounding sediment.

Most of the sediment excavated is expected to be in the form of cuttings if the hole is augured and/or drilled at a location of exiting piles. Sediment removed from the inner core during auguring shall be mostly dry due to the compression created in the core during auguring. Approximately 50 - 50 gallon drums will be used to store the cuttings and sediment prior to disposal upland.

BMPs: The contractor shall also follow the procedures listed in BMPs WM-3 – Stockpile Management, WM-4 – Spill Prevention and Control, as listed in Attachment III-1-Best Management Practices.

Concrete Seal Installation. A tremie will be used to seal the bottom 3 ft. (0.9m) of the hole below the bottom of the steel shell and above the ground. "Before the tremie seal is poured, the inside walls of the pile should be cleaned by brushing or similar method of any adhering soil or debris to improve the effectiveness of the seal. A "cleaning bucket" or similar apparatus should be used to clean the bottom of the excavation of loose or disrupted material (Taber, August 2007)."

The tremie is a steel pipe long enough to pass through the water to the required depth of placement. The pipe is initially plugged until placed at the bottom of the holes in order to exclude water and to retain the concrete, which will be poured. The plug is then forced out and concrete flows out of the pipe to its place in the form without passing through water. Concrete is supplied at the top of the pipe at a rate sufficient to keep the pipe continually filled. The flow of concrete in the pipe is controlled by adjusting the depth of embedment of the lower end of the pipe in the deposited concrete. The upper end may have a funnel shape or a hopper, which facilitates feeding concrete to the tremie (Huntington, 1975). Each concrete seal is expected to cure within 24-48 hours.

Concrete trucks will not be allowed on the pier. Concrete shall be pumped from the northern edge of the pier to the required location to prevent potential spill of concrete from the truck onto the pier. The concrete pouring system shall be composed of a line pump, rubber hose connected to pump on one end and to a 3 inch steel hose on other side. The steel hose shall be connected to a rubber hose (tremie) when pouring the concrete seal and filling steel shells.

Following termination of concrete pouring operations the system will be carefully dismantled and cleaned. The tremie connected to the steel hose will be disconnected from the steel hose. All rubber hoses used for tremie pouring shall be placed in a watertight container and transferred to the concrete washout area at the staging area. The pump should also be washed at the concrete washout area every day following cessation of concrete pouring operations.

The steel pipe used to deliver the concrete along the piers, shall be left on the pier decking following cessation of pouring operations each day. This steel pipe must be cleaned out in place because it will be heavy and cannot be moved. The concrete left in the pipe shall be pushed using forced air to the end of the pipe that will be located on land. The end of the pipe on land shall be secured to a closed container. Remaining concrete and fluids will be forced by air pressure into the container. The container will be transferred to the staging area for later disposal. The steel pipe will remain on the pier within the working area throughout the concrete pouring period (approximately 6 months).

De-watering Methodology. The preferred alternative requires the installation of steel plates from above the water surface to below the soft sediment. Using this technique the water is pumped out of the holes following the drilling, installation of the steel shells, and the tremie seal. The steel plates and the tremie seal will essentially act as a cofferdam. Since there will not be any direct connection between the surrounding ocean waters, there is no possibility of entrapping fish within the excavation and no need to screen the pump intake to protect fish. Pumping within the excavation at the various footings may be required to maintain a dewatered work area.

"The tremie seal should be in-place and allowed to cure before de-watering of the pile is attempted. Although it might be possible to de-water the CISS piles without the use of a seal, the potential effects of seepage in the pile are so severe that it should not be attempted (Taber, August, 2007)."

The contractor shall test the pH of the water one day following pouring of the concrete seal to insure that the pH of the water did not change from the ambient pH. The water shall then be pumped into 55-gallon drums and transported to the staging area for discharge through percolation to eliminate solids. Should the pH of the water change from ambient pH, then the contractor shall haul the water to the Eureka Wastewater Treatment Plant for treatment prior to discharge. The contractor is expected to dewater a volume of approximately 450 gallons (1,720 L) each day during pile installation. For the installation of 115 piles, approximately 49,500 gallons (197,800 L) will be dewatered and discharged at the appropriate location at the staging area. Percolation rates of 15min/inch were measured at the staging area on September 17, 2007. Textural analysis performed on samples from the staging area indicates the soil is classified as zone 1, which is very high in sand content.

Steel Cage Installation. Following dewatering of the holes the steel cages shall be inserted into the holes to support the piles. The contractor shall insure that the steel cages are level and are at least 1-1/2 inches (5.0 cm) from the surrounding steel shells. Steel cages will be assembled offsite and will be stored at the staging area during construction.

Final Concrete Pouring. Ready-mix concrete placed into the drilled piers shall be conveyed in a manner to prevent separation or loss of materials. The cement-mixer truck containing the concrete shall be located on land adjacent to the north end of the pier. The concrete shall be pumped to the borings through a steel pipe (3 inch thick) that will span the length of the pier. When pouring concrete into the hole, in no case shall the concrete be allowed to freefall more than 5 ft. (1.5m). Poured concrete will be dry within at least 24 hours and completely cured within 30 days.

The operation and maintenance of the concrete pouring system is described above (Concrete Seal Installation).

BMP A concrete washout station shall be located in the staging area at the designated location. The contractor shall follow the procedures listed in BMP WM-8 – Concrete Waste Management, as listed to prevent discharge of liquid or solid waste as listed in Attachment III-1-Best Management Practices.

See Attachment III-2, Impact and Mitigation Measure VIII-2 for potential environmental impacts from concrete pouring and appropriate mitigation measures.

5. Bent caps. Following the installation of the concrete piles, pre-cast concrete bent caps measuring 25 ft. (7.6m) - long shall be installed on top of each row of pilings. The concrete bents act to distribute the load between the piles and support the pier.

Concrete Decking Installation. Pre-cast 20 ft. (6.1m) - long concrete sections shall be used for the decking. An additional layer of concrete shall be poured following installation of the precast sections. The layer of concrete will allow the decking of the pier to be sloped to the west for drainage purposes and to create an aesthetically pleasing decking. The surface of the decking will be colored and contain an earth tone pattern to match the surrounding environment.

To insure the stability of the structure during earthquake and/or tsunami events Taber Consultants recommend that "Pier superstructure and decking are subject to substantial horizontal and vertical loads directly from ground shaking or by secondary earthquake effects such as tsunami. Ground rupture associated with the possible thread of the Trinidad Fault could impose several feet of vertical or horizontal displacement of the decking. It is therefore recommended that connections between bents and

the decking be designed to accommodate some amount of differential vertical and horizontal movement and to provide provisions to prevent lifting of the deck surface" (Taber, August 2007).

The process of existing utility and structure removal, decking removal, auguring of the holes, CISS pile installation, pile bents installation, pre-cast decking installation, and final pour of concrete decking shall be repeated in the same manner as described above from the south to the north end of the pier. Between Stations 1+00 and 2+00 the total width of the pre-cast decking shall be 26 ft. (7.9 m) wide. From Station 2+00 to Station 6+40 the width of the pre-cast decking shall be 24 ft. (7.3 m) wide (see Sheets 4 and 5).

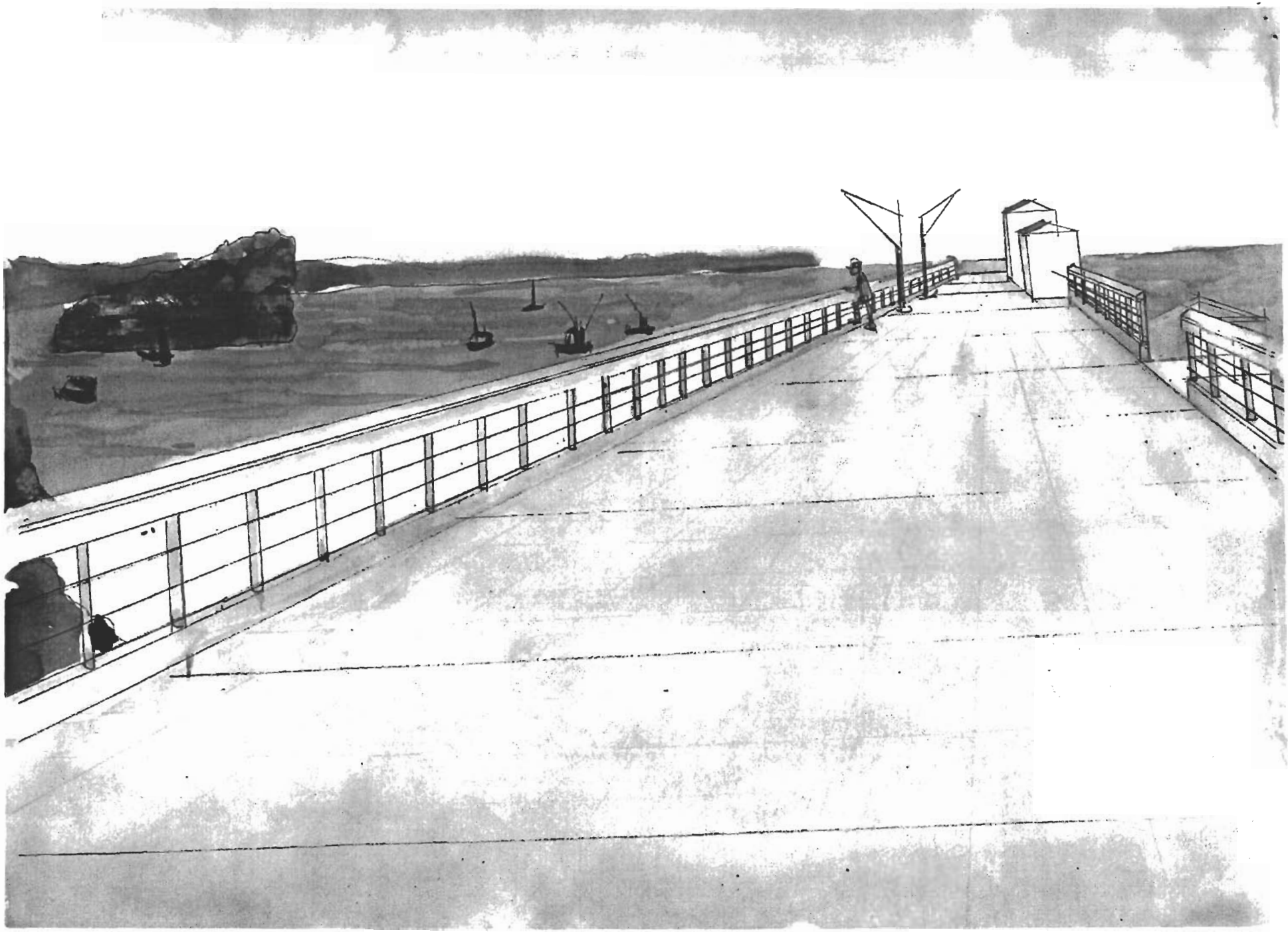
6. Fender Piles. 53 fender piles shall be installed at locations of ladders and hoists. The purpose of the fender piles is to protect the pier from mooring vessels and allow fishermen access to the pier from their vessels. The fender piles shall be composed of plastic with fiberglass cores. Fender piles shall be installed in augured holes to a depth of 20 ft below the mud. Sheet 5 shows the locations and profile of the fender piles.

7. Construction Schedule. The pier reconstruction will begin in the summer and terminate in the spring (August 1st, 2008– May 1st, 2009). During the winter months (November – March) severe weather conditions are expected to occur periodically at the project site. The contractor may have to halt the work during pile installation due to strong gales winds, large swells, and/or heavy precipitation. Construction of the rest of the pier should not be interfered by large swell, but may be halted due to strong winds or precipitation. The contractor will work six days per week. Should severe weather conditions cause delays in the construction schedule the Contractor will work seven days per week as needed.

Noise associated with construction would be temporary, and would be limited to the hours between 7 a.m. and 7 p.m. Monday through Friday, and between 9 a.m. and 7 p.m. on Saturdays (or Sundays if needed) except when continuous construction activities are required, such as periods when concrete pouring requires extended hours. Concrete pours and curing will occur over a total of approximately 115 nights (between the hours of 5 p.m. and 7 a.m.) over the nine-month construction period. Potential project noise impacts and mitigation measures are presented in Attachment II.

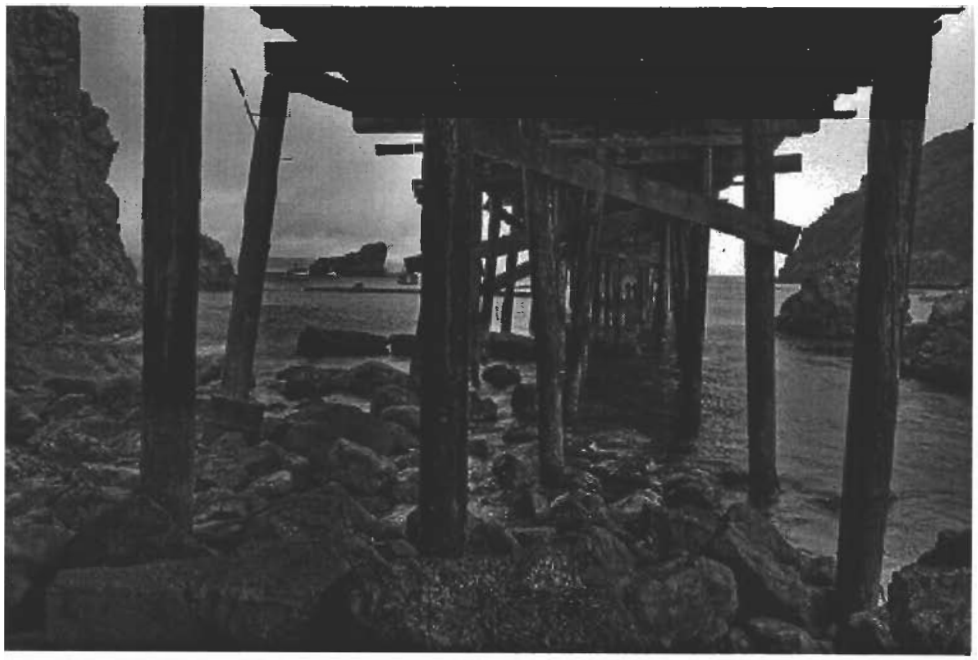
Removal of the existing piles and decking and construction of the new pier will occur simultaneously. The existing decking and piles will be removed and new piles installed from the existing deck. Pile bents will be separated 25 ft. (7.6m) apart. Following the installation of two successive pile bents, a new precast concrete deck section shall be installed. The contractor shall continue in this manner from the south end to north end of the exiting pier.

The contractor is expected to spend approximately seven months on pile removal and installation and the remaining two months on deck and utilities reconstruction. It is estimated that each boring can be lined with the steel plates and excavated within six to eight hours. Pouring of the concrete seals is expected to take approximately two hours for each hole. The contractor is expected to remove and install one new steel shell and pour a concrete seal each day (six - eight hours). The final pour of the concrete piles is expected to take approximately two hours to fill the steel shells and is expected to cure within one week. It is expected that reconstruction of one row of piles and bents will take one week. Pile, bents, and precast decking will be installed over a discontinuous period of approximately 32 weeks and are expected to be completed by March 15, 2009. It is expected that two fender piles will be installed each day. Fender piles installation is expected to begin on March 18, 2009 completed by April 15, 2009. In addition to fender pile installation, the last two months will be used for pouring of the top layer of the decking, utilities and installation of drainage system. Construction and will be completed by April 30, 2009.



The Cher-Ae Heights Indian Community of the Trinidad Rancheria
FY 2009 Brownfields Cleanup Grant Proposal Attachment 1

Phase II Environmental Assessment For Cleanup, Removal and Recycling of Hazardous Debris Generated from the Trinidad Harbor Pier Replacement Project.



Prepared by
Trinidad Rancheria Environmental Program
October, 2008

Context and Purpose	This Report presents an assessment of the contamination status of a pier structure to be demolished to prepare a site for reconstruction of the pier using non-contaminating materials.
Develop-ment Proposal	With funds secured from the Brownfields Cleanup Grant and other funding sources, the Trinidad Rancheria will deconstruct the existing pressure treated portion of the pier decking, extract the creosote treated piles that support the pier structure, remove these materials from the site, and recycle the decking and properly dispose of the pilings. This Phase II Environmental Assessment is intended to cover the needs of a Brownfields Cleanup Grant Application to fund the removal and disposal of creosote treated pilings, as well as other demolition aspects of the pier project that might be funded from other sources. These activities will effectively "cleanup" the surrounding harbor environment, as removal of these components will virtually eliminate identified pollutant sources from the pier and associated structures. If these actions are not taken, the pier will eventually deteriorate and the toxic materials will fall into the ocean and drift to further contaminate the harbor as well as new locations. The ultimate goal of the project following demolition is to replace the pier using non-toxic building materials. The pier decking and creosote treated piles will be removed in sections starting at the end of the pier and moving toward shore. The existing pier will provide the framework for reconstruction activities to take place. As the old pier sections are removed, the new pier will be constructed on the footprint of the old pier structure. The existing piles will be removed by vibratory extraction and new piles and decking will be installed from the existing dock, replaced with polymer-coated steel-cast concrete piles and recast concrete decking. All removed piles shall be temporarily stored at the upland staging areas until all demolition activities are complete. The creosote treated piles will then be transported to the Anderson Landfill or another approved upland disposal site for permanent disposal. The City of Trinidad has expressed interest in reusing the removed wood decking.
Current Site Status	The current pier is over 60 years old and was built with creosote treated pilings and pressure treated wood. The pier decking consists of approximately 13,500 square feet of 4" x 12" Douglas fir planking. Originally, it was all pressure treated, but replacement and repair has resulted in a deck that is about 60 percent untreated (Source: Craig Richardson, Harbor Manager, October, 2008). Therefore, the surface area of pressure-treated wood would be about 5400 weather-exposed square feet of decking, or about 5000 square feet, taking into account the spaces between the planks. This quantity of pressure treated decking would be regarded as a hazardous waste in terms of disposal, but fortunately, land-side recycle opportunity has been proposed by the City of Trinidad. Additionally, the untreated remainder of the pier decking has been exposed to varying degrees of contamination from operations on the pier, resulting is numerous visible oil spots created from parking of vehicles and other sources of leaks. The current pier decking is pervious and provides a non point source of runoff containing various known and unknown pollutants into the receiving waters surrounding the existing pier. Completed testing of the pier runoff identified exceedences for standards for total coliform, E.coli, enterococcus, and total petroleum

	hydrocarbons (TPH) as diesel and motor oil. The pier supports consist of 215 creosote-treated 12" x 12" pilings. They average 40'feet long. Therefore, the surface area of all of the pilings is about 27,000 square feet and the volume is 6751 cubic feet. The weight of pilings to be disposed of would be about 400 tons (Source for weight estimation: Mitigated Negative Declaration Trinidad Pier Reconstruction Project, Trinidad Bay, Humboldt County, August, 2007). Additionally, the pilings supporting the pier are creosote treated and leach toxic creosote-derived polycyclic aromatic hydrocarbons (PAHs) into the receiving water surrounding the project site. Creosote is potentially toxic to humans. Site specific tests run the by Tribal Environmental Program confirmed that water samples taken from runoff of creosote treated pilings contained measurable quantities of six creosote derived PAHs which are toxic, and quantities exceeded levels outlined in Table B of the California Ocean Plan.
Hydrology	The bay is semi-protected from the strong northwesterly winds that usually blow along the Northern California coast. Many large rocks are distributed within the bay and rocky intertidal zones are separated by periodic sandy and gravel beaches. Currents in the ASBS vary with the season. A south flowing current occurs between February and October. This current causes a clockwise and counter clockwise gyres in the northeastern and southeastern portions of the ASBS respectively. A reverse current occurs during the winter between November and February. This current occurs as a result of the northward flowing Davidson current. The northward flowing current establishes a clockwise gyres in the north and south part of the ASBS. The local current pattern tends to trap materials in a gyre southeast of the Trinidad Head in the winter . . . (Source for hydrological characterization [edited]: Mitigated Negative Declaration Trinidad Pier Reconstruction Project, Trinidad Bay, Humboldt County, August, 2007)
Geology	A geotechnical investigation of the pier was conducted between June 23rd -26th, 2007. Core borings were used to obtain four core samples from four locations along the length of the existing pier (Figure 3). Borings were advanced to depths of approximately 50 ft. (15.2m) below the mud line through the existing pier decking. Earth material observed during the subsurface investigation can be broken into two general categories, which are described below: 1. Recent marine deposits. A thin veneer (approximately 3.5 to 7.5 ft. thickness) of recently deposited loose to compact gray sand with shell fragments and other debris overlies the entire site. Some gravel size rock fragments were also observed in the cuttings (possibly derived from the adjacent Trinidad Head and Little Head). Large (2-3 ft. diameter) blocks of Franciscan material were observed at the base of both Trinidad Head and Little Head. 2. Bedrock. Bedrock of the Franciscan Formation underlies the recent marine deposits in each of our boreholes. This unit predominantly consists of gray, green, and black, weathered to decomposed mudstone, shale, and sandstone, with some zones of hard gray sandstone. As described in published mapping decomposed igneous and metamorphic rock are also likely present.

	Zones of extremely fractured slicksided rock material were found in several borings and may relate to a shear zone or the trace of the Trinidad Fault observed at the base of Trinidad Head by Woodward-Clyde (1980). (Source for geological characterization [edited]: Mitigated Negative Declaration Trinidad Pier Reconstruction Project, Trinidad Bay, Humboldt County, August, 2007)
Historical and Regulatory Review	The Trinidad Harbor has been designated an Area of Special Biological Significance (ASBS) by the State Water Resources Control Board for the kelp beds located in the bay. The kelp beds at Trinidad Harbor are 1.8 miles long and encompass 297 acres of marine habitat. The cumulative biomass of the kelp beds supports a substantial amount of marine life. The California Ocean Plan prohibits discharges containing pollutants to ASBS waters. Trinidad Bay is also designated by the California Coastal Commission as a Critical Coastal Area (CCA) and was chosen as one of the five pilot programs to address non point source pollution. The current pier decking provides a source of runoff and introduction of pollutants into the receiving waters surrounding the project area. Spills and runoff from the pier deck can be immediately washed into the surrounding receiving waters. Catastrophic spills on the pier will immediately enter the receiving waters with no opportunity for spill response. Completed testing of the pier runoff identified exceedences for standards for total coliform, E.coli, enterococcus, and TPH as gas, diesel and motor oil. Additionally, the pilings supporting the pier are creosote treated and contribute toxic creosote-derived polycyclic aromatic hydrocarbons (PAHs) to the water surrounding the site. Creosote is potentially toxic to humans. Site specific tests run the by Tribal Environmental Program confirmed that water samples taken from runoff of creosote treated pilings contained measurable quantities, exceeding California Ocean Plan Table B water quality objectives, of six creosote derived PAHs, which are toxic. The only way to eliminate these toxic building materials is to demolish the pier and remove the materials for recycle or disposal. Otherwise, the pier will eventually deteriorate and the toxic materials will fall into the ocean and drift to further contaminate the harbor as well as new locations. The ultimate goal of the project following demolition is to replace the pier using non-toxic building materials. The completed project will limit potential pollution sources to the surrounding environment by removing the pressure treated wood decking and replacing it with a concrete pier surface with a runoff collection system, and by removing the creosote

	treated pilings and replacing them with concrete pilings cast in steel casings coated with a non-reactive polymer.
Site Investigation Pier Decking	The Rancheria obtained data pertinent to the toxicity of the pier decking from testing don for an ASBS Discharge Exception Application in 2006. Pier runoff samples approached or exceeded Recreational Bacteria Standards for Total Coliform, E. Coli, and Enterococci. Bioassays were also conducted on a number of species subjected to pier runoff samples. One bioassay, purple sea urchin fertilization, showed toxicity. Direct evidence of the presence of pollutants in the pier deck runoff has also been provided in a series of sampling events done in August, 2008 (generating runoff by sprayer or hose in the absence of rainfall). Results from these monitoring activities are reported in Table 1 following, with exceedences highlighted in yellow.
Findings-Pier Decking	**Table 1 Results for Vehicle-Derived Hydrocarbons** Notes: TP1, TP2, and TP3 refer to three sampling vicinities, all on the outboard half of the pier where vehicle activities are concentrated. All samples are artificially generated pier deck runoff. Blanks not reported and some negative results not reported—complete data available on request Initial sampling focused on gas/diesel. Laboratory suggested checking for motor oil on last sampling event, and hydrocarbons in this MW range appear to be the dominant hydrocarbon contaminant

Date	Sample Location	Purpose of Sample	Pollutant	Sample Results µg/L	Limit
08/06/08	Pier deck runoff at TP-1	Pre-Prop 84 app	TPH as Diesel	310	50
	TP-1 (dup)		TPH as Diesel (dup)	580	50
	TP-2		TPH as Diesel	500	50
	TP-3		TPH as Diesel	ND	50
08/13/08	Pier deck runoff at TP-1	Pre-Prop 84 app	TPH as Diesel	ND	50
	TP-2		TPH as Diesel	970	50
	TP-3		TPH as Diesel	210	50
08/20/08	Pier deck runoff at TP-1	Pre-Prop 84 app	TPH as Diesel	ND	50
	TP-2		TPH as Diesel	380	50
	TP-3		TPH as Diesel	ND	50
08/27/08	Pier deck runoff at TP-1	Pre-Prop 84 app	TPHC Diesel	91	50
			TPHC Motor Oil	2,300	170

			TPHC Motor Oil	170	170
TP-2 (duplicate)	Pre-Prop 84 app	TPHC Diesel	260	50
		TPHC Motor Oil	1800	170
TP-3	Pre-Prop 84 app	TPHC Diesel	380	50
		TPHC Motor Oil	250	170

From these results we can conclude that the pier deck demonstrates toxicity or is contaminated by the parameters indicated.

Site Investigation—Creosote-Treated Pilings

Although there is an abundance of scientific literature that clearly documents the toxicity of creosote, with particular sensitivity for sea urchin development, we undertook site-specific work to demonstrate that Trinidad Pier is a source of runoff containing creosote derivatives.

At a point where we could access one of the pilings from the floating deck of the pier, we collected a water sample from water sprayed onto the piling surface from about 4 feet above. The sample came into contact only with the piling. This sample was analyzed by the nearest lab able to do a creosote analysis (Alpha Analytical, Sparks, NV).

Findings—Creosote-Treated Pilings

The results of this sampling are in Table 2 following. Although the lab was unable to state that the sample contained creosote based on the EPA-approved method (EPA 40CFR Chapter One Pt. 261 Appendix III-- "Analyze for Phenanthrene and Carbazole; if these are present in a ratio between 1.4:1 and 5:1 Creosote should be considered present"), it did contain measurable quantities of six creosote-derived polycyclic aromatic hydrocarbons (PAHs), as shown in the Table 3. Also shown are their toxicity and ecotoxicity characterizations from MSDS sheets, if available. The 2005 California Ocean Plan Lists the limit for PAHs [30-day average] as 0.0088 µg/l. Since there is no other source for these PAHs on the pier pilings, this data is strongly suggestive of toxic creosote-derived compounds in the runoff.

Table 2. Creosote-Derived Compounds Detected from Trinidad Pier Piling Runoff, August, 2008 (Method—Semivolatile Organics by GC/MS [SW8270])

Compound detected from piling runoff	Measured Concentration	Toxicity Characterization and Source Documentation	Ecotoxicity Characterization and Source Documentation	
Napthalene	13 µg/l	May cause irritation. Toxic by inhalation or ingestion. TLV 10 ppm. Sensitizer. Possible carcinogen http://msds.chem.ox.ac.uk/NA/naphthalene.html	Ecotoxicity in water (LC50): 305.2 ppm 96 hour(s) [Trout]. http://www.sciencelab.com/xMSDS-Naphthalene-9927671	
Phenanthrene	36 µg/l	Harmful if swallowed. May be harmful if inhaled or absorbed through the skin. Skin, eye and respiratory irritant. Causes photosensitivity http://msds.chem.ox.ac.uk/PH/phenanthrene.html	Not available http://www.sciencelab.com/xMSDS-Phenanthrene-9926453	
Carbazole	44 µg/l	Harmful by inhalation or ingestion. May be harmful in contact with skin. Suspected carcinogen [and mutagen] http://msds.chem.ox.ac.uk/CA/carbazole.html	Not available http://www.sciencelab.com/xMSDS-Carbazole-9923305	
Pyrene	14 µg/l	Harmful if swallowed. May be harmful by inhalation or through skin contact - readily absorbed through skin. Irritant. Toxicology not fully investigated. http://msds.chem.ox.ac.uk/PY/pyrene.html	Ecotoxicity in water (LC50): 1.8 mg/l 48 hours [Water flea]. http://www.sciencelab.com/xMSDS-Pyrene-9924760	
Chrysene	17 µg/l	Toxic. Confirmed animal carcinogen, possible human carcinogen. Harmful if swallowed, inhaled or absorbed through the skin. http://msds.chem.ox.ac.uk/CH/chrysene.html	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. http://agrippina.bcs.deakin.edu.au/bcs_admin/msds/ChemicalSummary.asp?ID=517	
Fluoranthene	27 µg/l	Harmful if swallowed. Limited evidence that this may act as a carcinogen. Skin, eye and respiratory irritant. http://msds.chem.ox.ac.uk/FL/fluoranthene.html	Not available—no citation found	

Conclusions and Recommendations	The results reported above demonstrate through site specific studies at Trinidad Harbor that both the pier decking and the creosote-treated pilings are toxic materials that continue to contaminate the site at Trinidad Harbor. The only way to eliminate these toxic building materials is to demolish the pier and remove the materials for recycle or disposal. Otherwise, the pier will eventually deteriorate and the toxic materials will fall into the ocean and drift to further contaminate the harbor as well as new locations. The ultimate goal of the project following demolition is to replace the pier using non-toxic building materials. The completed project will limit potential pollution sources to the surrounding environment by removing the pressure treated wood decking and replacing it with a concrete pier surface with a runoff collection system, and by removing the creosote treated pilings and replacing them with concrete pilings cast in steel casings coated with a non-reactive polymer. Removal of 5000 exposed square feet of pressure treated decking, and 215 creosote-treated pilings, which have been found in 2008 water quality tests to still be releasing toxic creosote-derived polycyclic aromatic hydrocarbons (PAHs), will contribute measurably to the long-term health and maintenance of the surrounding environment. The cleanup, removal and recycling of hazardous debris from the existing pier and the pier replacement with non-toxic materials are the most significant actions that the Trinidad Rancheria can take to remove toxic materials and consequent pollutant discharges into Trinidad Harbor.
Precautions	No additional precautions are expected to be necessary in regard to the overall harbor site, based on a Phase I Environmental Site Assessment completed in May 1999, performed in accordance with American Society for Testing and Materials (ASTM) Standard No. E1527-94 by Winzler & Kelly Consulting Engineers. This report resulted in a Site Investigation and corrective action for an underground storage tank located at the site. The corrective action was in compliance with the requirements of subdivisions (a) and (b) of Section 2529.77 of the Health and Safety Code and resulted in a Remedial Action Completion Certification from the Humboldt County Division of Environmental Health. In regard to the removal of the creosote-treated pilings, the Trinidad Pier Reconstruction Project Biological Assessment (April 11, 2008) requires the following measures to reduce contaminant release to less-than significant levels: For the potential impacts due to suspension of sediment and release of contaminants in from the ocean floor, pile removal through vibratory extraction may cause temporary turbidity due to sediment suspension and contaminant release. However, this method is documented to have less adverse impact EFH and salmonid fish species than other commonly used methods and it is the NOAA Fisheries recommended method to reduce impacts (NOAA Fisheries 2003). Mitigation measures that should be implemented to minimize harmful impacts of this activity on fish species include the following: use vibratory extraction rather than direct pull or

	"clamshell" methods to remove piles, and initiate removal with a lesser impact vibration to break bond between sediment and pile. Because creosote may be harmful to fish, marine mammals and birds, removal of the creosote-treated piles must be monitored for any contamination on the water-surface of creosote oils. A containment boom will be employed around the work area to capture and remove any debris or noticeable oil from the creosote-treated piles. Additionally, the water surface will be observed for any sheen associated with oil contamination, and if seen, oil absorbent materials will be used to remove all oil residues.

TRINIDAD PIER RECONSTRUCTION PROJECT
ATTACHMENT VI - PRELIMINARY DRAINAGE PLAN
Prepared by Pacific Affiliates Inc. & CONTECH Stormwater Solution Inc.
Prepared for the North Coast Regional Water Quality Control Board – 401 Water Quality Certification

Trinidad Pier Reconstruction Project: a proposal by the Trinidad Rancheria to reconstruct the Trinidad Pier adjacent to the City of Trinidad in Humboldt County. The 540 ft. (165 m.) long pier is located on tidelands granted by the State of California to the City of Trinidad and leased by the Trinidad Rancheria. The project site is located a 0.3-acre parcel with support activities (0.53 acre staging area) on nearby parcels (see attached Figure). The site is within an Area of Special Biological Significance (ASBS) designated by the State Water Resources Control Board for the kelp beds. The existing pier was constructed in 1946 to serve commercial fishing and recreational uses. Since that time the creosote-treated wood piles which support the pier, as well as the wood decking, have deteriorated and are proposed to be replaced by cast-in-steel-shell (CISS) concrete piles and pre-cast concrete decking, respectively. This will improve the safety of the pier. Existing pier utilities which will require replacement include electrical, water, stormwater, and phone. Additional dock amenities that will be replaced include lighting, railing, four hoists, three sheds, a saltwater intake pipe used by the Telonicher Marine Laboratory, and a water quality sonde utilized by the Center for Integrative Coastal Observation, Research, and Education. The proposed construction schedule is from August 1, 2008 to May 1, 2009. **Located at:** Trinidad Pier; APNs: 042-071-014 (pier) & 042-071-001, -008, -009 (staging area).

Trinidad Pier drainage:
The Trinidad Pier is a commercial fishermen's pier and is also used by recreational fishermen and the general public. The existing pier does not have a stormwater collection system. It is proposed to include a drainage and treatment system for the stormwater runoff from the reconstructed pier to prevent any direct discharge of runoff from the pier into the Area of Special Biological Significance (ASBS).

The reconstructed pier shall be sloped (<1%) to allow the drainage to flow to the west side of the pier. All runoff will be routed upland through an HDPE pipe to the retention storm chamber. Before arriving at the storm chamber the runoff shall be treated by a storm water management filter, which will treat the influent prior to it being routed into the storm chamber.

Project Site Soil Condition
Percolation tests were performed at two locations in the vicinity of the proposed storm filter and chamber on September 17-18, 2007 (see Sheet D-1). Two borings were excavated by hand to a depth of approximately 8 ft below the existing ground. The soil at the project site is primarily underlain by sand with some gravel mixed in at the upper two feet. Percolation rates were determined to be in the order of 15min/inch.

Pollutants of Concern:
The proposed stormwater treatment system is intended to treat concentrations that are based on peak traffic on the pier during the wet season which coincides with peak crab season (November – March). The following assumptions in regards to pollutant contributions to runoff were made based on conversation with Mr. Craig Richardson the pier Harbor Master:

- Approximately 80 truck trips on and off the pier per day.
- 2-3 fork-lifts operating intermittently on the pier.
- Other vehicular traffic on the pier – approximately 20 vehicles per day.
    - Each trip is 1,080 ft long. Total distance traveled by 100 trucks is 108,000 ft (20.45 mi).
- Cleaning of the working area (loading and unloading) of the pier, where there may be contributions of organic phosphorus from dead plant matter and inorganic phosphorus from decomposing natural material and man made waste. Animal waste from birds and domestic pets may also be found on the pier and transported in to the drainage system.

Based upon the above information the following pollutants shall be treated:

a. Total Suspended Solids
b. Total Phosphorus
c. Dissolved Metals
d. Oil and Grease

Treatment Component: The Stormwater Management StormFilter® shall be used to treat the pollutant listed above. The StormFilter is passive siphon-actuated, flow-through. stormwater filtration system consisting of a structure that houses rechargeable, media-filled filter cartridges. The StormFilter works by passing stormwater through the media filled cartridges which trap particulates and adsorb pollutants such as dissolved metals, nutrients, and hydrocarbons.

During a storm, runoff passes through the filtration media and starts filling the cartridge center tube. Air below the hood is purged through a one way-check valve as the water rises. When water reaches the top of the float, buoyant forces pull the float free and allow filtered water to drain.

After the storm, the water level in the structure starts falling. A hanging water column remains under the cartridge hoods until the water level reaches the scrubbing regulations. Air then rushes through the regulators releasing water and creating air bubbles that agitate the surface of the filter media, causing accumulated sediment to drop to the vault floor. This patented surface-cleaning mechanism helps restore the filter's permeability between storm events (see Figure on P. 4 of CONTECH Document).

Filter media: A combination of media (ZPG) shall be used to target the pollutants listed above as follows:

- Zeolite – Soluble metals (Cu, Zn, etc.), ammonia.
- Perlite – Solids, Oils and Grease
- Granular Activated Carbon – has a micro-porous structure with an extensive surface area to provide high levels of adsorption. It is primarily used to remove oil and grease and organics such as herbicides and pesticides.

<u>Filter System Design Parameters:</u>

- Structure ID = Manhole Strom Filter
- Total Area (acres) 0.31
- Runoff Coefficient, C 0.95 (for concrete)
- Peak Flow, Q_{100} = 0.88 cfs
- Required retention volume (ft^3) 558
- Water quality intensity, I = 0.18"/hr

Filter Size:

- **Assumption:**
  - Media – ZPG cartridges
  - Flow rate per filter cartridge – 15 gpm
  - Drop required from rim to outlet = 2.3 ft minimum
  - Water quality flow rate, Q_{treat} = C I A – (0.95) (0.18 in/hr) (0.31 acres) 0.053 cfs

The StormFilter for this site was sized based on a water quality flow rate of 0.053 cfs. To accommodate this flow rate, CONTECH Stromwater Solution Inc. recommends a 48" Manhole StromFilter with two cartridges.

The Manhole StromFilter has an internal bypass of 1.5 cfs. Since the peak discharge off the site is not expected to exceed that rate, no external bypass structure is required.

Filter Performance:

- TSS (mg/L) - 80% percent removal of influent concentrations greater than 100 mg/L, and an effluent of 20 mg/L is expected for concentrations less than 100 mg/L. Suspended solids are defined as a sandy loam particle size distribution approximately 55% sand, 40% silt, 5% clay (USDA).

- Total Phosphorous (TP) (mg/L) (sum of inorganic and organic phosphorous) –The non-soluble portion of the TP is commonly associated with the total suspended solids (TSS). Of this form, the phosphorous can be in an organic or inorganic form. TP concentrations in stormwater are variable but range from 0.01 to 7.3 mg/L (CONTECH, 2007 from Minton 2002). USEAPA guidelines indicate that Ortho-P concentrations in stream in excess of 0.10 mg/L can trigger bloom in fresh water lakes.

  CONTECH Stormwater Solutions provided field testing and data analysis representing a sample population of greater than 50 paired influent and effluent samples. Performance, analyzed using regression of the event mean concentration (REMC) provided 95% confidence limits between 53 to 78% removal of total phosphorus.

- Total Dissolved Metals: heavy metals may be generated from traffic on the pier. Two of the most common metals found both in the water column and sediments are zinc and copper. Zinc tends to exhibit toxicity effects in the fresh water environment and copper exhibits toxicity characteristics in the marine environment.

  Metals are measured as both total metals and soluble metals. Total metals are the sum of the dissolved metals and those metals associated with particulates. Soluble metals are commonly defined as those metals that pass through a 0.45 micron filter. Frequently the soluble metals are in a cationic form in that they posses a net-positive charge.

  Metals are removed by the processes such as cation exchange. Cation exchange is the exchange of a cation (positively charged atom) for another cation. The process involves the displacement of an atom within the media matrix by an atom within the water column. The displacement occurs if the incoming atom's affinity for the exchange site is higher than that of the current occupying atom. In general, the physically smaller the ion (when hydrated) and the greater the positive charge the more tightly it will be held by the media.

The media-bound ions utilized with cation exchange filtration are calcium (Ca), magnesium (Mg), potassium (K) and sodium (Na) with calcium and magnesium being the primary exchange ions due to their abundance within the media matrix. Zinc, copper and iron (as well as others) will force the displacement of the calcium and magnesium ions from the media.

Media promoting cation exhange and measures cation exchange capapcity (CEC):

- CSF® media (93.8 meq/100 grams)
- Zeolite (125 meq/100 grams)

CONTECH Stormwater Solutions provides a general recommendation for using the StormFilter with ZPG media of between 20 to 40% removal of dissolved zinc and copper. Data, analyzed with REMC, can be provided from the manufacturer providing 38% removal of dissolved copper and 26% removal of dissolved zinc (reference PE-E081). If greater than 40% removal of dissolved zinc or copper is required at the site, through routine maintenance the StormFilter with ZPG media can be exchanged (updated) with CSF leaf media. The CSF leaf media has two mechanisms for removing dissolved metals, cation exchange and chelation.

- **Oil and Grease:** may be found in runoff from the operation of fork-lifts and loading and unloading truck traffic on the pier. Oil and grease appear in many forms in stormwater runoff: free, dissolved, emulsified, and attached to sediment. Total Petroleum Hydrocarbons (TPH) is the usual analytical measure of fuels, oils, and grease for stormwater. Typically the concentrations of TPH associated with runoff from streets and parking lots do not exceed concentrations that range from 2.7 to 27 mg/L (CONTECH, 2007 from FHWA, 1996).

  Removal of TPH by media within the StormFilter cartridge is accomplished through adsorption. Adsorption is the attraction and adhesion of a free or dissolved contaminant to the media surface. This occurs at the surface as well as within the pores of the media granule. Adsorption requires that contaminant come in contact with an active surface site on the media and time must be allowed for the contaminant to adhere. These reactions are usually promoted by polar interactions between the media and the pollutant. Adsorption can also occur within the dead end pores and channels of the media but is generally slower than a surface reaction due to limits of the contaminants diffusion into the pore. Commonly adsorbed pollutants include: gasoline, oil, grease, TNT, polar organics or organically bound metals and nutrients. The media provided by CONTECH stormwater solutions Inc. for the removal of oils and greases are targeted to remove 25 mg/L or less. Media promoting adsorption reactions are the CSF® leaf media, perlite, and granular activated carbon. For concentrations that continually are higher than 10 mg/L, an oil removing accessory such as a sorbent cartridge hood cover is recommended.

  The media within the StormFilter cartridge can remove low level concentrations of TPH. The anticipated TPH load is 2 mg/L for this site. Laboratory data indicates 40 to 60% removal of TPH. If the area exhibits higher concentrations, the StormFilter can incorporate the use of a cartridge hood sorbent, which can prolong the life of the media, and adsorb additional oil and grease. The manufacturer recommends the use of the sorbent hood cover for areas receiving approximately 5 to 10 mg/L. If concentrations are greater than 10 mg/L, the use of an oil water separator with coalescing plate is recommended. Due to the difficulty in obtaining a representative, flow-weighted field composite sample of TPH, the manufacturer makes no direct claims.

A summary of the primary constituent to be treated are provided in Table 1 below:

Table 1: Pollutant concentrations in runoff from the proposed Trinidad Pier and their concnetrations after treated by the Storm Water Management Filter.

Pollutant	CAS No.	Initial Concentration	CSF Standard Grade 15 gpm	Final Concentration	Regulated Limit*	Criteria
Phosphorus	7723-14-0	0.01 to 7.3 mg/L (Assume < 0.01)	78%	<2.8 µg/L	0.1 µg/L[A]	
Zinc	7440-66-6	0.096 mg/L	43%	54 µg/L	5,000 µg/L	MCL
Copper	7440-50-8	2 mg/L	42%	1,160 µg/L	1,300 µg/L	MCL
Oil and Grease		2 mg/L[D]	60%	800 µg/L	25,000 µg/L[D]	

* State Water Resources Control Board. Central Valley Region Water Quality Control Board. A Compilation of Water Quality Goals. August 2003 with tables updated August 2007. California Environmental Agency.

[A] USEPA National Recommended Ambient Water Quality Criteria for Saltwater Aquatic Life Protection. Recommended Criteria. Instantaneous Maximum.

[B] Value developed for Chromium (IV) may be applied to Total Chromium if valence unknown (Note 12)

[C] CA Department of Public Health (CDPH). USEPA MCL is 100 µg/L

[D] CA Ocean Plan Numerical Water Quality Objectives. Marine Aquatic Life Protection. 30 Day Average. 7 Day average is 40,000µg/L. Virtually free from oil and grease, particularly from tastes and odors that emanate from petroleum products (Note 128).

System Maintenance: The design of the StromFilter assumes that the system maintenance will be performed at regular intervals. CONTECH Stormwater Solutions Inc. can be contacted to perform the maintenance or can work directly with owners who wish to perform their own maintenance.

Retention Basin Design

Treated stormwater runoff into a pre-manufactured Storm Chamber designed by CONTECH Stormwater Solutions, Inc.

- **Assumption:**
  - Porous stone backfill not included in storage volume
  - Available depth from finished grade to StromChamber flow invert is at least 5.0 ft.

Storm Chamber Sizing:

The footprint of this size system is flexible. The attached sizing (Figure D-1, D-2 and D-3) shows a footprint of 15 ft x 32 ft. A total of 8 chambers are required for this storage volume. (Note: If RWQCB allows to use the porous space as backfill as storage volume, the system size will decrease).

- Required Storm Chambers : 8 (4 Chamber @ 7.6 ft each and 4 chambers @ 8.1 ft each)
- Chamber Storage: 620 cf
- Porous Stone Storage: 0
- Total Storage Provide: 620 cf

- Rectangular Footprint (W x L) 11.5 ft x 33.4 ft
- Total excavation: 78 yd^3
- Stone Backfill: 32 yd^3 stone
- Remaining Backfill to Grade 24 yd^3 backfill per specifications
- Non-Woven Geotextile: 136 sy

** Construction Quantities are approximate and should be verified upon final design.

There are a variety of underground utilities in the area. It may be required to change the proposed footprint of the Storm Chamber if new information is revealed that was not known prior to submittal f this preliminary plan. On September 17, 2007, percolation tests will be conducted to verify percolation rates and to insure that the proposed site for the retention basin is appropriate.

References

CONTECH Stormwater Solutions, Inc. The Stormwater Management StormFilter® Performance Summary for Pacific Affiliates. CONTECH Stormwater Solutions INC. September 12, 2007.

CONTECH Stormwater Solutions, Inc. Design Your Own Detention System. StormChamber. 2007.

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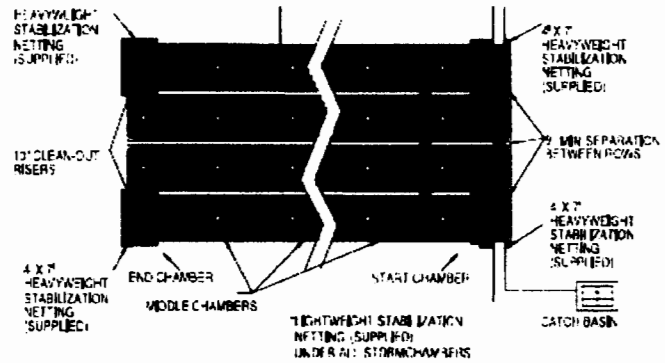


Project Summary

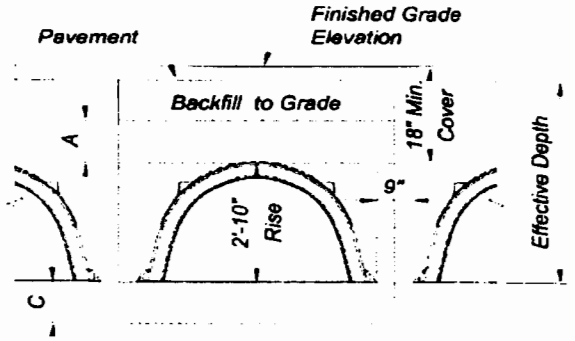
Date:	
Project Name:	
City / County:	
State:	
Designed By:	
Company:	
Telephone:	

Enter Information In Blue Cells

StormChamber™ Calculator

Storage Volume Required (cf):	
Invert Depth Below Asphalt (ft):	
Limiting Width (ft):	
Porous Stone Backfill Included For Storage:	
Depth A: Porous Stone Above Chamber (in):	6
Depth C: Porous Stone Below Chamber (in):	6
Stone Porosity (0 to 40%):	40

Waterway Area (ft^2)
9.868



System Sizing

Use Custom Layout (at right) for layout adjustment

Required StormChambers:	8 Chambers	
Chamber Storage:	620 cf	
Porous Stone Storage:	0 cf	
Total Storage Provided:	620 cf	111.1% of Req'd Storage
Rectangular Footprint (W x L):	11.5 ft x 33.4 ft	

CONTECH Materials

StormChamber Units:	4 Chambers @ 7.6 ' ea.
StormChamber End Units:	4 Chambers @ 8.1 ' ea.
Approximate Truckloads:	1 Trucks

Construction Quantities

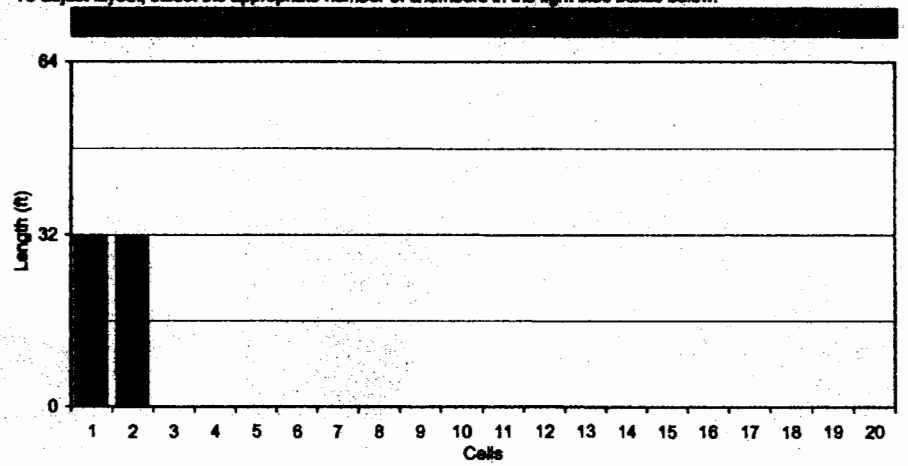
Total Excavation:	78 cy
Stone Backfill:	32 cy stone
Remaining Backfill To Grade:	24 cy backfill per specifications
Non-Woven Geotextile:	136 sy

***Construction Quantities are approximate and should be verified upon final design*

Additional Units Required = 0

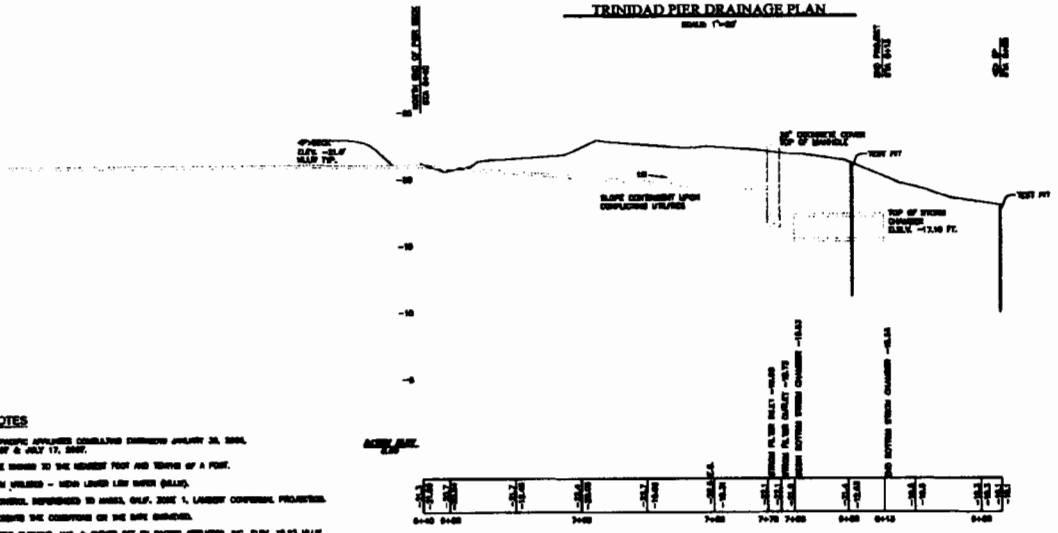
Custom Layout

To adjust layout, select the appropriate number of chambers in the light blue boxes below.



PRELIMINARY

TRINIDAD PIER DRAINAGE PLAN



CENTERLINE PROFILE OF TRINIDAD PIER

SURVEY NOTES

LEGEND

REVISIONS	BY

PACIFIC AFFILIATES

DAVID L. SCHNEIDER

DRAINAGE PLAN & PROFILE

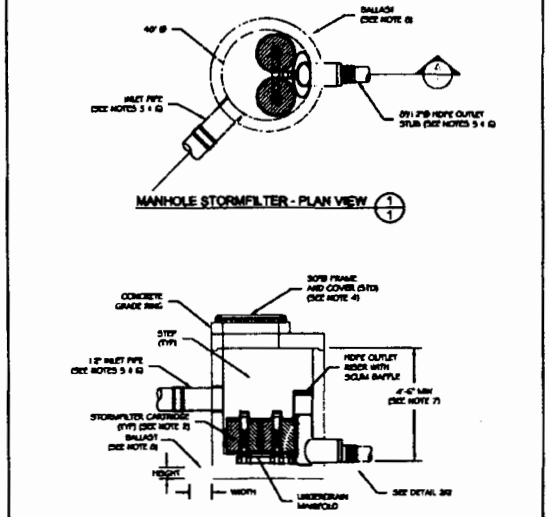
TRINIDAD PIER RECONSTRUCTION PROJECT

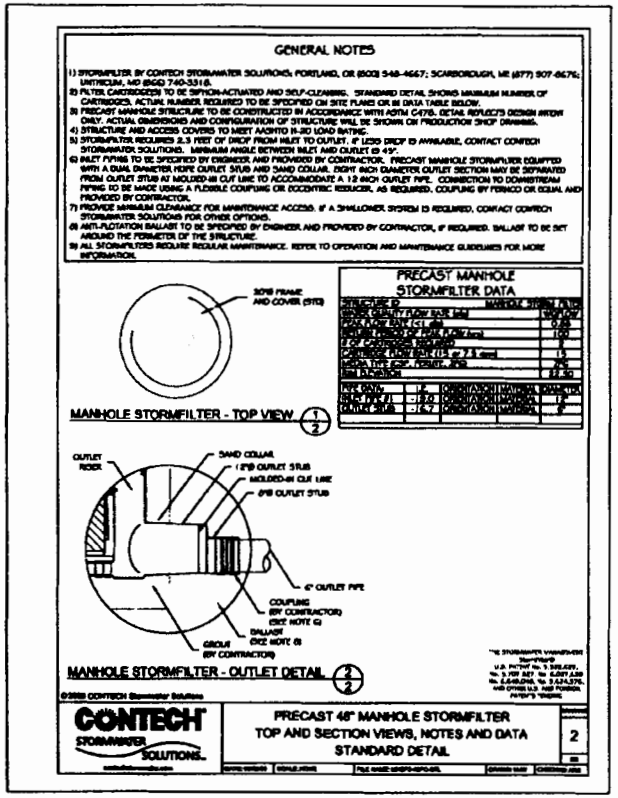
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

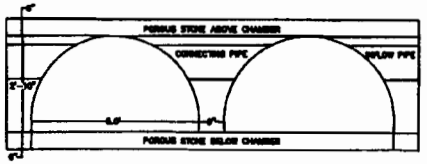
SHEET NUMBER

D-1

PRELIMINARY







SECTION VIEW OF STROM CHAMBER

HORIZONTAL SCALE: 1"=10'

REVISIONS | BY

PACIFIC AFFILIATES
A CONSULTING ENGINEERING GROUP
3140 GOLF COURSE DRIVE
EUREKA, CA 95503

OWNER
DAVID L. SCHNEIDER
ADDRESS
CITY, STATE, ZIP

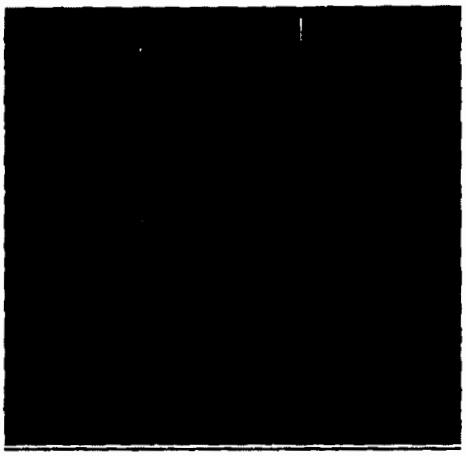
DRAINAGE PLAN DETAILS

TRINIDAD PIER RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

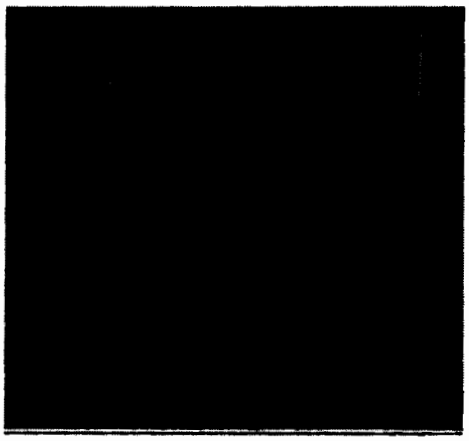
Date: September 19, 2007
Scale: 1"=10'
Sheet: 10

SHEET NUMBER
D-2

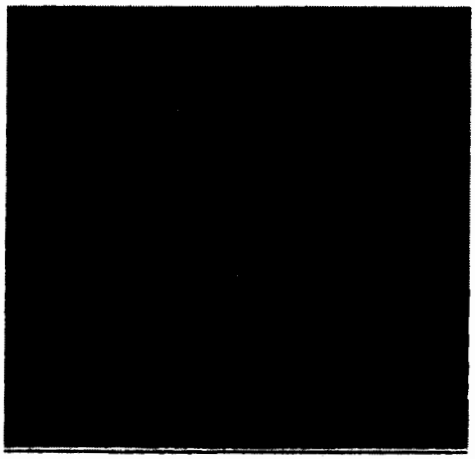
EXAMPLES



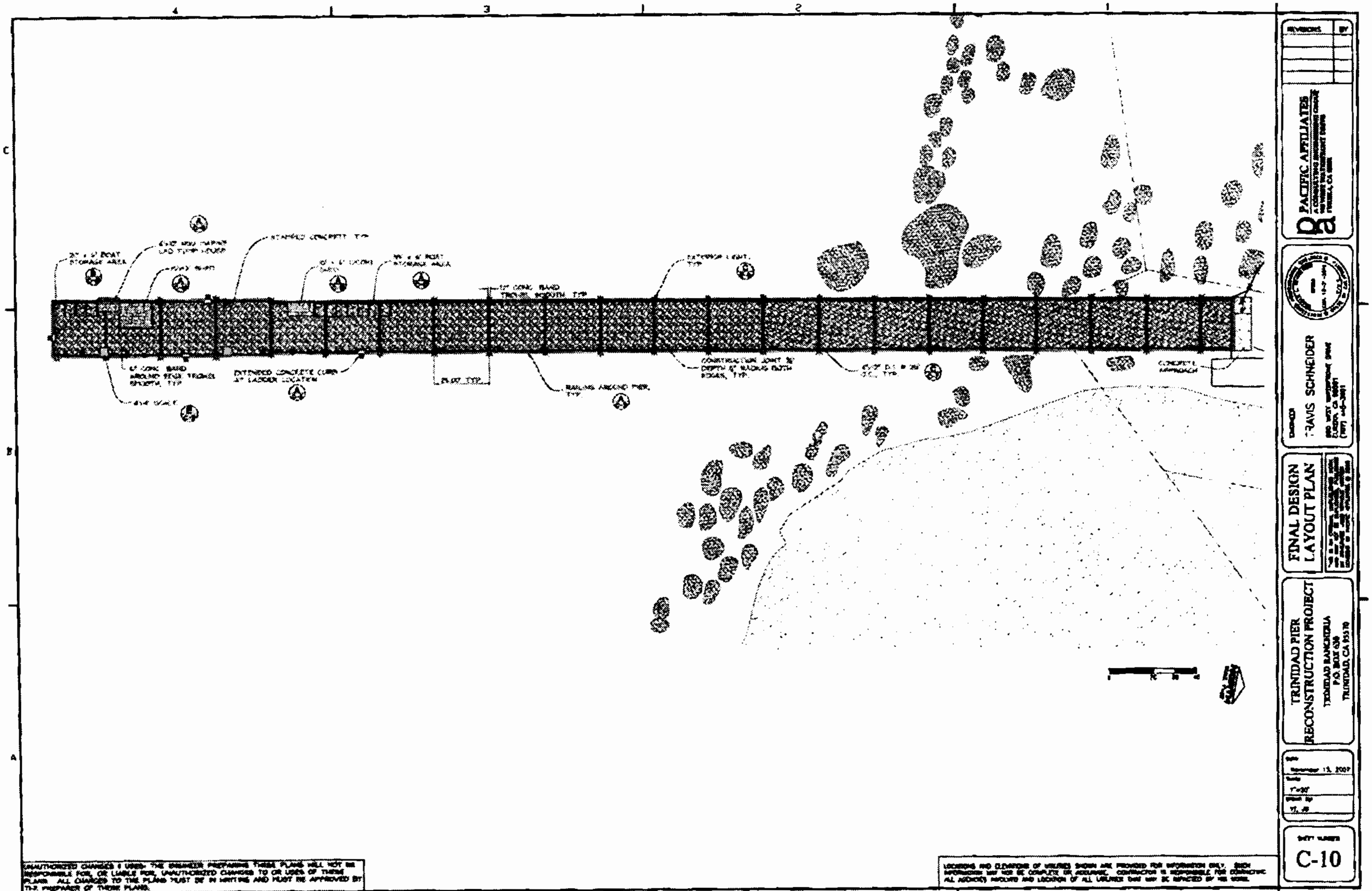
Ashlar Slate in Gun Metal



Ashlar Slate in Mist Gray



Ashlar Slate in Sand


STAMPED CONCRETE, TYP
EXTENDED CONCRETE CURB AT LADDER LOCATION
RAILING AROUND PIER, TYP.
PACIFIC AFFILIATES
TRAVIS SCHNEIDER
FINAL DESIGN
LAYOUT PLAN
TRINIDAD PIER
RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570
November 13, 2007
C-10

1. **Existing Pier Materials**

±215 creosote treated Douglas fir piles – Length - ±50 ft (15.2m)
Diameter - 12 in (30.5cm)
Cross Sectional Area – 0.79 ft^2 (0.073m^3)

2. **Construction Materials**

115 Steel Pipes – Length - 65 ft (20m)
Diameter - 18 in (45.7)cm
Cross Sectional Area - 1.77ft^2 (0.16m^2)

53 Plastic fender piles – Length - 50 ft (15.2m)
Diameter - 10 in (25.4cm)
Cross Sectional Area – 0.55 ft^2 (0.05m^2)

115 Steel Cages – Pier Verticals – Grade 60 inch-pound grade (Grade 420 metric grade)
Minimum Yield Strength 60,000 lbs/in^2 (420MPa)
Pier Verticals #5 Nominal Diameter (0.625 in)
Weight 1.043 lbs/ft
Length 65 ft (20m)
Bracing Material #4 Nominal Diameter (0.500 in)
1.5 inches (0.6 cm) clearance to steel casing

Concrete – pre-mixed ± 500 yd^3 for pile installation.

3. **Construction Equipment**

Crain
Drill Rig 8m headroom
Water Truck
2 Equipment Trucks (max length 65 - ft, max width - 102 inch, max height - 14 ft)
2 Trucks - 16.5 yd^3 capacity
2 Dumpsters -30 yd^3 capacity
1 Mobile restroom
1 40 foot construction trailer

4. **Staging Area Layout**

The perimeter of the staging area shall be temporarily fenced with a 6ft tall chain linked fence during construction. Access to the site will be provided from Bay Street and Edwards Street at the northwest side of the staging area. A one way traffic system of entry and exit only gates shall be implemented. The staging area shall be constructed at least 50 ft away from the beach to prevent any potential impacts to the beach (Sheet 3).

A temporary bathroom will be located on the northwest side of the staging area. Sanitary sewer will be maintained and installed as listed in BMP WM-9, Sanitary/Septic Waste Management.

Materials delivery and storage procedures to be followed at the staging area are listed in Attachment III-1 under BMP WM-1, Material Deliver and Storage and WM-2, Materials, WM-5,

Solid Waste Management, WM-6, Hazardous Waste Management and WM-8 Concrete Waste Management.

A. Stockpiling areas shall be managed in accordance to BMP WM-3 Stockpile Management as referenced from CASQA handbook and listed in Appendix III-1. Protect the stockpile from stormwater runon using a temporary perimeter sediment barrier. The sediment barrier will be composed of sand bags and dikes. The Contractor shall keep a record of all materials stockpiled at the staging area and provide the project engineer with daily logs of the amounts of ocean water disposed, sediment stockpiled, and debris removed including but not limited to creosote treated wood piles, pressure treated decking, wood railing, and sheds.

a. Sediment Stockpile:
   - If possible use 40 foot long closed container (40ft x 8ft x 9ft H)
   - Max storage capacity 30.4 yd^3 (76.3m^3)
   - Haul container to approved upland disposal site each time maximum capacity is reached.
   - Maximum capacity will be reached following installation of ±15 CISS piles or ±three rows or once a month during the first six month and once following installation of all 53 fender piles.
   - Maintenance of stockpile:
     i. During the rainy season, sediment stockpile should be covered or protected with soil stabilization measures and temporary perimeter sediment barrier at all times.
     ii. During the non-rainy season, soil stockpiles should be covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.
     iii. If possible, the sediment shall be stored in a closed container (maximum capacity 76 cubic yards). Container and cuttings will be transported to an approved upland disposal site when container is full.
     iv. All cuttings shall be stored in closed containers.

b. Stockpiling Removed Treated Wood Piles
   - Treated piles (±1-3) shall be removed each day for the first six months.
   - Treated piles will be removed by a crane and transferred onto a flat bed for temporary storage at the staging are.
   - A maximum of 15 treated piles shall be stockpiled at the staging area before being transferred to an approved disposal site.
   - Storage area = 55ft x 7 ft x 5ft H for 15 wood piles stacked up in groups of three.
   - Maintenance of stock pile:
     i. During the rainy season, sediment Stockpile should be covered or protected with soil stabilization measures and temporary perimeter sediment barrier at all times.
     ii. During the non-rainy season, soil stockpiles should be covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

c. Stockpiling Removed Douglas fir decking and wood railing.
   - ±25 linear feet of decking each week for the first six months.

- Decking will be removed by hand and loaded into the truck for temporary storage at the staging area.
- A maximum of 100 linear feet of treated piles shall be stockpiled at the staging area before being transferred to an approved disposal site.
- Storage area = 30ft x 20 ft x 5ft H for 100 linear feet of treated piles.
- Maintenance – same as for treated wood piles.
- Some of the decking may be reused depending on condition.

d. Stockpiling Steel Cages
- Steel cages shall be delivered pre-tied to the staging area.
- Steel cages will be delivered in eight truck loads (±15 cages each load) during the first six month of the project.
- Storage area = 70 ft x 7 ft x 5ft H for 15 steel casings stacked up in groups of three

e. Stockpiling Steel Casings
- Steel cages will be delivered in eight truck loads (±15 casings each load) during the first six month of the project.
- Storage area = 70 ft x 10 ft x 5ft H for 15 steel casings stacked up in groups of three.
- Total area required for 115 casings is 70 ft x 40 ft x 5 ft H

B. Dewatered Ocean Water removed from the project site shall be disposed at the staging area via percolation.
- Remove approximately 730 gal/pile/day (±97 ft^3, ±2,750L or 14-55 gal drums) at the deepest locations (20 ft MLLW)
- Test pH of water prior to pouring concrete seal and again prior to removal from hole to insure concrete poured did not changed the pH by more than 0.2 units.
- Transfer dewatered ocean water to staging area for percolation.
- Percolation rate at the site is 15min/in per tests conducted September 17, 2007. The contractor shall verify percolation rates during the winter.
- Temporary percolation areas should be designated above or below grade at the option of the contractor. Temporary percolation area shall be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by dewatering operations.
- The temporary percolation area should have a temporary pit of sufficient volume to completely contain all liquid generated during dewatering operations. Construct a 10ft minimum. x 7ft x 4ft pit to contain amount of water removed each day. Below grade facilities shall require at least 12 inches of freeboard.

C. Concrete Pouring and Designated Concrete Washout Area

Concrete for CISS pile installation shall be premixed and delivered to the site on concrete trucks. Concrete trucks shall not be allowed on the pier. Concrete shall be pumped through a steel pipe to the designated pile location or decking.

Each CISS pile will require ±4.25 yd^3 (±3.25m^3) of concrete.
115 CISS piles will require ±490 yd^3 (±374m^3)

See BMP WM-8 Concrete Waste Management for construction of concrete washout area. Sheet. The concrete washout area shall measure 10 ft x 15 ft 4 ft H (4.6m x 3m x 1.2m H)

5. Temporary Parking Management

Number of available parking spaces between staging area and Trinidad State Beach – 53

- Parking space width - 20ft (2.75m)
- Parking space length - 19 ft (6m)
- Aisle width - 18 ft (5.5m)
- Assume cars are parked at 60° angles

Number of available parking spaces on Bay Street between the pier and staging area – 47

- Parking space width - 20ft (2.75m)
- Parking space length - 19 ft (6m)
- Aisle width – varies from 23-30 ft (7.0-9.1m) on south aisle and 35-60 ft (10.7 – 18.3m) on north aisle.
- Assume cars are parked at 60° angles

6- Traffic Management and Control

Construction equipment and materials shall be transported each day from the staging area to the project site a distance of 750 ft (±230m). Table 1, below shows the required number of truck trips per day for the duration of the CISS concrete and plastic fender piles (±seven months).

Figure 1: Estimated construction equipment trips from staging area to construction site

Equipment	Trips	Note
Carne	1	Transported to the project site in the morning and returned to staging area in the evening.
Drill Rig	1	Transported to the site in the morning and returned to staging area in the evening.
16 yd^3 Truck to transfer removed material to staging area	5	Trips will be conducted throughout the day
Trucks with flat beds to carry steel casing, cages, precast concrete sections, pile bents, and miscellaneous construction material	2	Steel Casings and cages will typically be transferred to the project site in the morning or evening.
Truck to transfer dewatered ocean water (±750gal/day)	1	Dewatering will occur daily during CISS pile installation Typically in the afternoon after auguring is complete
Concrete truck	1	Concrete truck attend the pier once a day during CISS pile installation to pour the concrete seal, and fill casing augured the previous day
Maximum Total trips per day	11	

The following management practices shall be employed by the contractor when transporting construction equipment to and from the project site and the staging area:

- All construction related trucks, cranes, and drill rig shall not exceed a speed of 5 mph when traveling between the staging area and the construction site.
- It is estimated that ½ hour is need to mobilize each type of equipment from the staging area to the construction site. Mobilizing the drill rig, crane, and truck with flat beds each morning during CISS pile installation will require ±1.5 hours.
- The contractor shall utilize the north side of Bay Street to move the equipment between the staging area and the construction area.
- During equipment transfer (3 hours per day) the west bound lane of the parking area will be closed and the parking spaces on the north side will be cleared to allow passage for the construction equipment.

- The contractor shall install temporary signs each morning designated the west bound as closed for construction passage and reopen the lane when all construction equipment is staged at the site. The same procedure will be repeated in the evening.
- The contractor shall designate two employees that shall walk beside and behind the truck when traveling between the staging and construction area to direct and help the driver reach her destination safely.
- Concrete truck may not require the lane to be closed.

7. Vehicle and Equipment Fueling

Construction equipment will be fueled at the designated location at the staging area. Once a day a fuel truck will arrive at the staging area and fill up the crane and drill rig with fuel. No fueling shall occur on the pier. No fueling equipment shall be located on the pier.

Onsite vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite for fueling. The crane and the drill rig are heavy and cannot be mobilized and demobilized form the construction site to an offsite fueling location. Therefore, heavy construction equipment shall be fueled at the staging area. Trucks used at the construction site should use an off site fueling station located in the vicinity of the Trinidad Pier in the City of Trinidad.

See BMP NS-9 Vehicle and Equipment Fueling for procedures and practices to be followed during construction equipment fueling. Sheet 3 of the plans shows the designated fueling area at the staging area.

EXHIBIT NO. 7
APPLICATION NO. 1-07-046
CHER-AE HEIGHTS INDIAN COMMUNITY
PROJECT SITE PLANS
(1 of 14)

TRINIDAD RANCHERIA
TRINIDAD PIER RECONSTRUCTION PROJECT
BID NO. _____
BID OPENING DATE:_____

SHEET INDEX

ENGINEER:

DAVID L. SCHNEIDER — DATE:
REGISTERED CIVIL ENGINEER
RCE NO. 27286

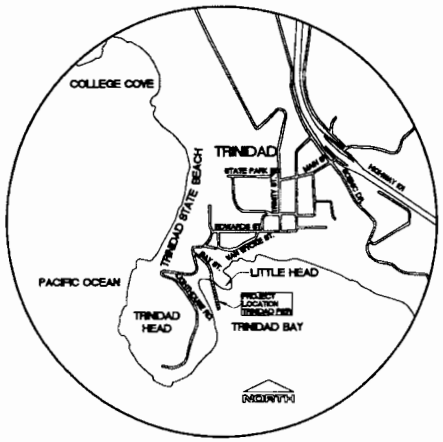
APPROVED:

CITY ENGINEER — DATE:
CITY OF TRINIDAD

PRELIMINARY
HALF SCALE

UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

LOCATION MAP
N.T.S.



VICINITY MAP
N.T.S.

GENERAL NOTES

1. THESE NOTES CONTAIN GENERAL INFORMATION AND ARE NOT COMPLETE FOR CONSTRUCTION PURPOSES. CONTRACTOR SHALL VERIFY INFORMATION GIVEN HERE WITH SPECIFICATIONS AND OTHER DOCUMENTS AND BRING ANY CONFLICTS TO THE CITY BEFORE BEGINNING AFFECTED WORK.

2. ALL DIMENSIONS AND DETAILS WILL BE VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.

PROJECT DESCRIPTION

THE PROPOSED PROJECT IS TO RECONSTRUCT THE 540 FT. LONG TRINIDAD PIER LOCATED ON TRINIDAD BAY. THE PROPOSED PIER WILL BE 540 FT. LONG WITH THE SOUTHERLY 100 FT. BEING 26 FT. WIDE AND THE REMAINDER OF THE PIER 24 FT. WIDE.

SURVEY NOTES

1. SURVEYED BY PACIFIC AFFILIATES CONSULTING ENGINEERS JANUARY 30, 2006 & MARCH 19, 2007.

2. SOUNDINGS ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.

3. VERTICAL DATUM UTILIZED - MEAN LOWER LOW WATER (MLLW).

4. HORIZONTAL CONTROL REFERENCED TO NAD83, CALIF. ZONE I, LAMBERT CONFORMAL PROJECTION.

5. SURVEY REPRESENTS THE CONDITIONS ON THE DATE SURVEYED (JANUARY 30, 2006 & MARCH 19, 2007).

6. TIDE STATION FOR SURVEYS, NAIL & SHINER SET BY PACIFIC AFFILIATES, INC. ELEV. 12.23 MLLW.

7. NAIL & SHINER IS LOCATED ON TOP OF A 4x12 ADJACENT TO FLOATING DOCK AT SCHNEIDER DOCK.

8. CROSS SECTION GENERATED FROM A DIGITAL TERRIAN MODEL.

9. THE MODEL WAS CREATED FROM A BATHYMETRIC SURVEY OF THE AREA SUPPLIMENTED BY A LAND BASED GPS SURVEY.

CONSULTING ENGINEERS
PACIFIC AFFILIATES, INC.

CONSULTANTS
TABER CONSTULTANTS

LEGEND

- EXISTING DRAINAGE DIRECTION
- FINISH DRAINAGE DIRECTION
- CENTER OF ROAD
- E — ELECTRIC CABLE / CONDUIT
- FENCE
- S.D. — STORM DRAIN
- WATER LINE
- (E) PIER FOOTPRINT
- (P) PIER FOOTPRINT
- CONSTRUCTION NOISE LEVEL CONTOURS
- (P) 10"ø FIBERGLASS/PLASTIC FENDER PILES
- (P) 16"ø CISS PILES
- CONSTRUCTION EQUIPMENT TRAFFIC ROUTE
- EXTERIOR LIGHT
- LADDER
- HOIST
- HOSE BIB
- POWER OUTLET
- GRATED LINE DRAIN

A/C-2 — LETTER INDENTIFIES SECTION OR DETAIL; IDENTIFIES SHEET NO. OR DETAIL TAKEN FROM

ABBREVIATIONS

(E)	EXISTING
(P)	PROPOSED
CL	CENTER LINE
P/L	PROPERTY LINE
R/W	RIGHT OF WAY
AC	ASPHALT CONCRETE
F.L.	FLOW LINE
CONC	CONCRETE
DIA	DIAMETER
MIN.	MINIMUM
EL.	ELEVATION
CISS	CAST-IN-STEEL-SHELL
TYP.	TYPICAL
W	WATER
S.D.	STORM DRAIN
E	ELECTRICAL POWER LINE
PH	PHONE LINE

REVISIONS | BY

PACIFIC AFFILIATES
ENGINEERING & SURVEYING GROUP
46 WEST WATERFRONT DRIVE
EUREKA, CA 95501

ENGINEER: DAVID L. SCHNEIDER (OR. 3-31-2008)
PACIFIC AFFILIATES, INC.
880 WEST WATERFRONT DRIVE
EUREKA, CA 95501
(707) 445-3001

TITLE SHEET & GENERAL NOTES

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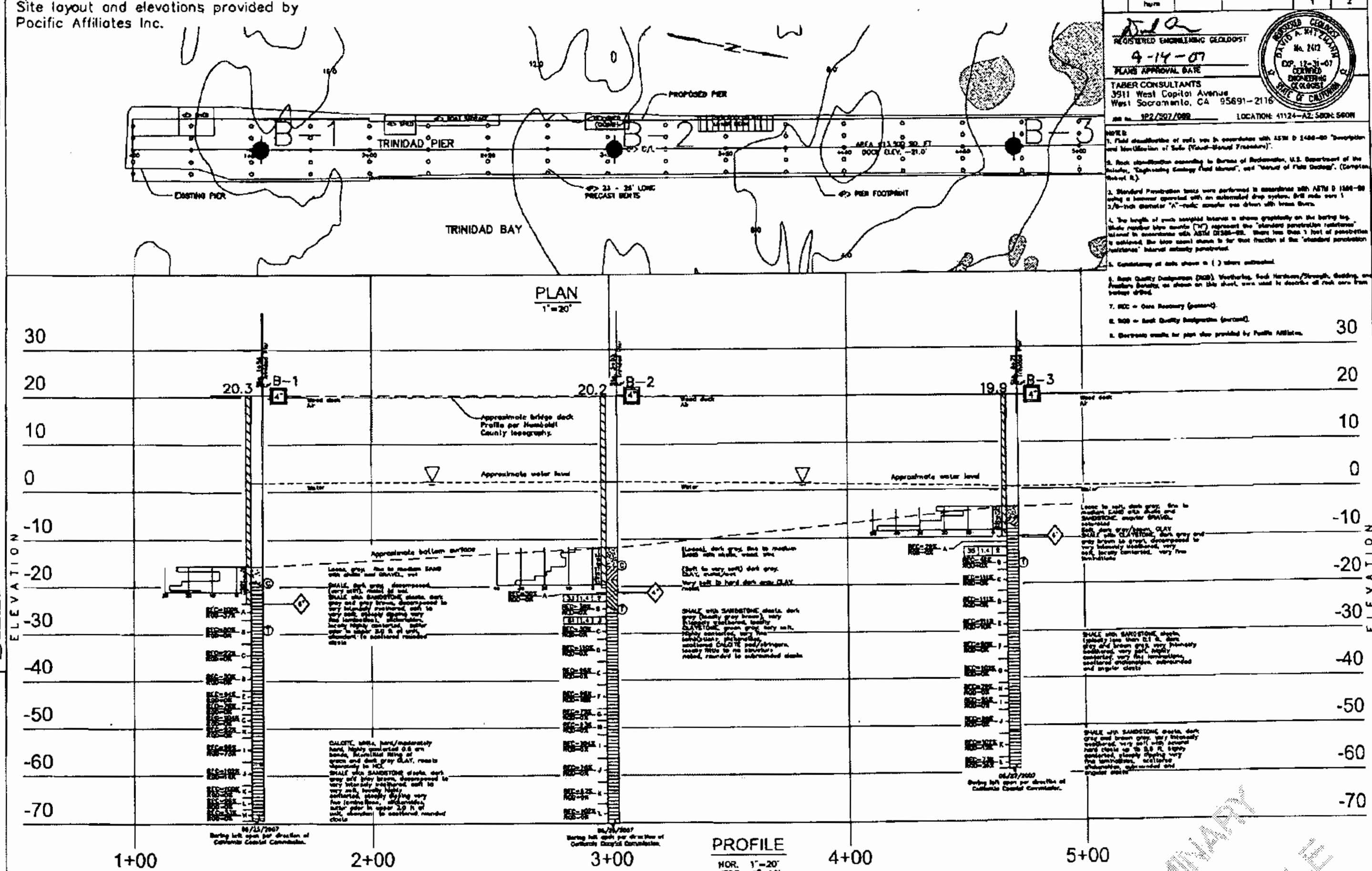
TRINIDAD PIER RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

Date: November 15, 2007
Scale: AS NOTED
Drawn by: JB

SHEET NUMBER
G-1

REFERENCE:
Site layout and elevations provided by Pacific Affiliates Inc.



REGISTERED ENGINEERING GEOLOGIST

4-14-07

PLANS APPROVAL DATE

TABER CONSULTANTS
3911 West Capitol Avenue
West Sacramento, CA 95691-2116

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
	hum			1	2

DESIGN OVERSIGHT	DRAWN BY	M.Loftin	E.A. Hilmer FIELD INVESTIGATOR
SIGN OFF DATE	CHECKED BY	M.Kellogg	DATE July 2007

PREPARED FOR
Cher-Ae Indian Community
of the Trinidad Rancheria

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

TRINIDAD PIER REPLACEMENT
LOGS OF TEST BORINGS (1 OF 2)

PRELIMINARY
HALF SCALE

06/17/2007

UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

REVISIONS | BY

PACIFIC AFFILIATES
A CONSULTING ENGINEERING GROUP
990 WEST WATERFRONT DRIVE
EUREKA, CA 95501

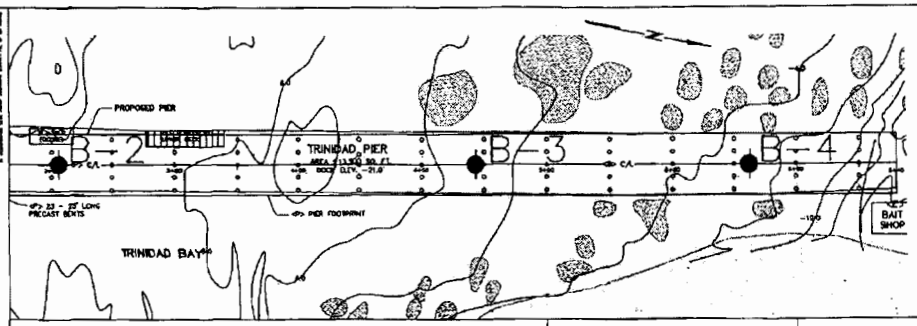
ENGINEER
DAVID L. SCHNEIDER
990 WEST WATERFRONT DRIVE
EUREKA, CA 95501
(707) 445-3001

SOIL BORING LOGS

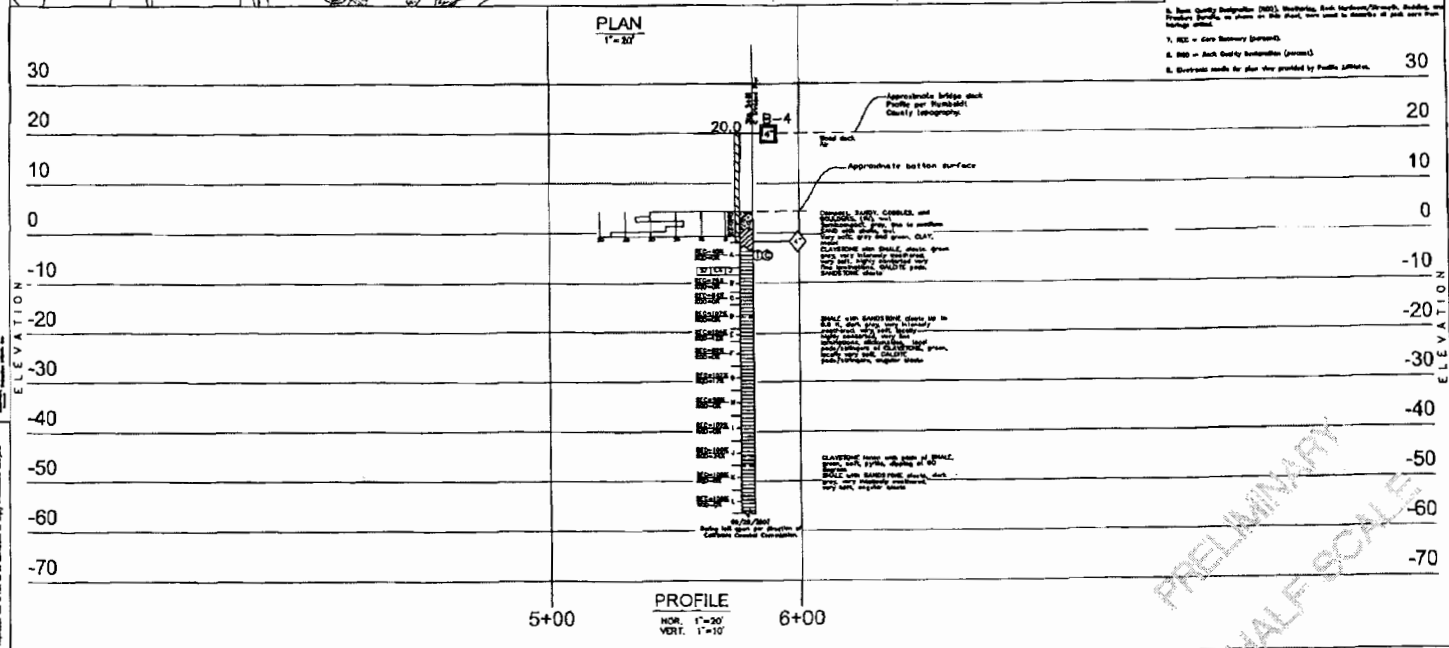
TRINIDAD PIER RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

Date: November 15, 2007
Scale: AS NOTED
Drawn by: afl

SHEET NUMBER
G-2



REFERENCE:
Site layout and elevations provided by Pacific Affiliates Inc.



PRELIMINARY
NOT FOR CONSTRUCTION
HALF SCALE

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
				2	2

REGISTERED ENGINEERING GEOLOGIST
4-14-07
PLANS APPROVAL DATE

TABER CONSULTANTS
1911 West Capitol Avenue
West Sacramento, CA 95691-2116

REVISIONS	BY

PACIFIC AFFILIATES
A CONSULTING ENGINEERING GROUP
790 WEST WATERFRONT DRIVE
EUREKA, CA 95501

ENGINEER
DAVID L. SCHNEIDER
790 WEST WATERFRONT DRIVE
EUREKA, CA 95501
(707) 445-3001

SOIL BORING LOGS

TRINIDAD PIER
RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

Date:
November 15, 2007
Scale:
AS NOTED
Drawn by:
JB

SHEET NUMBER
G-3

DESIGN OVERSIGHT	DRAWN BY	M.Lottin	E.A. Hilmer FIELD INVESTIGATOR
SIGN CITY DATE	CHECKED BY	M.Kellogg	DATE July 2007

PREPARED FOR
Cher-Ae Indian Community of the Trinidad Rancheria

PROJECT ENGINEER

BRIDGE NO.	TRINIDAD PIER REPLACEMENT
POST MILE	LOG OF TEST BORINGS (2 OF 2)

ORIGINAL SCALE IN INCHES FOR REVISED PLANS 0 1 2 4

08/17/2007 IP2627088.dwg

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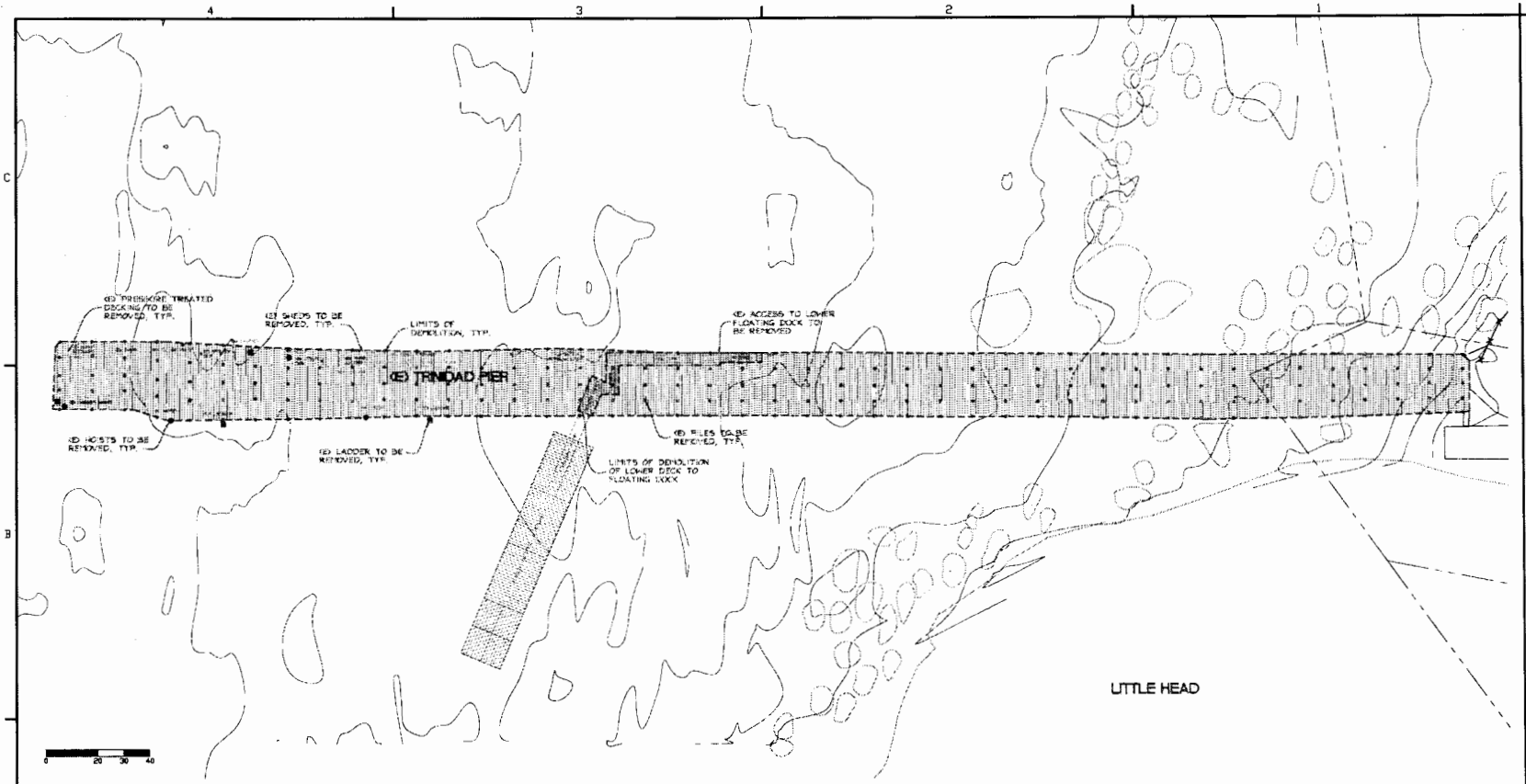

DEMOLITION NOTES

1. THE CONTRACTOR SHALL COMPLY WITH MITIGATION MEASURES IV-5 & VIII-1 AS SHOWN IN THE MITIGATED NEGATIVE DECLARATION, DATED AUGUST 2007.

2. REMOVAL OF THE EXISTING PIER AND CONSTRUCTION OF THE NEW PIER SHALL OCCUR SIMULTANEOUSLY.

3. ALL EXISTING PRESSURE TREATED DECKING, JOISTS, AND BENT BEAMS SHALL BE REMOVED AND TRANSPORTED ON A TRUCK TO THE UPLAND STAGING AREA FOR TEMPORARY STORAGE.

4. EXISTING PILES WILL BE REMOVED BY VIBRATORY EXTRACTION. DOUGLAS FIR PILINGS ARE PRONE TO BREAKING AT THE MUD LINE DUE TO DAMAGE FROM VESSEL IMPACTS. IN SOME CASES, REMOVAL WITH A VIBRATORY HAMMER IS NOT POSSIBLE BECAUSE THE PILE WILL BREAK APART DUE TO THE VIBRATION. BROKEN OR DAMAGED PILES WILL BE CUT OFF BELOW THE MUDLINE AND THE REMAINDER PILE LEFT IN PLACE IN ORDER TO REDUCE TURBIDITY EFFECTS.

PRELIMINARY

HALF SCALE

LOCATIONS AND ELEVATIONS OF UTILITIES SHOWN ARE PROVIDED FOR INFORMATION ONLY. SUCH INFORMATION MAY NOT BE COMPLETE OR ACCURATE. CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL AGENCIES INVOLVED AND LOCATION OF ALL UTILITIES THAT MAY BE IMPACTED BY HIS WORK.

REVISIONS	BY

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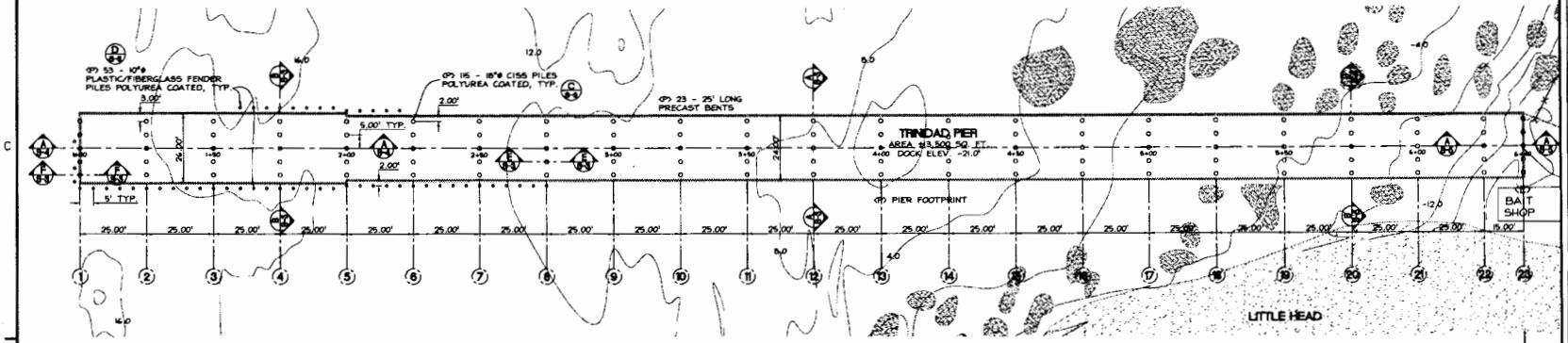
DEMOLITION PLAN

TRINIDAD PIER RECONSTRUCTION PROJECT

TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

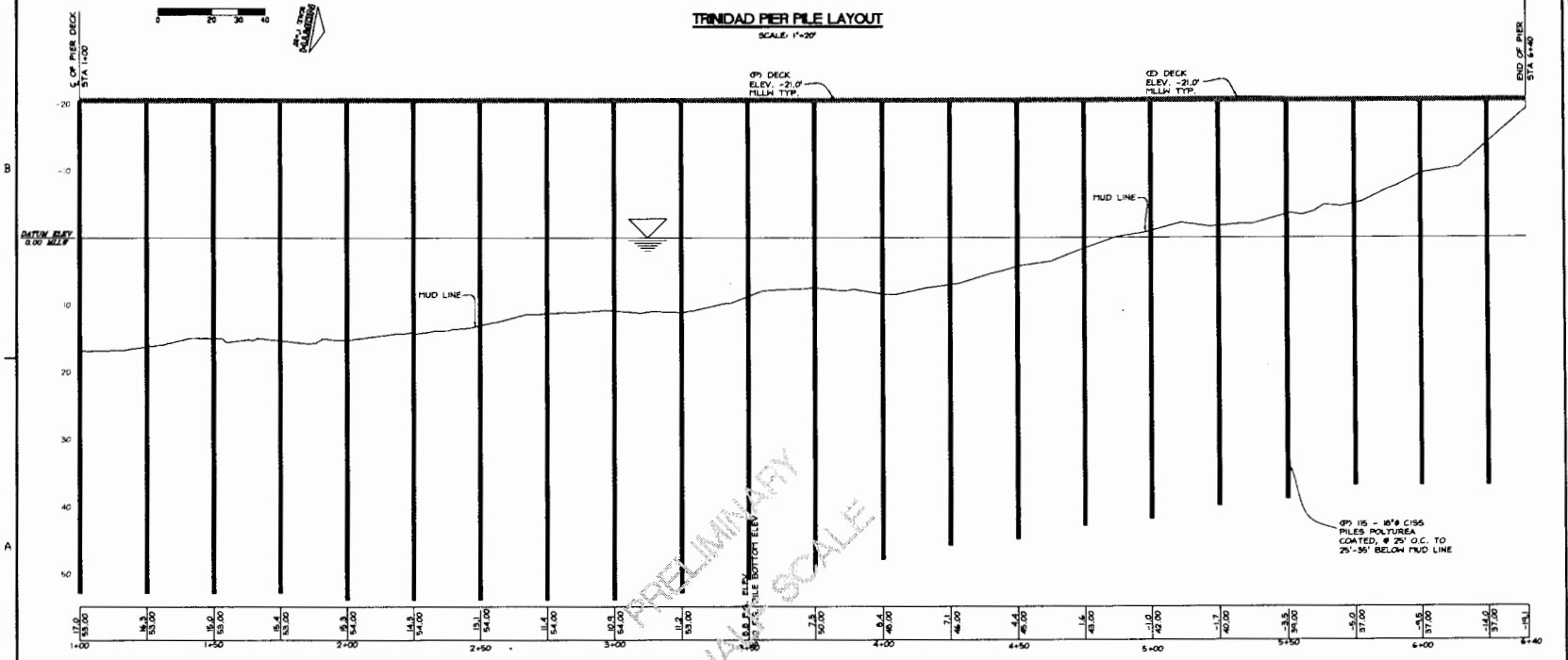
Date: November 15, 2007
Scale: 1"=20'
Drawn by: YT, JB

SHEET NUMBER
D-1



TRINIDAD PIER PILE LAYOUT

SCALE: 1"=20'



NOTE: ELEVATIONS ARE REFERENCED TO MEAN LOWER LOW WATER (MLLW) DATUM. POSITIVE ELEVATIONS INDICATE ELEVATIONS BELOW MLLW. HYDROGRAPHIC SURVEY AND LAND SURVEY CONDUCTED BY PACIFIC AFFILIATES, 2007.

CENTERLINE PROFILE OF TRINIDAD PIER

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=6.25'

PRELIMINARY NOT TO SCALE

REVISIONS	BY

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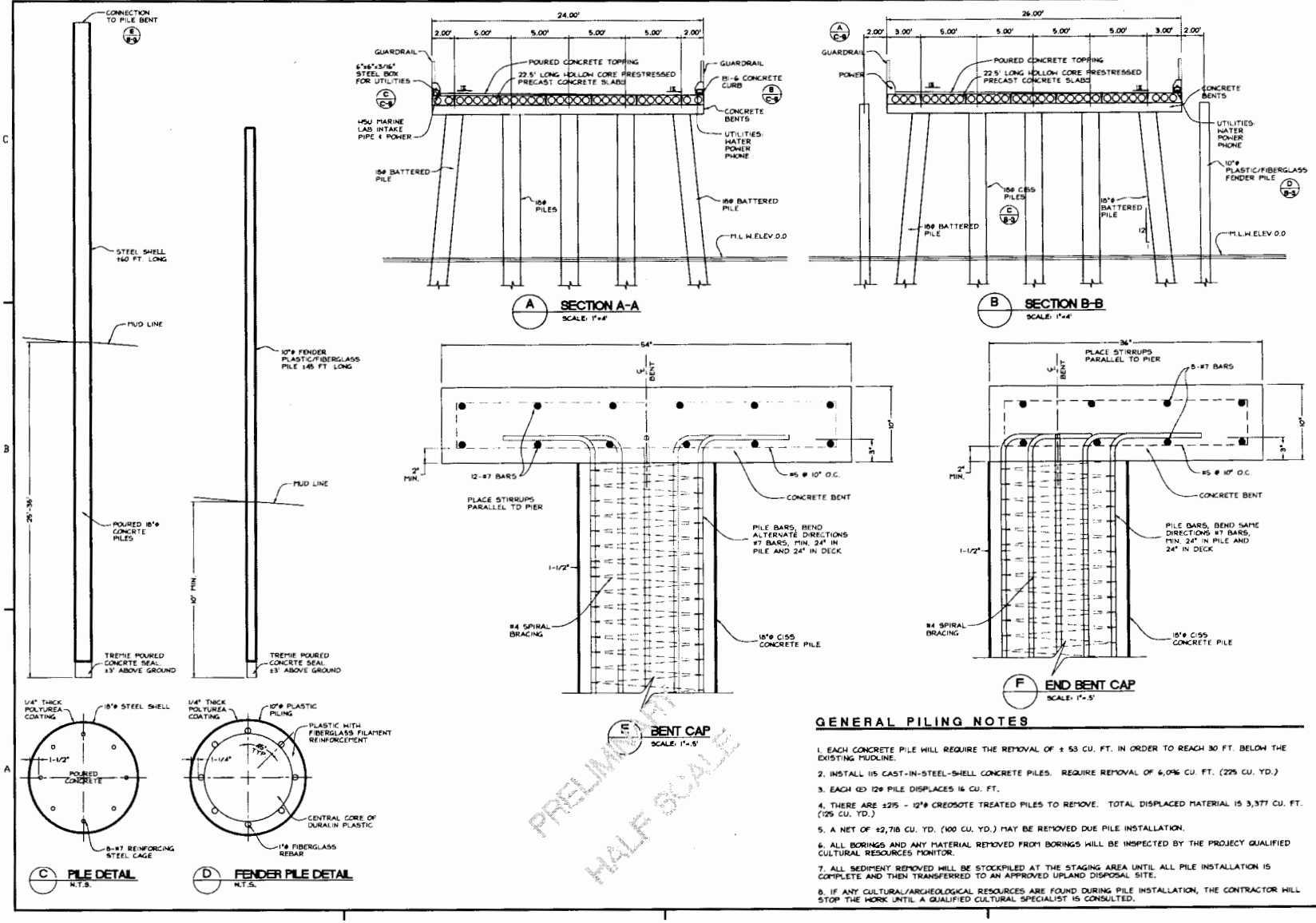
PILE LAYOUT & PROFILE

TRINIDAD PIER
RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

Date: November 15, 2007
Scale: AS NOTED
Drawn by: YI, JB

SHEET NUMBER
S-1



C PILE DETAIL N.T.S.

D FENDER PILE DETAIL N.T.S.

A SECTION A-A SCALE: 1"=4'

B SECTION B-B SCALE: 1"=4'

E BENT CAP SCALE: 1"=.5'

F END BENT CAP SCALE: 1"=.5'

GENERAL PILING NOTES

1. EACH CONCRETE PILE WILL REQUIRE THE REMOVAL OF ± 53 CU. FT. IN ORDER TO REACH 30 FT. BELOW THE EXISTING MUDLINE.
2. INSTALL 115 CAST-IN-STEEL-SHELL CONCRETE PILES. REQUIRE REMOVAL OF 6,096 CU. FT. (225 CU. YD.)
3. EACH @ 120 PILE DISPLACES 16 CU. FT.
4. THERE ARE ±215 - 12"ø CREOSOTE TREATED PILES TO REMOVE. TOTAL DISPLACED MATERIAL IS 3,377 CU. FT. (125 CU. YD.)
5. A NET OF ±2,718 CU. YD. (100 CU. YD.) MAY BE REMOVED DUE PILE INSTALLATION.
6. ALL BORINGS AND ANY MATERIAL REMOVED FROM BORINGS WILL BE INSPECTED BY THE PROJECT QUALIFIED CULTURAL RESOURCES MONITOR.
7. ALL SEDIMENT REMOVED WILL BE STOCKPILED AT THE STAGING AREA UNTIL ALL PILE INSTALLATION IS COMPLETE AND THEN TRANSFERRED TO AN APPROVED UPLAND DISPOSAL SITE.
8. IF ANY CULTURAL/ARCHEOLOGICAL RESOURCES ARE FOUND DURING PILE INSTALLATION, THE CONTRACTOR WILL STOP THE WORK UNTIL A QUALIFIED CULTURAL SPECIALIST IS CONSULTED.

REVISIONS	BY

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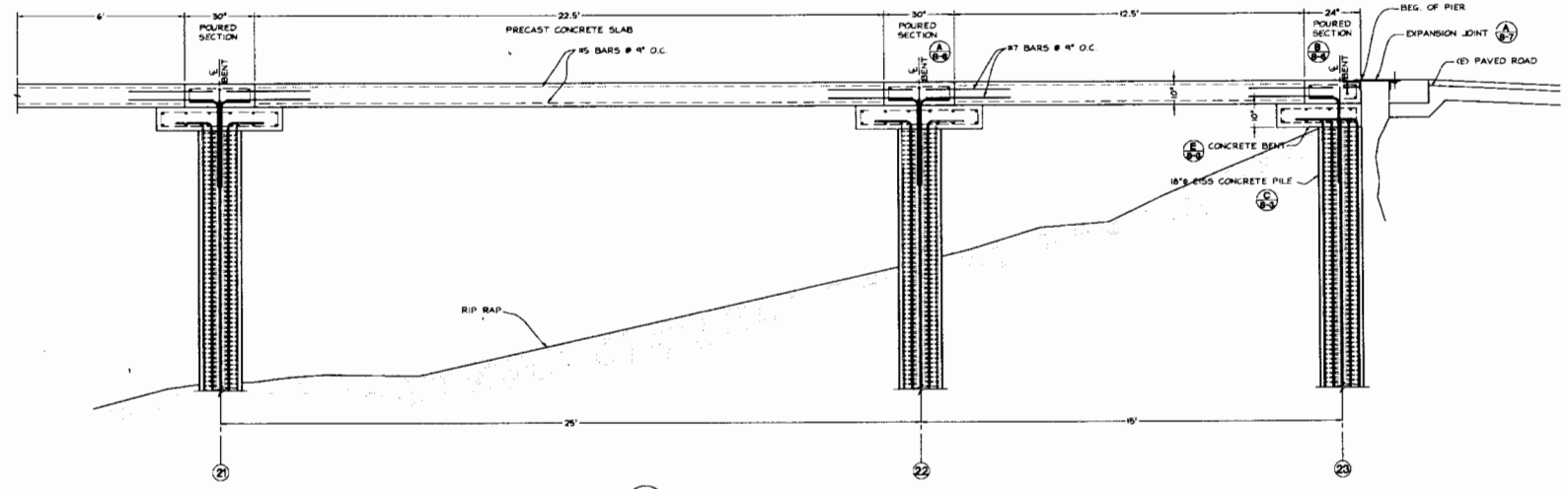
CROSS SECTIONS & DETAILS

TRINIDAD PIER RECONSTRUCTION PROJECT

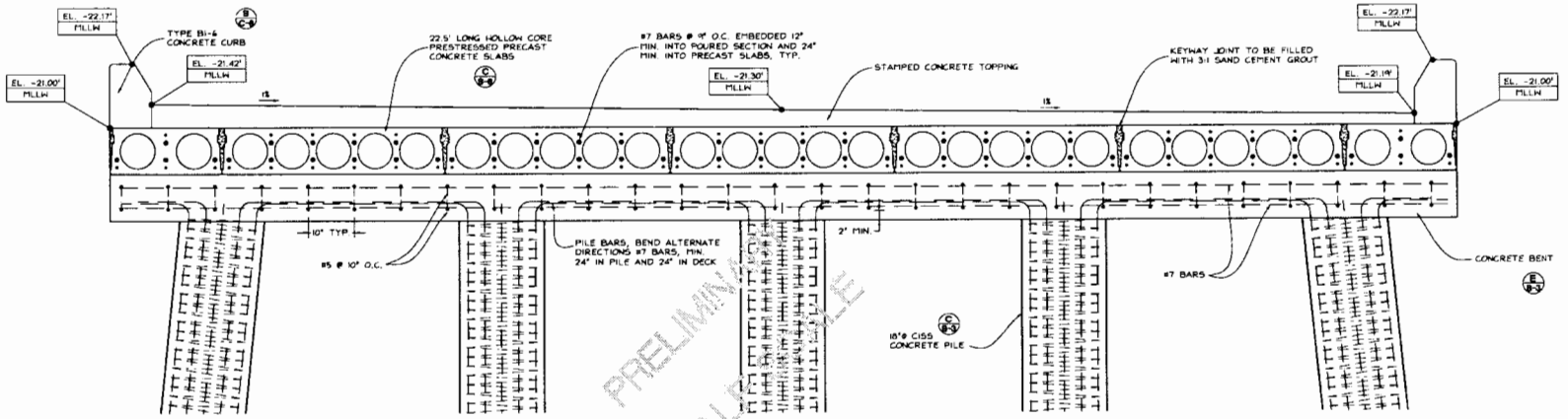
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

Date: November 15, 2007
Scale: AS NOTED
Drawn by: YT, JB

SHEET NUMBER
S-3



A SLAB REINFORCEMENT
SCALE: 1"=2'



B SLAB REINFORCEMENT
SCALE: 1"=2'

REVISIONS	BY

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REINFORCEMENT DETAILS

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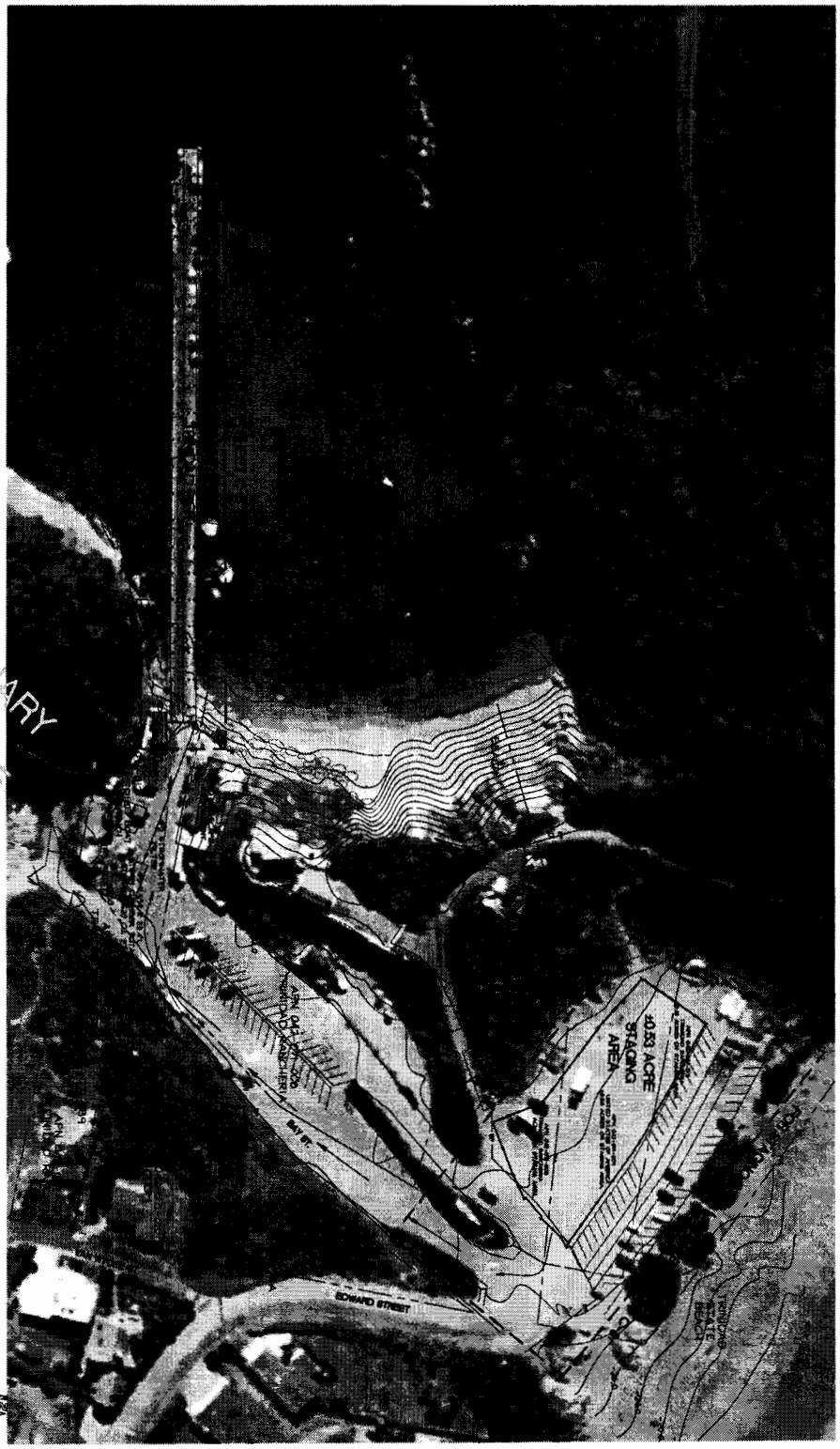
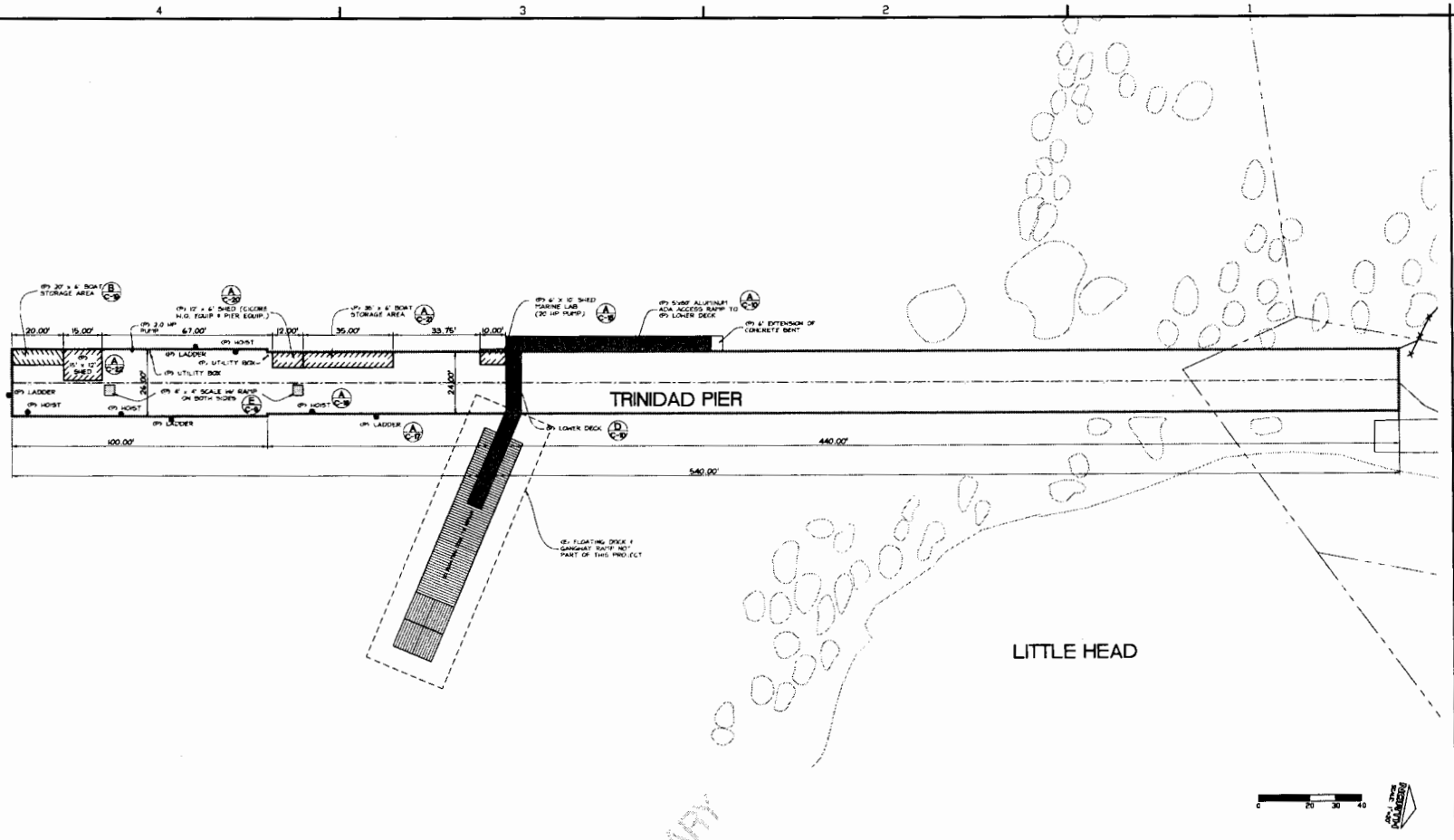
TRINIDAD PIER RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

Date: November 15, 2007
Scale: AS NOTED
Drawn by: JB

SHEET NUMBER
S-5



SHEET NUMBER C-1	Date: November 15, 2007 Scale: 1"=50' Drawn by: YT, JB	TRINIDAD PIER RECONSTRUCTION PROJECT TRINIDAD RANCHERIA P.O. BOX 630 TRINIDAD, CA 95570	OVERALL SITE PLAN	ENGINEER DAVID L. SCHNEIDER 990 WEST WATERFRONT DRIVE EUREKA, CA 95501 (707) 445-3001	PACIFIC AFFILIATES A CONSULTING ENGINEERING GROUP 990 WEST WATERFRONT DRIVE EUREKA, CA 95501



UNAUTHORIZED CHANGES & USES: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

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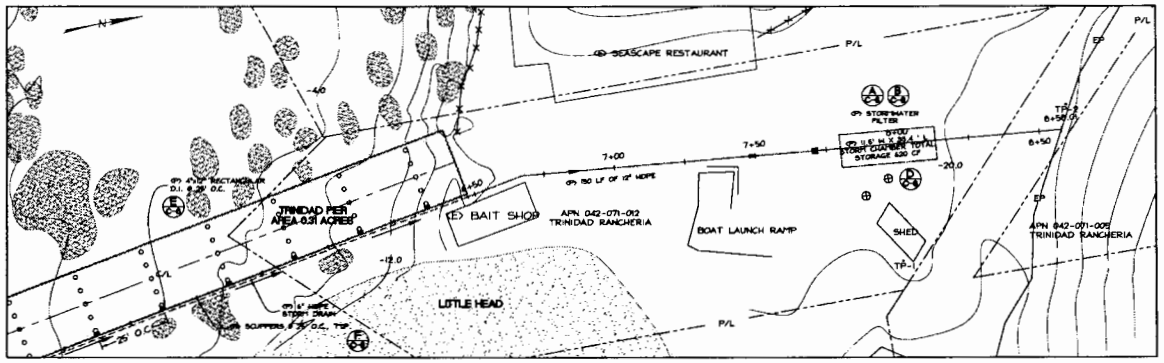
LAYOUT PLAN

TRINIDAD PIER
RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

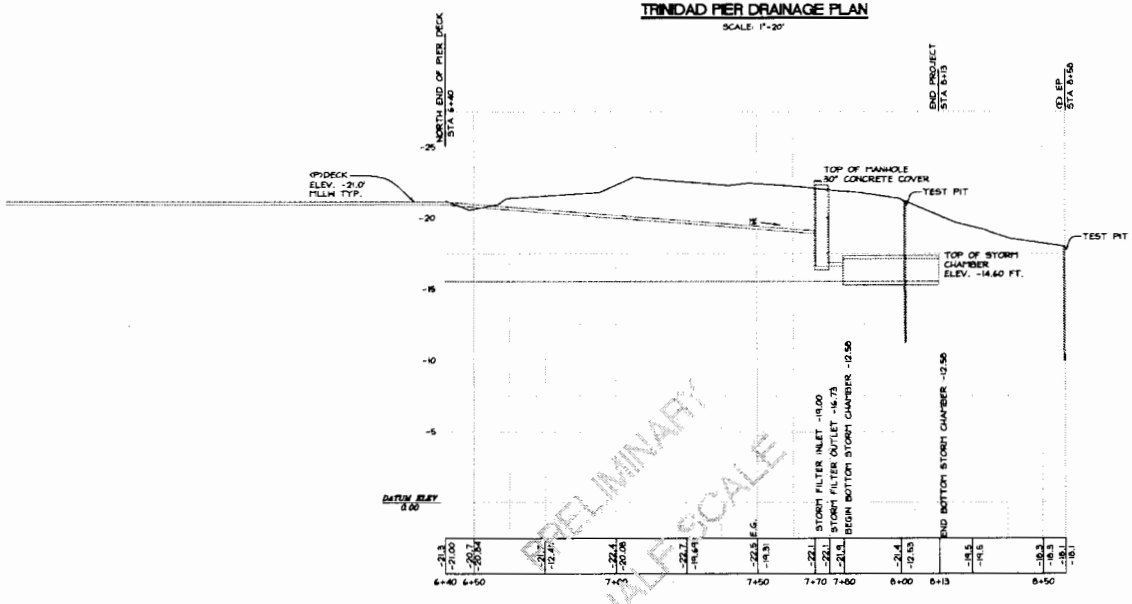
Date: November 15, 2007
Scale: 1"=20'
Drawn by: YT, JB

SHEET NUMBER
C-3



TRINIDAD PIER DRAINAGE PLAN

SCALE: 1"=20'



CENTERLINE PROFILE OF TRINIDAD PIER

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=12.5'

LEGEND

- (E) EP
- (E) UTILITY MANHOLES
- FENCE
- (P) PIER FOOTPRINT
- (P) DRAINAGE SYSTEM
- P/L
- FINAL DRAINAGE DIRECTION

REVISIONS	BY

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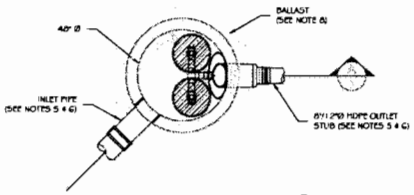
DRAINAGE PLAN & PROFILE

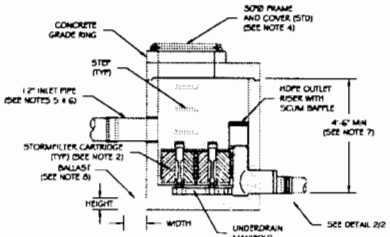
TRINIDAD PIER
RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

Date: November 15, 2007
Scale: AS NOTED
Drawn by: YT

SHEET NUMBER
C-5



MANHOLE STORMFILTER - PLAN VIEW (1/1)



MANHOLE STORMFILTER - SECTION VIEW (A)

THE STORMWATER MANAGEMENT StormFilter® U.S. PATENT No. 5,322,629, No. 5,707,527, No. 6,027,639, No. 6,649,048, No. 5,624,576, AND OTHER U.S. AND FOREIGN PATENTS PENDING

CONTECH STORMWATER SOLUTIONS

PRECAST 48" MANHOLE STORMFILTER
PLAN AND SECTION VIEWS
STANDARD DETAIL

Drawing No. 1 of 2

DATE: 09/28/06 | SCALE: NONE | FILE NAME: MHSF3-48PC-DTL | DRAWN: MJW/YT | CHECKED: AHG

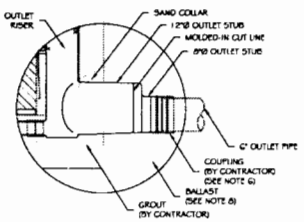
GENERAL NOTES

1) STORMFILTER BY CONTECH STORMWATER SOLUTIONS: PORTLAND, OR (800) 548-4667; SCARBOROUGH, ME (877) 907-8676; LYNTHICUM, MD (866) 740-3318.
2) FILTER CARTRIDGE(S) TO BE SIPHON-ACTUATED AND SELF-CLEANING. STANDARD DETAIL SHOWS MAXIMUM NUMBER OF CARTRIDGES. ACTUAL NUMBER REQUIRED TO BE SPECIFIED ON SITE PLANS OR IN DATA TABLE BELOW.
3) PRECAST MANHOLE STRUCTURE TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478. DETAIL REFLECTS DESIGN INTENT ONLY. ACTUAL DIMENSIONS AND CONFIGURATION OF STRUCTURE WILL BE SHOWN ON PRODUCTION SHOP DRAWING.
4) STRUCTURE AND ACCESS COVERS TO MEET AASHTO H-20 LOAD RATING.
5) STORMFILTER REQUIRES 2.3 FEET OF DROP FROM INLET TO OUTLET. IF LESS DROP IS AVAILABLE, CONTACT CONTECH STORMWATER SOLUTIONS. MINIMUM ANGLE BETWEEN INLET AND OUTLET IS 45°.
6) INLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR. PRECAST MANHOLE STORMFILTER EQUIPPED WITH A DUAL DIAMETER HDPE OUTLET STUB AND SAND COLLAR. EIGHT INCH DIAMETER OUTLET SECTION MAY BE SEPARATED FROM OUTLET STUB AT MOLDED-IN CUT LINE TO ACCOMMODATE A 12 INCH OUTLET PIPE. CONNECTION TO DOWNSTREAM PIPING TO BE MADE USING A FLEXIBLE COUPLING OR ECCENTRIC REDUCER, AS REQUIRED. COUPLING BY FERNCO OR EQUAL AND PROVIDED BY CONTRACTOR.
7) PROVIDE MINIMUM CLEARANCE FOR MAINTENANCE ACCESS. IF A SHALLOWER SYSTEM IS REQUIRED, CONTACT CONTECH STORMWATER SOLUTIONS FOR OTHER OPTIONS.
8) ANTI-FLOTATION BALLAST TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR, IF REQUIRED. BALLAST TO BE SET AROUND THE PERIMETER OF THE STRUCTURE.
9) ALL STORMFILTERS REQUIRE REGULAR MAINTENANCE. REFER TO OPERATION AND MAINTENANCE GUIDELINES FOR MORE INFORMATION.

MANHOLE STORMFILTER - TOP VIEW (1/2)

PRECAST MANHOLE STORMFILTER DATA

STRUCTURE ID	MANHOLE STORM FILTER			
WATER QUALITY FLOW RATE (cfs)	W.QFLOW			
PEAK FLOW RATE (<) (cfs)	0.00			
RETURN PERIOD OF PEAK FLOW (yrs)	100			
# OF CARTRIDGES REQUIRED	2			
CARTRIDGE FLOW RATE (15 or 7.5 gpm)	15			
MEDIA TYPE (CSF, PERLITE, ZPG)	ZPG			
RIM ELEVATION	22.30			
PIPE DATA:	I.E.	ORIENTATION	MATERIAL	DIAMETER
INLET PIPE #1	15.0	ORIENTATION	MATERIAL	12"
OUTLET STUB	13.52	ORIENTATION	MATERIAL	6"



MANHOLE STORMFILTER - OUTLET DETAIL (B)

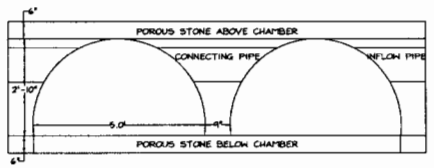
THE STORMWATER MANAGEMENT StormFilter® U.S. PATENT No. 5,322,629, No. 5,707,527, No. 6,027,639, No. 6,649,048, No. 5,624,576, AND OTHER U.S. AND FOREIGN PATENTS PENDING

CONTECH STORMWATER SOLUTIONS

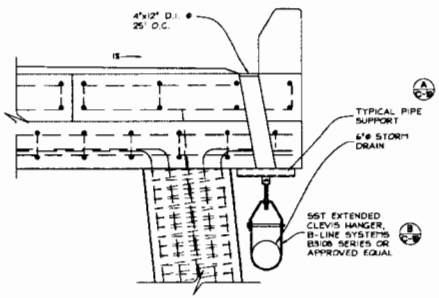
PRECAST 48" MANHOLE STORMFILTER
TOP AND SECTION VIEWS, NOTES AND DATA
STANDARD DETAIL

Drawing No. 2 of 2

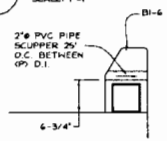
DATE: 09/28/06 | SCALE: NONE | FILE NAME: MHSF3-48PC-DTL | DRAWN: MJW | CHECKED: AHG



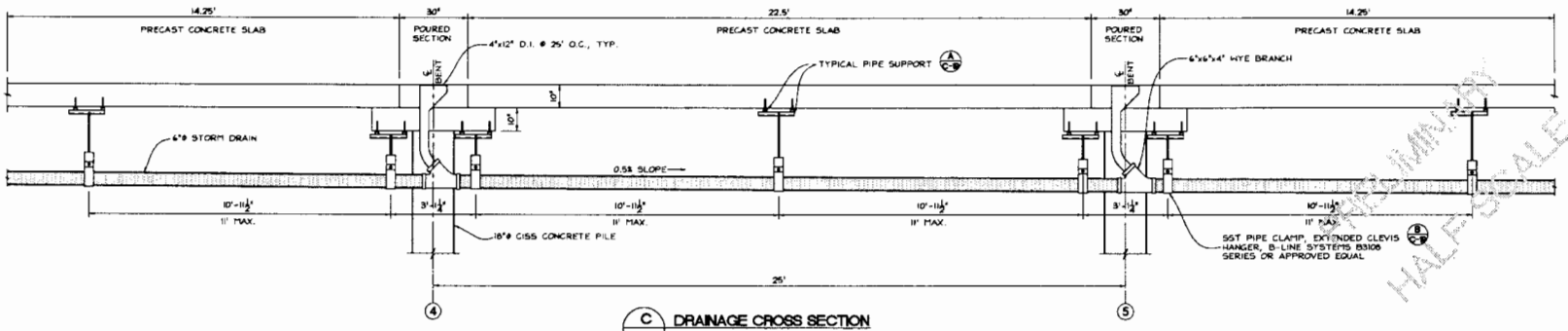
D SECTION VIEW OF STORM CHAMBER
SCALE: 1"=20'



E SECTION
SCALE: 1"=1'



F SCUPPER
SCALE: 1"=1'



C DRAINAGE CROSS SECTION
SCALE: 1"=2'

PRELIMINARY NOT FOR CONSTRUCTION HALF-SCALE

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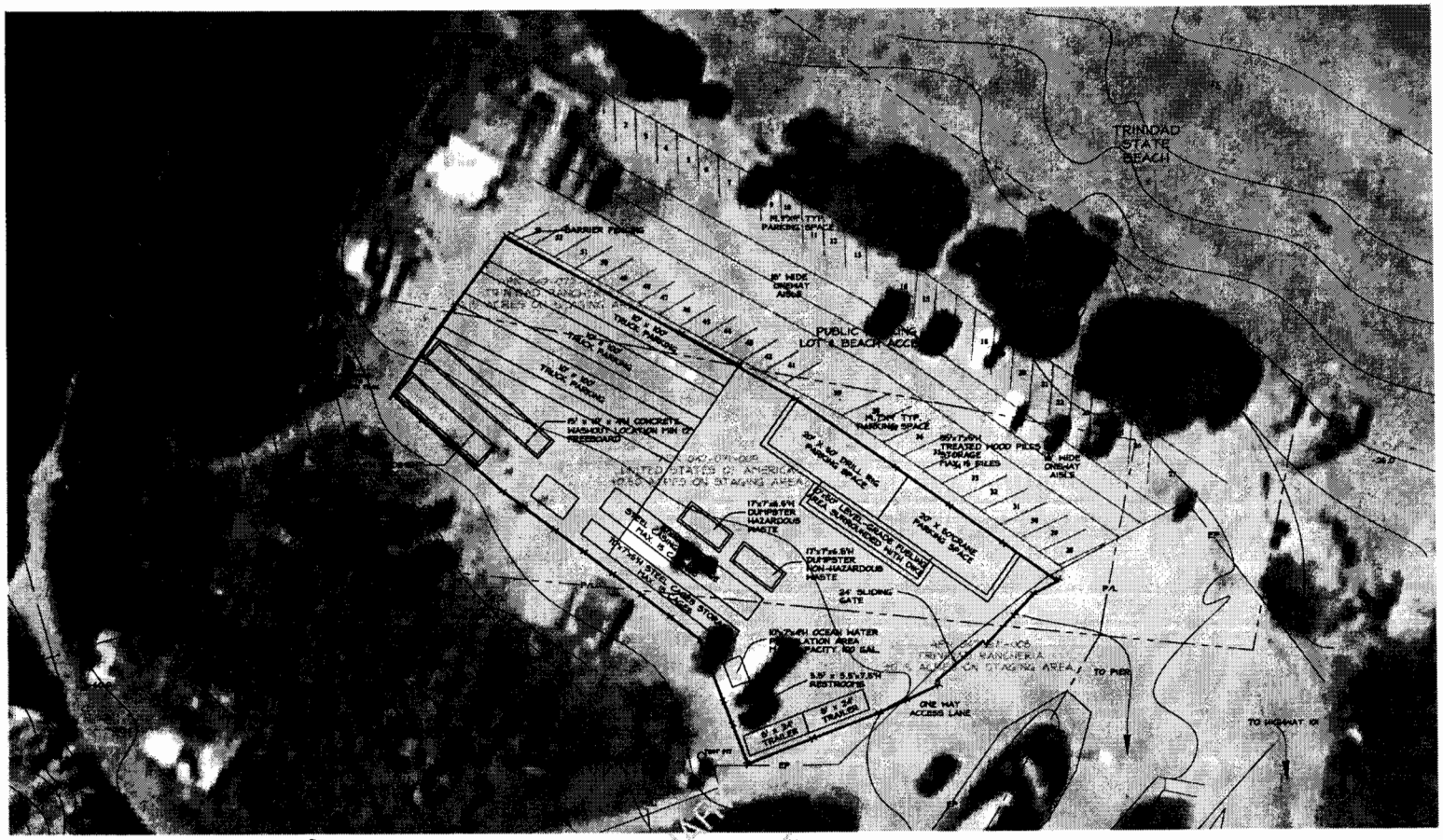
DRAINAGE DETAILS

TRINIDAD PIER RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

Date: November 15, 2007
Scale: AS NOTED
Drawn by: YT

SHEET NUMBER
C-6



0 20' 30' 40' 50' 60'

REVISIONS | BY

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DESIGNER
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STAGING AREA SITE PLAN

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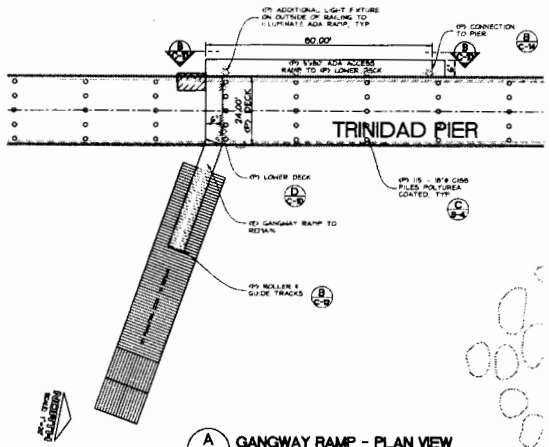
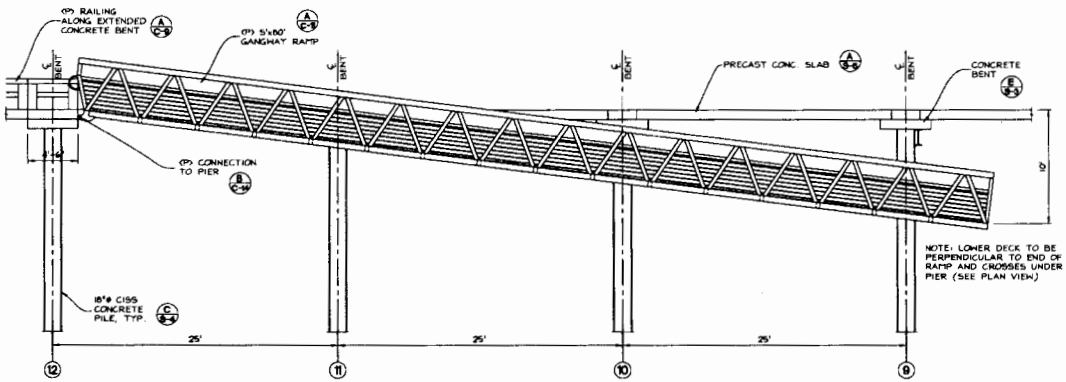
TRINIDAD PIER RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

Date: November 15, 2007
Scale: 1"=20'
Drawn by: YT, JB

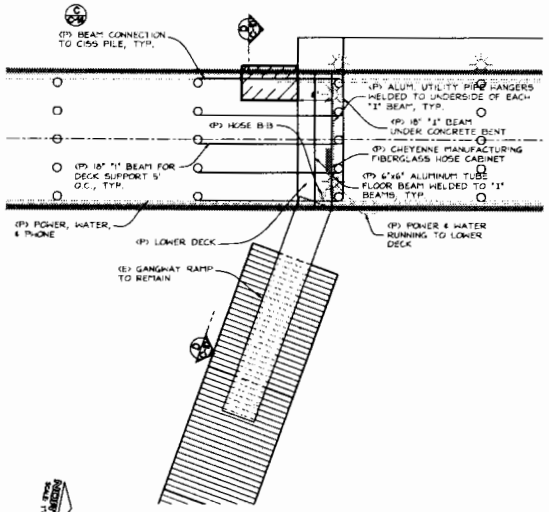
SHEET NUMBER
C-8



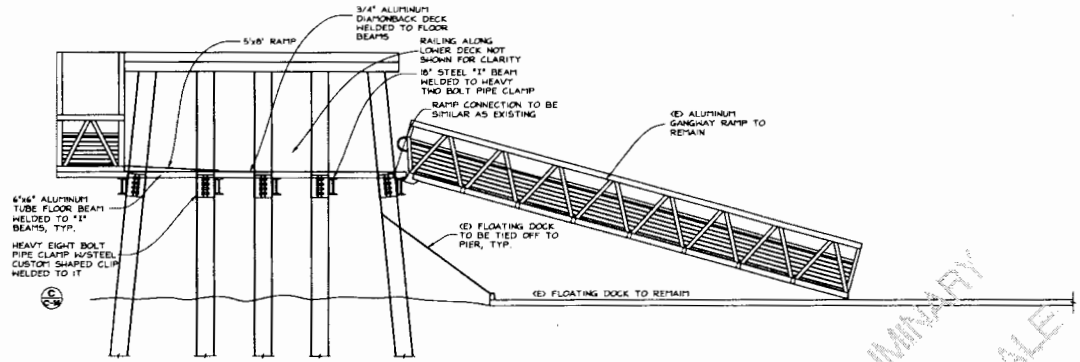
A GANGWAY RAMP - PLAN VIEW
SCALE: 1"=20'



B ELEVATION VIEW
SCALE: 1"=5'



C LOWER DECK - PLAN VIEW
SCALE: 1"=20'



D LOWER DECK/RAMP - ELEVATION
SCALE: 1"=5'

ADA COMPLIANCE: THE DESIGN OF THE GANGWAY RAMP AND LOWER DECK MAY NOT ENTIRELY BE ADA COMPLAINT BUT IS A BEST EFFORT TO COMPLETE DESIGN OF PIER DUE TO PROPOSED CONFIGURATION OF PIER.

PRELIMINARY
HALF SCALE

REVISIONS	BY

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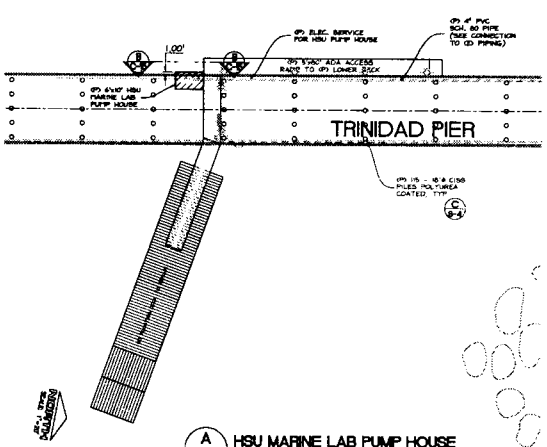
GANGWAY RAMP & LOWER DECK

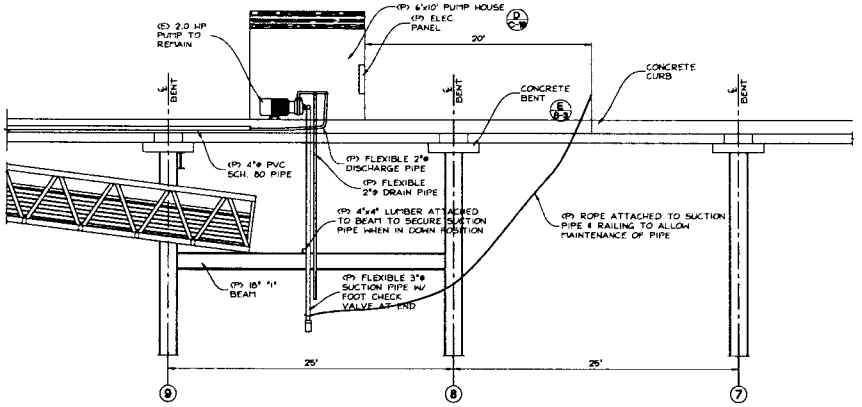
TRINIDAD PIER
RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
P.O. BOX 630
TRINIDAD, CA 95570

Date: November 15, 2007
Scale: AS NOTED
Drawn by: YT, JB

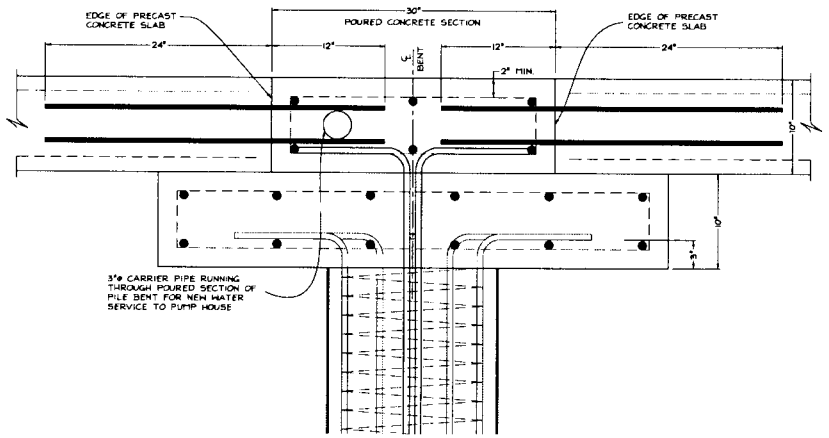
SHEET NUMBER
C-10



A HSU MARINE LAB PUMP HOUSE
SCALE: 1"=20'



B ELEVATION VIEW
SCALE: 1"=5'



SECTION
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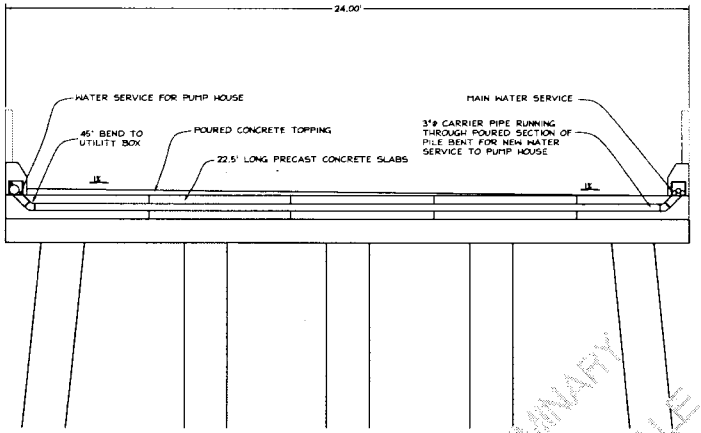

CROSS SECTION
N.T.S.

C WATER SERVICE TO PUMP HOUSE
SCALE: N.T.S.

PRELIMINARY
HALF SCALE

REVISIONS	BY

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HSU MARINE LAB INTAKE PIPE

TRINIDAD PIER RECONSTRUCTION PROJECT
TRINIDAD RANCHERIA
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Date: November 15, 2007
Scale: AS NOTED
Drawn by: YT, JB

SHEET NUMBER
C-15

Biological Assessment

Trinidad Pier Replacement ■ Cher-Ae Heights Indian Community of the Trinidad Rancheria ■ May 2009

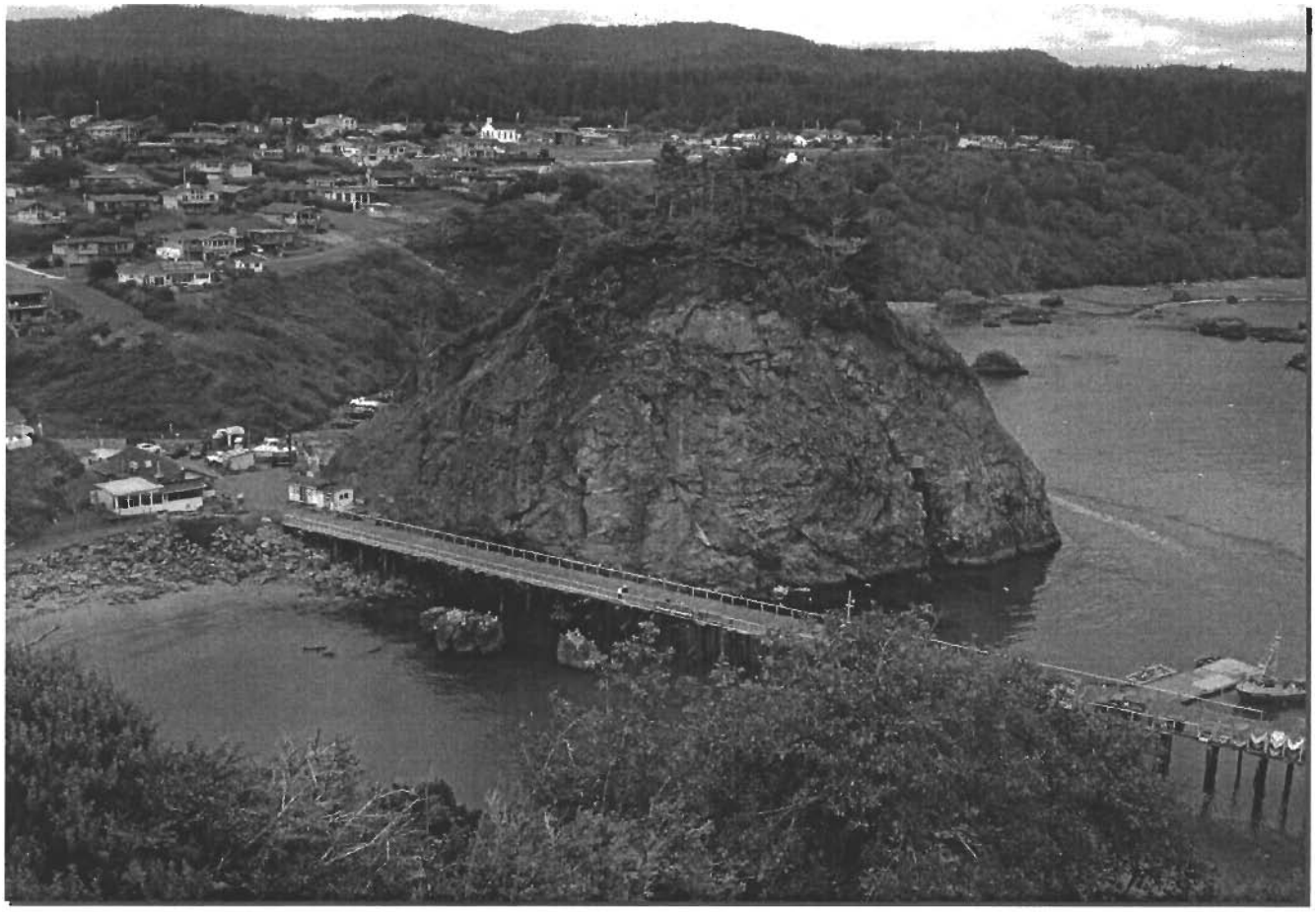

EXHIBIT NO. 8

APPLICATION NO.

1-07-046

CHER-AE HEIGHTS INDIAN COMMUNITY

BIOLOGICAL ASSESSMENT

ICF Jones & Stokes

an ICF International Company

Biological Assessment
Trinidad Pier Replacement

Prepared for:

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May 2009

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Chapter 1. Introduction

This biological assessment (BA) has been prepared to evaluate the potential effects on species protected under the Endangered Species Act that would result from the proposed federal action, issuance of a Clean Water Act Section 404 permit authorizing the Trinidad Pier Reconstruction Project. This BA also incorporates evaluations of the effects of the proposed action on designated critical habitat, Essential Fish Habitat (EFH), and marine mammals within the action area.

1.1. Consultation History

On November 19, 2007, following preliminary email discussions, Randy Brown, Deputy Supervisor of the Arcata office, USFWS, informed David Ammerman of the San Francisco District, U.S. Army Corps of Engineers (Corps) that the U.S. Fish and Wildlife Service would not further participate in the Section 7 consultation for the Trinidad Pier project.

On November 28, 2007, an initial preconsultation meeting was held between David Ammerman of the Corps; Diane Ashton of the National Marine Fisheries Service (NMFS) Arcata office; and Greg Nesty of Trinidad Rancheria. At this meeting the informal consultation process was explained and discussed.

On January 30, 2008, the Corps sent a letter to the NMFS Arcata office requesting informal consultation on the proposed action. This letter included a BA, analysis of expected effects on EFH, and a copy of the public notice for the project, which had been issued on January 25, 2008.

An exchange of e-mails in mid-February, 2008, made it clear to parties representing the Trinidad Rancheria, the Corps, NMFS, the California Coastal Commission, and the California Department of Fish and Game (CDFG) that Trinidad Rancheria had separately commissioned the preparation of a BA. This communication concluded

with a Corps commitment to include the Trinidad Rancheria BA in the materials submitted to NMFS in support of the informal consultation.

A teleconference on August 4, 2008 was attended by Corps, NMFS, and Trinidad Rancheria personnel, and addressed the issue of Marine Mammal Protection Act (MMPA) compliance.

Additionally, throughout this period, a correspondence was maintained between NMFS and Trinidad Rancheria that led to performance of a rigorous underwater sound effects analysis and to the preparation of this BA, EFH analysis, and marine mammal analysis.

1.2. Summary Description of the Proposed Action

This project proposes to reconstruct the Trinidad Pier located on Trinidad Bay. The 540 ft. long pier is located on tidelands granted by the State of California to the City of Trinidad and leased by the Trinidad Rancheria. The project area consists of the pier (0.31 acres) and a nearby staging area (0.53 acres). The existing pier was constructed in 1946 to serve commercial fishing and recreational uses. Since that time the creosote-treated wood piles which support the pier, as well as the wood decking, have deteriorated and are proposed to be replaced by cast-in-steel-shell (CISS) concrete piles and pre-cast concrete decking, respectively. This will improve the safety of the pier. Existing utilities which will require replacement include electrical, water, sewer, and phone. Additional dock amenities that will be replaced include lighting, railing, four hoists, three sheds, a saltwater intake pipe used by the Telonicher Marine Laboratory, and a water quality sonde utilized by the Center for Integrative Coastal Observation, Research, and Education. The proposed construction schedule is from August 1, 2010 to May 1, 2011.

The project site is located on Trinidad Bay, approximately one half-mile west of U.S. Highway 101 (Figure 1). This site is in the city of Trinidad, Humboldt County, California, at Township 8N, Range 1W, Section 26. The pier is within Area of Special Biological Significance (ASBS) No. 6 designated in 1974 by the State Water Resources Control Board for protection of the kelp beds located in the bay. The pier is situated between two rock outcroppings: Trinidad Head to the west and Little Head to the east. The staging area is located at the base of Trinidad Head, in a gravel parking lot that serves users of Trinidad State Beach. The parcel containing the staging area is zoned Open Space; the pier has no zoning designation. Land uses surrounding the project site include open space, recreation (boat launch), and commercial (Seascape Restaurant, commercial fishing). Adjacent upland areas are primarily residential.

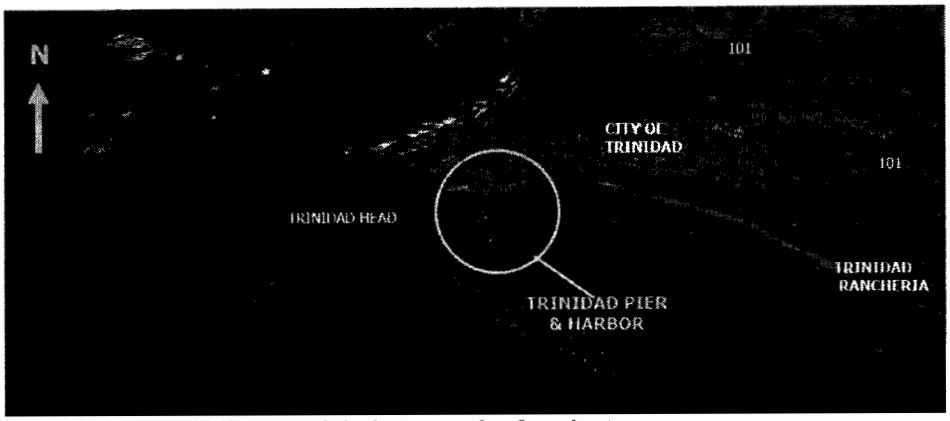

Figure 1-1. Oblique aerial photograph of project area

Figure 1-2. Photo showing deteriorated condition of existing pier and creosoted piles.

The purpose of the Trinidad Pier Reconstruction Project is to correct the structural deficiencies of the pier, improve the safety of the pier and improve pier utilities for the benefit of the public. The project will indirectly improve water quality conditions and provide improved habitat by replacing the deteriorating creosote-treated Douglas-fir piles and the pressure treated decking on the existing pier (Figure 1-2). There are several additional benefits of the project. The hoists on the pier are approximately 30 years old and need to be replaced to accommodate the landings at the pier. The pier is not currently ADA accessible. The creosote used to treat the piles may have been leaching into the waters of the ASBS over the last 50 years and does

not provide appropriate habitat for the macroinvertebrates and algae present in the project area.

Federally listed and proposed species and their designated or proposed critical habitats within the action area were identified through lists obtained from the USFWS and NMFS (Arcata Fish and Wildlife Office, document: 114627335-163041, 2008) for the United States Geological Survey (USGS) 7.5-minute Trinidad quadrangle. To determine the potential occurrence of these species within the project area, project biologists reviewed an array of existing environmental data, chiefly the biological reports prepared for the project by local experts (most associated with Humboldt State University; see text below for specific citations). We also reviewed Federal Register (FR) notices of listing determinations for threatened and endangered species and their critical habitat. Based on the presence of potentially suitable habitat and/or documented species occurrences within the action area, this BA addresses impacts to four federally listed species (Table 1-1).

Table 1-1. Listed species addressed in this BA

Species	Scientific name	Status
California coastal Chinook salmon	*Oncorhynchus tshawytscha*	Threatened
Southern Oregon / northern California Coast coho salmon	*Oncorhynchus kisutch*	Threatened
Northern California steelhead	*Oncorhynchus mykiss*	Threatened
Steller sea lion	*Eumetopias jubatus*	Threatened

This analysis also includes an evaluation of potential effects of the proposed action on essential fish habitat (EFH) and unlisted marine mammals protected under the Marine Mammal Protection Act (MMPA) in the action area. The analysis of effects on EFH and marine mammals are included as Appendix A and B respectively.

Chapter 2. Location

2.1. Project Area

The Trinidad Pier Reconstruction project is located in the city of Trinidad, California, Humboldt County, at Township 8N, Range 1W, Section 26 (41.05597°N, 124.14741°W) (Figure 2-1).

Trinidad Bay is a commercial port located between Humboldt Bay and Crescent City. The bay contains numerous vessel moorings which include permanent commercial vessel anchors as well 100 moorings that are placed for recreational vessel owners (Donahue 2007). The uplands have residential, commercial and recreational land use classifications. The Trinidad Pier parcel was owned by the State of California, but was granted to the City of Trinidad which leases the tidelands to the Cher-Ae Heights Indian Community of the Trinidad Rancheria (Trinidad Rancheria). The parcels to be used for the staging area are owned by Trinidad Rancheria, the City of Trinidad, and the U.S. Coast Guard.

The project area comprises the 0.31 acre pier over marine habitats and a staging area (the gravel parking lot located west of the pier) covering 0.53 acres of upland area.

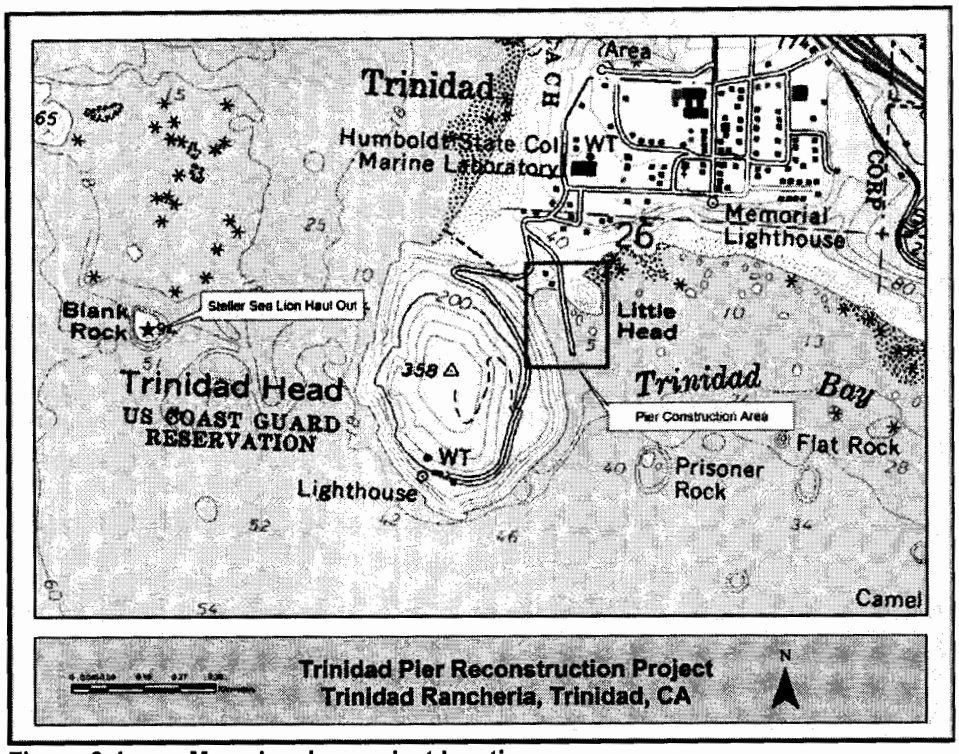

Figure 2-1. Map showing project location.

2.2. Action Area

The action area is defined (50 CFR 402.02) as all areas directly or indirectly affected by the proposed action. Direct effects of the action are potentially detectable in all lands and aquatic areas within the project area, including the staging area. The project would also directly affect 26 feet of the Trinidad Bay shoreline.

Aerial and underwater sound effects would be the most laterally extensive effects of the proposed action and thus demarcate the limits of the action area. Assuming that underwater sound attenuates at a rate of -4.5 dB for each doubling of distance, underwater sound from pile driving (detailed in Section 6) would elevate noise above 120 dB_{RMS} up to 2,625 feet seaward in all areas on a line-of-sight to the pier (Illingworth & Rodkin 2008). The rationale for use of 120 dB_{RMS} as a metric is detailed in Section 6.1.1 but also has a practical value because 120 dB_{RMS} is the lowest threshold currently used to detect underwater sound effects to any of the animals discussed in this analysis. Actual ambient underwater sound levels are probably quite variable in response to sound sources such as wave action and fishing vessel traffic.

Aerial sound would be generated by equipment used during construction; the loudest source of such sound would be vibratory pile driving, which generates a sound intensity of approximately 101 dBA at 50 feet (FHWA 2006). Assuming an ambient

background noise level of 56 dBA, typical of residential neighborhoods, and a sound attenuation rate of 7.5 dB for each doubling of distance, the action area for aerial sound would extend 3,200 feet in a unobstructed landward direction from the dock. The action area would extend farther in a seaward direction, because aerial sound attenuates with distance more slowly over water and also because ambient noise levels are potentially quieter in that direction. Assuming an attenuation rate of 6 dB for each doubling of distance and an ambient marine noise background of 47 dBA, the action area for above-water effects would extend 4.8 miles seaward from the pier.

Chapter 3. Project Description

3.1. Background

The Trinidad Pier is the northernmost oceanfront pier in California and has been used for commercial and recreational purposes over the last 50 years. Trinidad harbor and pier serve a fleet of commercial winter crab fishermen and year-round water angling for salmon, and nearshore/finfish species. Trinidad Pier was first built by Bob Hallmark in 1946. Since that time only minor maintenance activities have occurred on the pier. Today, Trinidad's economy is based on fishing and tourism and the pier supports these activities. The pier also provides educational opportunities by accommodating the HSU Telonicher Marine Lab's saltwater intake pipe, and the California Center of Integrated Technology's (CICORE) water quality sonde. Currently, the Trinidad Rancheria plays an important role in the economic development of the Trinidad area through three main business enterprises, one of which is the SeaScape Restaurant and the pier. The Cher-Ae Heights Indian Community of the Trinidad Rancheria (Trinidad Rancheria) is a federally-recognized tribe composed of descendants of the Yurok, Weott, and Tolowa peoples. In 1906 a congressional action authorized the purchase of small tracts of land for landless homeless California Indians. Through this federal authority, 60 acres of land was purchased on Trinidad Bay to establish the Trinidad Rancheria. In 1917 the Secretary of the Interior formally approved the Trinidad Rancheria as a Federally Recognized Tribe.

The community began developing in the 1950's. In January 2000, Trinidad Rancheria purchased the Trinidad Pier, harbor facilities and the Seascape Restaurant. The Rancheria leases a total area of 14 Acres in Trinidad Bay from the City of Trinidad. The Trinidad Rancheria currently operates the pier, and upland improvements including a boat launch ramp and the SeaScape Restaurant. Funds for permitting and designs of the pier were granted to the Trinidad Rancheria by the California State Coastal Conservancy.

The purpose of the Trinidad Pier Reconstruction Project is to correct the structural deficiencies of the pier and improve pier utilities and safety for the benefit of the public, and indirectly improve the water quality conditions and provide additional habitat for the biological community in the ASBS. Currently it is difficult to ensure the continued safety of the pier due to excessive deterioration of the creosote-treated Douglas fir piles and the pressure treated decking.

3.2. Pier Construction Overview

Summary plans for the pier and staging area are presented in Appendix C. Pier improvements are proposed to replace at a one-to-one ratio, the approximately 13,500 ft^2 of pre-cast concrete decking. In addition the project includes 115 concrete piles including batter and moorage piles (18 inches in diameter), four hoists, standard lights, guardrail, and dock utility pipes including water, power, and telephone. A new stormwater collection system will also be incorporated into the reconstructed pier design. The new cast-in-steel-shell (CISS) concrete piles will be separated at 5 ft intervals along 25 ft-long concrete bents. A total of 22 bents separated 25 ft apart shall be used. The decking of the new pier will be constructed of pre-cast 20 ft-long concrete sections. The new pier will be 540 ft long and 24 to 26 ft wide, corresponding to the existing footprint.

A pile bent will be installed at the existing elevation of the lower deck to provide access to the existing floating dock. The existing stairs to the lower deck will be replaced with a ramp that is ADA compliant. The decking of the pier will be constructed at an elevation of 21.0 ft above Mean Lower Low Water (MLLW). The top of the decking will be concrete poured to create a slope for drainage and to incorporate a pattern and a color into the concrete surface in order to provide an aesthetically pleasing appearance. An open guardrail, 42 inches in height shall be constructed of tubular galvanized steel rail bars (approximately 3/4 inch diameter) uniform in shape throughout the length of pier. Lighting will be installed in the decking (and railing in the landing area) along the length of the pier and will be focused and directed to minimize lighting of any surfaces other than the pier deck.

Currently there are four hoists on the pier. Three of the hoists are used to load and unload crab pots from the pier and the fourth hoist located at the end of the pier is suited to load and unload skiffs. The hoists are approximately 30 years old and may have had the Yale motors replaced since the time they were installed. The hoists shall be re-installed at points corresponding to their current location and their current duties.

All design specifications shall conform to the Uniform Building Code.

3.3. Pier Demolition Methods

Removal of the existing pier and construction of the new pier shall occur simultaneously. Construction shall begin from the north (shore) end of the pier. All pier utilities and structures shall first be removed. Utilities to be removed include water, electrical, power and phone lines, temporary bathroom, ladders and pier railing. Structures to be removed include four hoists, two wood sheds, HSU's 20hp (14.9kW) pump and saltwater intake pipes, CICOREs' water quality sonde, and a concrete bench. Then the existing pressure treated decking, joists, and bent beams shall be removed and transported by truck to the upland staging area for temporary storage.

Existing piles located in the section of pier being worked on (active construction area) will then be removed by vibratory extraction. Vibratory extraction is a common method for removing both steel and timber piling. The vibratory hammer is a large mechanical device mostly constructed of steel that is suspended from a crane by a cable. The vibratory hammer is deployed from the derrick and positioned on the top of the pile. The pile will be unseated from the sediment by engaging the hammer and slowly lifting up on the hammer with the aid of the crane. Once unseated, the crane will continue to raise the hammer and pull the pile from the sediment. When the bottom of the pile reaches the mudline, the vibratory hammer will be disengaged. A choker cable connected to the crane will be attached to the pile, and the pile will be lifted from the water and placed upland. This process will be repeated for the remaining piling. Extracted pilings will be stored upland, at the staging area, until the piles are transferred for upland disposal. Each such extraction will require approximately 40 minutes of vibratory hammer operation, with up to five piles extracted per day (a total of 3.3 hours per day).

Douglas-fir pilings are prone to breaking at the mudline. In some cases, removal with a vibratory hammer is not possible because the pile will break apart due to the vibration. Broken or damaged piling can be removed by wrapping the individual pile with a cable and pulling it directly from the sediment with a crane. If the pile breaks between the waterline and the mudline it will be removed by water jetting.

A floating oil containment boom surrounding the work area will be deployed during creosote-treated timber pile removal. The boom will also collect any floating debris. Oil-absorbent materials will be deployed if a visible sheen is observed. The boom will remain in place until all oily material and floating debris has been collected. Used oil-absorbent materials will be disposed at an approved upland disposal site. The contractor shall also follow BMPs: NS-14 – Material Over Water, NS-15 – Demolition adjacent to Water, and WM-4 – Spill Prevention and Control listed in the CASQA Handbook.

The existing Douglas-fir piles are creosote treated. The depth of creosote penetration into the piles varies from 0.25 to 2 inches. Creosote is composed of a mixture of

chemicals that are potentially toxic to fish, other marine organisms and humans. Polycyclic aromatic hydrocarbons (PAH), phenols and cresols are the major chemicals in creosote that can cause harmful health effects to marine biota. The replacement of the creosote treated piles with cast-in-steel-shell (CISS) concrete piles is expected to eliminate potential contamination of the water column by PAH, phenols and cresols from the existing treated wood piles.

All removed piles shall be temporarily stored at the upland staging areas until all demolition activities are complete (approximately 6 months). Following the cessation of demolition activities, the creosote treated piles will be transported by the Contractor to Anderson Landfill in Shasta County. This landfill is approved to accept construction demolition, wood wastes, and nonhazardous/nondesignated sediment.

The pressure treated 2 × 4 inch Douglas-fir decking will also be stored at the staging area until demolition is complete. The partially pressure treated decking and railing may be reused and will be kept by the Trinidad Rancheria for potential future use.

3.4. Pile Installation

3.4.1. Design

Two 18-inch diameter battered piles, which are designed to resist lateral load, will be located on each side of the pier at 12:1 slopes. Three vertical piles, which are designed to support 50 tons of vertical loads, will be located between the battered piles separated 5 ft apart.

3.4.2. Overview

New piles will be installed initially from shore and then, as construction proceeds, from the reconstructed dock. Following removal of each existing pile, a steel casings will be vibrated to a depth of approximately 2.5 ft above the tip elevation of the proposed pile (25-35 ft below the mud line). The steel shell of ¾ inch thickness shall extend from above the water surface to below the upper layer of sediment, which consists of sand, into the harder sediment, which consists mostly of weathered shale and sandstone. The steel shell will be coated with a polymer to protect the casings from corrosion. The steel shell shall be used to auger the holes and will then be cleaned and concrete poured using a tremie to seal the area below the shell. The shell will then be dewatered and a steel rebar cage installed prior to pouring concrete to fill the shell. These steps are described in further detail below.

3.4.3. Pile Excavation

Following installation of the steel casing, each hole will be augered to the required pile depth of 25-35 ft below the mud line. An auger drill shall be used to excavate the

sediment and rock from the steel shell. Geotechnical studies (Taber 2007) indicate that the materials encountered in the test borings can be excavated using typical heavy duty foundation drilling equipment.

Steel casing members of ¾ inch thickness shall be used to form the CISS concrete foundation columns in underwater locations. In this technique, inner and outer casings are partially imbedded in the ground submerged in the water and in concentric relationship with one another. The annulus formed between the inner and outer casings is filled with water and cuttings, while the inner casing is drilled to the required depth, and the sediment is removed from the core of inner steel casing. Following removal of the core, the outer casing is left in place as the new pile shell.

The sediment and cuttings excavated shall be temporarily stockpiled in 50 gallon drums (or another authorized sealed waterproof container) at the staging area until all excavations are complete and then transferred for upland disposal at the Anderson Landfill or another approved upland sediment disposal site.

The existing piles extend to approximately 20 ft. below the mud line. Each one of the existing 12-inch diameter pile has displaced 15.7 ft^3 of sediment. There are approximately 205 wood piles to be removed. The total amount of sediment displaced by the existing piles is approximately 120 yd^3. Each of the proposed CISS piles requires the displacement of approximately 53 ft^3 of sediment. There are 115 CISS piles to install. A total of approximately 225 yd^3 of sediment would have to be removed in order to auger 115 holes to a depth of 30 ft. below the mudline. It is estimated that 10 -100 yd^3 would have to be removed during pile installation. Many new holes will be augered in the location of existing piles where they overlap. As a result, less sediment will be required to be removed as would be required for the construction of a new pier, however, the exact location and penetration of the old piles is not recorded and will be determined during reconstruction activities. Therefore, a range of quantity of material to be removed is specified. Existing holes created by old wood piles removed and that do not overlap with the location of holes augered for the new piles will collapse and naturally fill with adjacent sediment.

Most of the sediment excavated is expected to be in the form of cuttings if the hole is augered and/or drilled at a location of exiting piles. Sediment removed from the inner core during augering shall be mostly dry due to the compression created in the core during augering. Approximately 50 - 50 gallon drums will be used to store the cuttings and sediment prior to disposal upland. The contractor shall implement BMPs WM-3 – Stockpile Management, WM-4 – Spill Prevention and Control, and WM-10 – Liquid Waste Management listed in the CASQA Handbook (see handbook for detail).

3.4.4. Concrete Seal Installation

A tremie will be used to seal the bottom 3 ft. of the hole below the bottom of the steel shell and above the ground. Before the tremie seal is poured, the inside walls of the pile will be cleaned by brushing or similar method of any adhering soil or debris to improve the effectiveness of the seal. A "cleaning bucket" or similar apparatus will be used to clean the bottom of the excavation of loose or disrupted material.

The tremie is a steel pipe long enough to pass through the water to the required depth of placement. The pipe is initially plugged until placed at the bottom of the holes in order to exclude water and to retain the concrete, which will be poured. The plug is then forced out and concrete flows out of the pipe to its place in the form without passing through the water column. Concrete is supplied at the top of the pipe at a rate sufficient to keep the pipe continually filled. The flow of concrete in the pipe is controlled by adjusting the depth of embedment of the lower end of the pipe in the deposited concrete. The upper end may have a funnel shape or a hopper, which facilitates feeding concrete to the tremie. Each concrete seal is expected to cure within 24-48 hours.

3.4.5. Dewatering Methodology

After the tremie seal has been poured, the water will be pumped out of the steel shells, which will act as a cofferdam. Pumping within the excavation at the various footings may be required to maintain a dewatered work area.

The contractor shall test the pH of the water in each casing one day following pouring of the tremie seal to insure that the pH of the water did not change from the ambient pH. The water shall then be pumped into 50-gallon drums and transported to the staging area for discharge through percolation to eliminate solids. Should the pH of the water change from ambient pH, then the contractor shall haul the water to the Eureka Wastewater Treatment Plant for treatment prior to discharge. The contractor is expected to dewater a volume of approximately 450 gallons (1,720 L) each day during pile installation. For the installation of 115 piles, approximately 49,500 gallons (197,800 L) will be dewatered and discharged at the appropriate location at the staging area. Percolation rates will be verified prior to discharge of the ocean water at the designated location at the staging area, but are not expected to be prohibitive due to the sandy texture of the soil. The Contractor shall implement BMP WM-10 Liquid Waste Management as listed in the CASQA Handbook. Liquid waste management procedures and practices are used to prevent discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes. WM-10 provides procedures for containing liquid waste, capturing liquid waste, disposing liquid waste, and inspection and maintenance.

3.4.6. Completion

Following dewatering of the steel shells, steel rebar cages shall be inserted into each shell. Ready-mix concrete placed into the drilled piers shall be conveyed in a manner to prevent separation or loss of materials. The cement-mixer truck containing the concrete shall be located on land adjacent to the north end of the pier. The concrete shall be pumped to the borings through a pipe (at least ¾ inch thick) that will span the length of the pier. When pouring concrete into the hole, in no case shall the concrete be allowed to freefall more than 5 ft. (1.5m). Poured concrete will be dry within at least 24 hours and completely cured within 30 days.

A concrete washout station shall be located in the staging area at the designated location. The contractor shall implement BMP, WM-8 – Concrete Waste Management, as listed in the CASQA Handbook to prevent discharge of liquid or solid waste.

3.5. Pier Deck Construction

Following the installation of the concrete piles, pre-cast concrete bent caps measuring 25 ft. (7.6m) - long shall be installed on top of each row of pilings. The concrete bents act to distribute the load between the piles and support the pier.

Pre-cast 20 ft. (6.1m) - long concrete sections shall be used for the decking. An additional layer of concrete shall be poured following installation of the precast sections. The layer of concrete will allow the decking of the pier to be sloped to the west for drainage purposes and to create an aesthetically pleasing decking. The surface of the decking will be colored and contain an earth tone pattern to match the surrounding environment.

3.6. Utilities

Utilities located on the pier will require relocation during construction and replacement following construction of the pier footings and decking. Utilities include:

Power: A 2-inch PG&E power line that is currently attached to the west side of the pier and PG&E electrical boxes located along the west side of the pier.

Water: Fresh water is delivered to the pier through a 2-inch PVC located on the east and west sides of the pier.

Phone: There is currently an exiting phone line on the pier, which will be replaced.

Sewer: Currently there are no sewer pipes on the pier. Visitors to the pier are served by a temporary restroom located on the south side of the pier. No direct sewer discharge is allowed in the ASBS.

New utilities installed include water, phone and electrical. New pier utilities will be constructed along the east and west side of the pier and will be enclosed within concrete utility trenches. Water pipes shall be routed along both sides of the pier to several locations along the pier. Phone lines shall be routed along the west side of the pier. All electrical switches will be located in one central box towards the west end of the pier by the loading and unloading landings location.

Lighting installed along the pier shall be designed to improve visibility and safety. The proposed lighting will be embedded in the decking and railing of the pier to minimize light pollution from the pier. Lighting shall be designed to minimize light pollution by preventing the light from going beyond the horizontal plane at which the fixture is directed. Currently, there are lighting poles on the pier. The proposed lighting on the pier will be embedded on the west and east side of the decking separated approximately 25 ft. (7.6m) throughout the length of the pier. The lighting fixtures will have cages for protection matching the color of the railing. In addition, on the south side of the pier, lighting will be installed in the railing to provide lighting for the working area on the deck of the pier.

Fish cleaning does not occur at the pier. This activity was formerly pursued by recreational users and was discontinued in 2006 due to water quality concerns.

3.7. Drainage

There is currently no runoff collection system on the pier. Runoff drains from the existing pier directly into the ASBS. A storm water outfall for the City of Trinidad is located near the base of the pier.

The pier decking shall be sloped to the west in order to direct runoff from the pier to the stormwater collection pipe. The runoff shall be routed along the west side of the pier and conveyed by gravity to a new upland manhole and storm chamber containing treatment media. All stormwater will be infiltrated within the storm chamber; there will be no discharge from the system. See Appendix C, drawings C-5 to C-8, for details of the conveyance and treatment system.

3.8. Humboldt State University Facilities

HSU Marine Lab leases space on Trinidad Pier for placement of a pump and associated plumbing to obtain seawater for the Telonicher Marine Laboratory. The existing saltwater intake PVC pipes, located directly under the decking of the pier, will be replaced and the size of the intakes shall be reduced to 4-inches in diameter.

The new intake pumps will be screened in accordance with NMFS standards for such intakes.

A new shed to house the pump will be built on the pier. CICORE have an Acrylonitrile-Butadiene-Styrene (ABS) pipe attached to a piling on the Trinidad pier that contains the water quality sonde. The proposed water quality sonde system is similar to the existing system and will be composed of the YSI 6600 Extended Deployment System, 6200 Data Acquisition System and two solar panels.

The Trinidad Pier is essential for supporting teaching and research conducted at the HSU Marine Lab and provides a service to the general public. More than 11,000 visitors come to the Marine Lab each year. The public display and research tanks are completely dependent on the sea water collection system for the upkeep of marine plants and animals at the lab. The sea water is pumped from the pier up hill in pipes below Galindo Street which also runs on the east side of the marine lab building under the driveway behind the main building. From the storage tanks sea water is gravity fed to a sump, then pumped through sand filters and water chillers, into the building supply, and returned to the sump. A common drain system of stormwater, some lab and the sea water drain system meets under Edwards Street, and then drains to the outfall adjacent to the Marine railway near Little Head (HSU Marine Lab, 2005).

In contrast to many Coastal Marine Labs, this system was designed from the outset to recirculate the water as much as practical to reduce intake/discharge. Over the past 40 years several additional elements have been added to the current system to expand the overall volume needed and to control water temperature (1988), which reduces the need for additional water exchange. Routine maintenance of the system is the only significant discharge back into the ASBS (HSU Marine Lab, 2005).

The total volume of sea water discharged on an annual basis from the HSU Marine varies from year to year (from 160,000 gallons in 2006 to 40,000 gallons 2001). The maintenance of the HSU aquarium systems require back wash of the sand filters on a monthly basis; this usually discharges about 7,000-10,000 gallons. On those years when an entire replacement of the lab's sea water is required, the Marine Lab then discharge and replace more than 75,000 gallons. It is important to note that there is no daily or routine discharge of sea water from the HSU aquarium system (HSU Marine Lab 2005). The HSU Marine Lab sea water is drained to the outfall adjacent to the Marine railway near Little Head.

The Marine Lab submitted a request to extend their exception to discharge recirculated pumped sea water back into the ASBS separately from the Trinidad Rancheria. The Sate Water Resources Control Board is currently reviewing the HSU Marine Lab and other marine labs applications for their request.

The existing saltwater intake PVC pipes, located directly under the decking of the pier, will be replaced and their size shall be reduced to 4-inches in diameter. A new shed to house the pump will be built on the pier.

3.9. Staging Area

The staging area utilized for the project consists of the gravel parking lot located west of the pier and is approximately 0.53 acres. The Contractor shall utilize the staging area to store construction equipment and materials. Removed sediment from CISS pile installation (approximately 10 to 100 yd^3) will also be stockpiled in containers at the staging area until transported by the Contractor to an approved upland disposal site. Seawater removed from the piles will be discharged through percolation within a temporary pit excavated at the staging area. The edge of the staging area will be at least 50 ft from the beach to the west in order to avoid impacts to the beach.

The proposed staging area can be accessed from the pier through Bay Street, an existing paved road leading to the parking lot, located approximately 400 ft. (122m) away from the pier. The staging area can also be accessed from U.S. Highway 101 by taking the Trinidad exit (Main Street) west, proceeding through Trinity Street and then Main Street before continuing onto Edwards Street which leads to the staging area. Edwards Street is a two-lane paved road leading to the staging area from the city of Trinidad and Highway 101(Figure 2).

All applicable temporary construction BMP's for staging area and site access will be implemented in accordance with CASQA Construction Handbook. BMPs WM-3 - Stockpile Management, WM-4 - Spill Prevention Control, NS-9 Vehicle Equipment and Fueling listed in the CASQA Construction Handbook shall be implemented at the staging area. Those BMP's may include but are not limited to: fiber rolls, silt fences, straw bales and sandbag barriers.

3.10. Construction Timing & Sequencing

The project is expected to be completed within nine months. Reconstruction of the pier is proposed to commence on August 1, 2010 and terminate on May 1, 2011. Excluding weekends and holidays, a total of 217 working days will be available for work during this period. During the winter months (November to March) severe weather conditions are expected to occur periodically at the project site. The Contractor may have to halt the work during pile installation due to strong winds, large swells, and/or heavy precipitation. Construction during the remainder of the year should not be impeded by large swells, but may be halted due to strong winds or precipitation. The Contractor will work five days per week from 7 a.m. to 7 p.m. Should severe weather conditions cause delays in the construction schedule, the

Contractor will work up to seven days per week as needed to ensure completion by May 1, 2011.

Removal of the existing piles and decking and construction of the new pier will occur simultaneously. The existing decking and piles will be removed and new piles installed from the reconstructed pier. Pile bents will be separated 25 ft. (7.6m) apart. Following the installation of two successive pile bents, a new precast concrete deck section shall be installed. The contractor shall continue in this manner from the north end (shore) to south end (water terminus) of the existing pier.

The contractor is expected to spend approximately six months (August through January) on pile removal and installation and the remaining three months (February through April) on deck and utilities reconstruction. It is estimated that each boring can be lined with a pile and excavated within six to eight hours. Pouring of the concrete seals is expected to take approximately two hours for each pile. The contractor is expected to remove an existing pile and install one new steel shell and pour a concrete seal each day, with a total of six to eight hours required for the process. The final pour of the concrete piles is expected to take approximately two hours to fill the steel shells and is expected to cure within one week.

It is expected that reconstruction of one row of piles and bents will take one week. Pile and bents will be installed over a discontinuous period of approximately 22 weeks. A new pre-cast concrete section of decking will be installed following the installation of two successive rows of piles and associated bents.

The last three months will be used for pouring of the top layer of the decking and utilities construction.

3.11. Project Best Management Practices & Mitigation

Mitigation and best management practices (BMPs) are summarized below and described in greater detail in the foregoing text. These measures include all formal mitigation detailed in the Mitigated Negative Declaration for the project. The complete statement of measures that appears in the Mitigated Negative Declaration is attached to this document as Appendix D.

3.11.1. Mitigation Measures

Timing constraints for underwater noise

To minimize noise impacts on marine mammals and fish, underwater construction activities shall be limited to the period when the species of concern will be least likely to be in the project area. The construction window for underwater construction activities shall be August 1 to May 1.

Implementation Assurance: Provide NMFS advance notification of the start dates and end dates of underwater construction activities.

Marine Mammal Monitoring

Marine mammal monitoring and reporting shall be performed consistent with procedures to be directed by NMFS in the terms of an active biological opinion, incidental harassment authorization, and/or other written conditions placed on the proposed action. Such conditions have not yet been placed but are provisionally anticipated to include the following terms:

- An observer trained in identification of marine mammals shall attend the project site one hour prior until one hour after construction activities cease each day throughout the construction window.
- The observer shall be approved by NMFS.
- The observer shall search for marine mammals within behavioral harassment threshold areas to be identified by NMFS but provisionally identified as including areas within the acoustic effect thresholds identified in Section 6, extending up to 2425 feet from the noise-generating activity, depending on the type of noise being generated.
- Should marine mammals other than harbor seals be identified within the threshold area while underwater construction activities are occurring, the observer shall notify the Project Engineer who will notify the Contractor, who shall stop work until the affected species have not been sighted within the behavioral harassment threshold area for 30 minutes.
- Whenever a construction halt is called due to marine mammal presence in the area, the Project Engineer (or their representative) shall immediately so notify the designated NMFS representative.
- If harbor seals are sighted by the observer within the acoustic threshold areas, the observer shall record the number of seals within the threshold area and the duration of their presence while the noise-generating activity is occurring. The observer will also note whether seals appeared to respond to the noise and if so, the nature of that response. These observations will be reported to NMFS in a letter report to be submitted on each Monday, describing the previous week's observations.
- All sightings of marine mammals other than harbor seals will be similarly recorded and documented, and will be included in the weekly letter report.

Implementation Assurance: Monitoring logs submitted to the NMFS.

Tremie Incident Response

The following measures shall be implemented in the event of leaking of concrete into the sediment during tremie pouring:

- Stop construction activities.
- Notify the Regional Water Quality Control Board
- Determine and remedy the cause for leaking of concrete
- Develop response plan with regulatory agencies

Implementation Assurance: Project Manager Daily Logs.

3.11.2. Best Management Practices

Pier Demolition Methods

- Waters shall be protected from incidental discharge of debris by providing a protective cover directly under the pier and above the water to capture any incidental loss of demolition or construction debris.
- A floating oil containment boom surrounding the work area will be used during creosote-treated timber pile removal. The boom will also collect any floating debris. Oil-absorbent materials will be employed if a visible sheen is observed. The boom will remain in place until all oily material and floating debris has been collected and sheens have dissipated. Used oil-absorbent materials will be disposed at an approved upland disposal site.
- All removed piles shall be temporarily stored at the upland staging areas until all demolition activities are complete (approximately 6 months).
- Following the cessation of demolition activities, the creosote treated piles will be transported by the Contractor to an upland landfill approved to accept such materials.
- The pressure treated 2 × 4 inch Douglas-fir decking will also be stored in the staging area until demolition is complete. The partially pressure treated decking and railing may be reused and will be kept by the Trinidad Rancheria for further use.
- The contractor shall also follow BMPs: NS-14 – Material Over Water, NS-15 – Demolition adjacent to Water, and WM-4 – Spill Prevention and Control listed in the CASQA Handbook.

Pile Installation

- The sediment and cuttings excavated shall be temporarily stockpiled in 50 gallon (189L) drums (or another authorized sealed waterproof container) at the staging area until all excavations are complete and then transferred for

upland disposal at the Anderson Landfill or another approved upland sediment disposal site.

- The contractor shall implement BMPs WM-3 – Stockpile Management, WM-4 – Spill Prevention and Control, and WM-10 – Liquid Waste Management listed in the CASQA Handbook.
- The contractor shall test the pH of the water in each casing one day following pouring of the tremie seal to insure that the pH of the water did not change by more than 0.2 units from the ambient pH. The water shall then be pumped into 50-gallon drums and transported to the staging area for discharge through percolation to eliminate solids. Should the pH of the water change from ambient pH, then the contractor shall haul the water to the Eureka Wastewater Treatment Plant for treatment prior to discharge.
- The Contractor shall implement BMP WM-10 Liquid Waste Management as listed in the CASQA Handbook. Liquid waste management procedures and practices are used to prevent discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes. WM-10 provides procedures for containing liquid waste, capturing liquid waste, disposing liquid waste, and inspection and maintenance.
- A concrete washout station shall be located in the staging area at the designated location. The contractor shall implement BMP, WM-8 – Concrete Waste Management, as listed in the CASQA Handbook to prevent discharge of liquid or solid waste.

Pier Construction

- No concrete washing or water from concrete will be allowed to flow into the ASBS and no concrete will be poured within flowing water.
- Waters shall be protected from incidental discharge of debris by providing a protective cover directly under the pier and above the water to capture any incidental loss of demolition or construction debris.

Utilities

- Lighting will be embedded in the decking and railing of the pier to minimize light pollution from the pier. Lighting shall be designed to minimize light pollution by preventing the light from going beyond the horizontal plain at which the fixture is directed so the light is directed upwards.

Drainage

- The pier decking shall be sloped to the west in order to direct runoff from the pier to the stormwater collection pipe. The runoff shall be routed along the west side of the pier and conveyed by gravity to a new upland manhole and storm chamber containing treatment media. Drainage from the storm chamber shall not be conveyed to Trinidad Bay, but will entirely be infiltrated within the storm chamber. See Appendix C, drawings C-5 to C-8, for details.

Humboldt State University Facilities

- The new saltwater intake pumps will be screened in accordance with NMFS standards for such intakes.

Staging Area

- All applicable temporary construction BMP's for staging area and site access will be implemented in accordance with CASQA Construction Handbook. BMPs WM-3 - Stockpile Management, WM-4 - Spill Prevention Control, NS-9 Vehicle Equipment and Fueling listed in the CASQA Construction Handbook shall be implemented at the staging area. Those BMP's may include but are not limited to: fiber rolls, silt fences, straw bales and sandbag barriers.

- Temporary construction BMP's for the staging area will be implemented in accordance with the Contractor's approved Storm Water Pollution Prevention Plan (SWPPP).

Construction Timing & Sequencing

- Noise-generating construction activities, including augering, pile removal, pile placement, and concrete pumping, will only be allowed from 7 a.m. to 7 p.m. These hours shall be further restricted as necessary in order for marine mammal observers to perform required observations.

3.12. Project Benefits

The existing Douglas-fir piles are creosote treated (Figure 4). The depth of creosote penetration into the piles varies from 0.25 to 2 inches. Creosote is composed of a mixture of chemicals that are potentially toxic to fish, other marine organisms and humans. Polycyclic aromatic hydrocarbons (PAH), phenols and cresols are the major chemicals in creosote that can cause harmful health effects. In Puget Sound, for example, the use of creosote-treated wood in the water is prohibited. The replacement of the creosote treated piles with cast-in-steel-shell (CISS) concrete piles is expected

to eliminate potential contamination of the water column by PAH, phenols and cresols from the existing treated wood piles.

The existing pier has no stormwater treatment; all stormwater runs off the pier into the ocean. The proposed pier has full stormwater collection, treatment and detention, with no stormwater discharges whatsoever to any surface water body.

The existing HSU seawater intakes do not have screens consistent with NMFS specifications. The proposed intake will have such a screen.

The existing pier has pole lighting that illuminates the water surface; the proposed pier has lighting designed to avoid such illumination.

The existing pier has dark wood and over 200 piles. The proposed pier, with half as many piles and a white concrete construction, will result in less shading of nearshore habitat.

Figure 3-1. Existing pile showing creosote deposits.

Chapter 4. Environmental Baseline in the Action Area

4.1. Vicinity and Land Use

The project site is located on Trinidad Bay, approximately one half-mile west of U.S. Highway 101. This site is within an Area of Special Biological Significance (ASBS) designated by the State Water Resources Control Board for the kelp beds located in the bay. The pier is situated between two rock outcroppings: Trinidad Head to the west and Little Head to the east. The staging area is located at the base of Trinidad Head, in a gravel parking lot that serves users of Trinidad State Beach. The parcel containing the staging area is zoned Open Space; the pier has no zoning designation. Land uses surrounding the project site include open space, recreation (boat launch), and commercial (Seascape Restaurant, commercial fishing). Adjacent upland areas are mainly residential.

4.2. Environmental Baseline

4.2.1. Geology and Sediments

The Trinidad Pier is located near the base of the prominent Trinidad Head and to the southwest of the developed portions of the City of Trinidad. More specifically, the pier starts near the western side of the rock named Little Head and projects approximately 540 ft into Trinidad Bay to the south from a low bench that connects the mainland to Trinidad Head. Geotechnical studies for the proposed action determined the nature and distribution of subsurface materials and conditions by means of four sampled test borings to a maximum depth of -70 ft MLLW. The site is

underlain by pre-Cretaceous rocks of the Franciscan Complex and Quaternary marine terrace deposits. This rock is variably weathered, highly fractured/sheared with variable composition, composed predominately of mudstones, greywacke, and metasedimentary rocks, with lesser amounts of igneous and metamorphic rocks (Taber 2007). Earth materials observed during the subsurface investigation can be broken into two general categories (Taber 2007):

1. Recent marine deposits include a thin veneer (3.5 to 7.5 ft thickness) of recently deposited loose to compact gray sand with shell fragments and other debris, which overlies the entire site. Some gravel size rock fragments were also observed in the cuttings (possibly derived from the adjacent Trinidad Head and Little Head). Large (2-3±ft dia) blocks of Franciscan material were observed at the base of both Trinidad Head and Little Head.

2. Bedrock of the Franciscan Formation underlies the recent marine deposits in each sample borehole. This unit predominately consists of gray, green, and black weathered to decomposed mudstone, shale, and sandstone, with some zones of hard grey sandstone. As described in published mapping, decomposed igneous and metamorphic rocks are also likely present. This unit is variably fractured and sheared with significant localized slickensided surfaces. Carbonate (likely calcite) filled fractures and stringers are found throughout, with some zones containing approximately 30-40± percent calcite by volume.

No data have been located that describe whether contaminants exist in marine sediments at the site. However, significant contamination is unlikely for the following reasons:

1. The parent rocks described above do not contain contaminants, thus none are being produced by rock weathering processes.

2. The sediments present at the site are relatively coarse-grained (sand and coarser) and thus contain little or no clay particles that could adsorb contaminants from the water.

3. The water also contains little evidence of contamination (water quality data are described later in this chapter).

4. Sediments on the site are likely reworked annually or more often by wave action associated with storms, and the entire site is heavily flushed by wave and tidal action.

4.2.2. Upland Vegetation

Upland vegetation is not a concern at the project site because neither the site, nor the staging area, nor any of the access routes are vegetated.

4.2.3. Water Quality

Basic water quality measures (temperature, salinity, dissolved oxygen, pH, turbidity, chlorophyll) are collected and available in real-time from the HSU sonde located at the Trinidad Pier (http://cencoos.humboldt.edu/). These data indicate generally excellent water quality at the pier, with regard to the measured parameters. However, the proximity of potential sources of coliform bacteria, organic compounds, and metals raises concern about possible contamination form these sources.

A number of sources exist that contribute pollutants to Trinidad Head ASBS, including runoff from the City's storm water conveyance system, several streams and seeps, and the Trinidad Pier and associated facilities. There are few historical data available regarding the water and sediment quality of the ASBS, precise type and quantity of pollutants, overall impact of the discharges, or up-to-date biological conditions of the kelp beds and the marine life in the ASBS. Grab sampling and field measurements associated with several monitoring efforts in recent years have produced a limited amount of data for discharges from the municipal storm water system, local streams, and seeps/springs, as well as data for receiving water and sediment quality in Trinidad Bay.

City of Trinidad Storm Water

Of the 66 acres of developed land within the City, about 19.5 acres of impervious surface area - including streets, a school, and private and commercial properties – discharge directly to Trinidad Head ASBS or indirectly via a small stream. With an average rainfall of 48 inches, an estimated 12 million gallons of storm water runoff occurs each year. Pollutants entering the City's storm water conveyance system may include metals, PAHs, bacteria and sediment from streets and parking lots; and chemical fertilizers, pesticides, pet wastes and sediment from residential lots. Storm water grab sampling data for a suite of chemical constituents was collected May 23, 2006 during a late-season rain event. Indicator bacteria exceeded SWRCB Water Contact Standards (>24,000 MPN/100 ml and as high as 11,199 MPN/100 ml for total and fecal coliform, respectively). Total PAHs were detected at a concentration of 93.5 ng/L. Copper was detected at a concentration of 13.7 µg/L. No quantitative studies have been performed on pollutant loading to Trinidad Head ASBS from the City's storm water discharges.

Local Streams

Three streams drain to the ASBS. Mill Creek drains about 856 acres of low-density, rural residential and timber land and discharges to the Pacific Ocean just outside of the northern boundary of the ASBS. Parker Creek drains about 235 acres of low-density rural residential and timber land, as well as the Trinidad Quarry, and discharges to Trinidad Bay near the southern boundary of the ASBS. McConnahas-Mill Creek drains about 745 acres of low-density rural residential and timber land

and discharges to Trinidad Bay just outside of the southern boundary of the ASBS. Pollutants currently identified in these streams include sediment, nutrients and indicator bacteria. Recent monitoring efforts have collected data on temperature, pH, turbidity, nutrients (ammonia, nitrate, orthophosphate) and optical brighteners for these streams. No quantitative studies have been performed on pollutant loading from these streams to Trinidad Head ASBS and adjacent waters.

Groundwater/Seeps

At the base of the bluffs below the City are numerous seeps or springs that have been identified as sources of indicator bacteria and sediment that discharge to the beaches north and south of Trinidad Head. A combination of natural groundwater and filtrate from Onsite Wastewater Treatment Systems (OWTS) throughout the City feed these seeps and springs. Recent monitoring efforts have collected data on temperature, pH, conductivity, turbidity, dissolved oxygen, chloride, nitrate, ammonia, and indicator bacteria for these seeps.

Trinidad Harbor Parking Area

A paved access road to the harbor and paved parking for the both the harbor and a small restaurant covers approximately 1 acre. Runoff from this area sheet flows over sand and rock before entering the waters of Trinidad Bay. Some runoff flows down from the City's Edwards Street and mingles with the parking runoff; the parking area is owned by the Trinidad Rancheria. At times, part of the parking area is used as a temporary storage and staging area for crab fishing operations. A one-time water quality sampling effort was performed on the combined runoff as part of the City's 2006 Application for an Exception, and found that runoff from street and parking areas contains a variety of pollutants such as some metals and PAHs, oil & grease, and bacteria. No pollutant loading data exists for this source of discharge.

Humboldt State University Telonicher Marine Lab

Storm water and seawater from Humboldt State University's marine lab facility is routed in a storm drain that parallels the lower portion of the City's main storm water conveyance and discharges to Trinidad Bay at the same location. The seawater system has been upgraded to circulate the water as much as practical and minimize the amount of discharge. The laboratory recently constructed a storm water effluent treatment system, including installing an oil/water separator for their parking lot. Within the laboratory's wet labs, no toxicity or bacterial infections have been observed as an indirect result of the husbandry and maintenance of the marine organisms in captivity. The ocean receiving water near the outfall is regularly monitored for temperature and salinity; no changes to the natural water quality of the ASBS have been detected.

Trinidad Pier and Boat Launch

The Trinidad Pier is an aging structure originally constructed in 1946 out of creosoted wood pilings and chemically preserved wood decking. The Pier deck has an approximate impervious surface area of 0.31 acres; based on an average rainfall of 48 inches, an estimated 1.25 acre feet of rain water hits the pier deck annually and creates prohibited discharges in the form of nonpoint source runoff directly into the Trinidad ASBS. Pollutants entering the Trinidad ASBS may include: bacterial indicators, hydrocarbons as gas or diesel, metals, and PAHs (as the constituent parts of creosote compounds). Direct evidence of the presence of pollutants in the pier deck runoff has been provided in a series of sampling events, as follows:

- Sampling conducted in May, 2006 to support the Trinidad Pier ASBS discharge Exception Application.
- Ocean's edge sampling conducted adjacent to Trinidad Pier as part of the pre-project monitoring for Trinidad Rancheria's Clean Beaches grant for harbor wastewater improvements.
- Sampling conducted in August, 2008 (generating runoff by sprayer or hose in the absence of rainfall) in response to the ASBS Prop 84 review team's request for additional data.

This sampling demonstrated that pier runoff produces exceedances of California Ocean Plan limits for indicators of bacterial contamination and exceedances of the North Coast Water Quality Control Board Basin Plan, as outlined in the narrative objective for Toxicity, for petroleum hydrocarbons (gas and diesel). The bacterial contamination results, particularly those with high *Enterococcus* levels, are what would be expected of any urban surface, indicating contamination from both non-mammalian and mammalian species. Sporadic mammalian fecal contamination might come from dogs being walked on the pier or from contaminated shoe soles (however, there is no temporary portable restroom facility on the pier). Gas and diesel detections would be expected from the nature of the operations on the pier and the observation of oil stains on the pier decking.

The pier replacement has been identified as the most important action that can be taken to eliminate discharges at Trinidad Harbor. The pier is a 0.31 acre urban surface discharging approximately 1.25 acre feet of urban runoff directly to the ASBS during an average rainfall season. All other urban surfaces in the harbor are at least some distance from the water, allowing for treatment by sunlight, decomposition by micro-organisms, or sand filtering. In winter, with frequent storms producing an average of about 48" of rainfall, pollutants falling on the pier are immediately washed into the ASBS. Any catastrophic spill on the pier can immediately enter the ASBS with no opportunity for spill response, whereas spills at other locations in the harbor can be cleaned up. Additionally, replacement of the pier will eliminate 205 creosote-treated 12" diameter pilings with an above ground surface area of 26,084 ft^2 and a below-sea floor surface area of 13,204 ft^2.

4.2.4. Marine Habitat

Waters adjacent to the project area were surveyed for marine life by Humboldt State University researchers during pre-project planning. These surveys focused on the intertidal and subtidal zones within the project area (Janiak et al. 2007, Donahue et al. 2007), and on identifying the extant fish diversity (Mulligan 2007).

Intertidal Habitat

The intertidal survey examined marine life along 5 transects in the vicinity of the Trinidad Pier. Each transect ran from the uppermost occurrence of marine life to the lowest intertidal elevation accessible to the researchers. All substrates were hard, including bedrock benches, boulders, small tide pools, and concrete slabs. A total of 104 species were observed, including 53 species of algae. The algae included a diversity of life forms representing all kingdoms (green, brown and red), while the observed animals were all invertebrates, including a diversity of barnacles, limpets, littorine snails, and anemones (Janiak et al. 2007).

Subtidal Habitat

The subtidal survey (Donahue et al. 2007) was performed using the widely-adopted CRANE and PISCO protocols for kelp bed survey, described on the PISCO web site (http://www.piscoweb.org/research/community/subtidal/protocols). This survey method is appropriate for sampling abundant demersal and mid-water fishes, but is generally best for identification of sessile or slow-moving organisms. Transects ran perpendicular out from the pier, at each of three depths (shallow subtidal, midpoint, and at the end of the pier). Substrates evaluated included sand and bedrock/boulder; and the wood substrate of the existing pilings.

Sand substrates dominated the shallow and midpoint transects, shifting to dominance of boulder substrates in the deep transects. The sand substrate areas had low cover (25% in the shallow transects, 20% in the midpoint transects) of algae and animals. Boulder areas were about 40% bare substrate, with the remainder most commonly covered with coralline, non-calcified and fleshy forms of red algae. The kelp *Pterogophora californica* was the most abundant brown alga around the pier, and was almost entirely confined to the shallow transect on the east side of the pier. *Pterogophora* reached densities of 2 – 2.5 m^{-2}. The algae *Cystoseira osmundacea* and *Laminaria setchelli* were also present in hard substrate areas at densities of 0.5 – 1 m^{-2} and 0.25 m^{-2}, respectively. The invertebrate assemblage was dominated by a few species. In the shallow transects, the polychaete *Pista pacifica* and several species of sea star were most common. The midpoint transects were dominated almost exclusively by *Pista pacifica*, but it disappeared in the deep transects, where sea stars were again most abundant along with the sea cucumber *Cucumaria miniata* and several species of *Cancer* crabs.

Relatively few fish species were observed. Speckled sanddab was most common, especially in the midpoint transects. Other fish species included lingcod, kelp greenling, cabezon, *Gibbonsia* sp., and an unidentified Pholidae.

Surveys of the existing wood pilings identified four communities corresponding to increasing water depth: the algae zone (-1.6 m MLLW), bryozoan zone (-2.8 m), amphipod zone (-3.8 m), and bare zone (near bottom, where sand scour and darkness contribute to poor survivorship). The algae zone was most productive, with appreciable cover of green, red and brown algae, barnacles, and bryozoans. The bryozoans zone was dominated by bryozoans with common amphipod tubes. The crustacean zone consisted primarily of amphipod tubes, while the bare zone had a few amphipod tubes and little else. Algal species found on the pier pilings included predominantly the red algae *Polyneura lastissima* at 50-75% cover, and several kelps (*Alaria marginata*, *Nereocystis luetkeana*, *Pterogophora californica*, and *Laminaria* spp.) at up to 25% cover. Habitat value of the pilings is attested by juveniles of *Cancer magister*, common in the bryozoan and amphipod zones; and the presence of 14 YOY rockfish in the kelp attached to two of the four pier pilings sampled.

Fish Survey

The most comprehensive data set available for nearshore fishes is provided by Dr. Tim Mulligan (2007), who for 18 years has been sampling fishes around Trinidad Pier with students from his classes at HSU. Sampling was typically done two times per year, once in September and once in December. Two beach sites were sampled, one just south of the boat ramp, and one just north of the pier, adjacent to Trinidad Head. Sampling gear consisted of a 150' x 8' beach seine with 6 mm stretch mesh. Five to six, non-overlapping, repetitive sets (seine hauls) were taken in the surf zone to a depth of 2 m at each site during each sampling period. Fishes were identified to species, assigned to life history stage and released. A total of 52 species representing 18 families have been observed.

Chinook salmon were the only salmonid collected in the surf zone. A total of four have been found, three adults and one juvenile. Pacific herring were also rarely found in the vicinity of Trinidad Pier although winter spawning is evident in the subtidal kelp beds south of the boat ramp. Northern anchovy have been found, sporadically, usually in mixed schools with smelt species. Juvenile black rockfish have been the dominant rockfish found, while other rockfish species have been rare. The most common flatfish encountered have been sand sole and English sole. Relative abundance of all fish species observed is provided in Table 2.

Table 4-1. Fish species in the vicinity of Trinidad Pier, 1989-2006

Species	Common Name	Occurrence
Clupea pallasi	Pacific herring	Rare
Engraulis mordax	northern anchovy	Common
Allosmerus elongates	whitebait smelt	Common
Hypomesus pretiosus	surf smelt	Abundant
Spirinchus starksi	night smelt	Abundant
Oncorhynchus tshawytscha	Chinook salmon	Rare
Microgadus proximus	Pacific tomcod	Rare
Gobiesox meandricus	northern clingfish	Common
Atherinops affinis	topsmelt	Abundant
Atherinops californiensis	jacksmelt	Common
Aulorhynchus flavidus	tube-snout	Rare
Gasterosteus aculeatus	threespine stickleback	Rare
Syngnathus leptorhynchus	bay pipefish	Rare
Scorpaenichthys marmoratus	cabezon	Common
Sebastes melanops	black rockfish	Common
Sebastes mystinus	blue rockfish	Rare
Sebastes rastrelliger	grass rockfish	Rare
Sebastes caurinus	copper rockfish	Rare
Hexagrammos lagocephalus	rock greenling	Common
Hexagrammos decagrammus	kelp greenling	Rare
Ophiodon elongatus	lingcod	Rare
Cottus asper	prickly sculpin	Rare
Hemilepidotus spinosus	brown Irish lord	Rare
Leptocottus armatus	Pacific staghorn sculpin	Common
Nautichthys oculofasciatus	sailfin sculpin	Rare
Blepsias cirrhosus	silverspotted sculpin	Rare
Enophrys bison	buffalo sculpin	Rare
Clinocottus acuticeps	sharpnose sculpin	Rare
Oligocottus snyderi	fluffy sculpin	Common
Oligocottus maculosus	tidepool sculpin	Common
Pallasina barbata	tubenose poacher	Rare
Stellerina xyosterna	pricklebreast poacher	Rare
Liparis pulchellus	showy snailfish	Common
Liparis rutteri	ringtail snailfish	Rare
Liparis florae	tidepool snailfish	Rare
Amphistichus koelzi	calico surfperch	Abundant
Amphistichus rhodoterus	redtail surfperch	Rare
Cymatogaster aggregata	shiner surfperch	Abundant
Embiotoca lateralis	striped surfperch	Abundant
Hyperprosopon anale	spotfin surfperch	Abundant
Hyperprosopon argenteum	walleye surfperch	Abundant
Hyperprosopon ellipticum	silver surfperch	Common

Species	Common Name	Occurrence
Phanerodon furcatus	white seaperch	Common
Rhacochilus vacca	pile perch	Common
Apodichthys flavidus	penpoint gunnel	Common
Pholis ornata	saddleback gunnel	Common
Citharichthys sordidus	Pacific sanddab	Rare
Citharichthys stigmaeus	speckled sanddab	Common
Parophyrs vetulus	English sole	Abundant
Platichthys stellatus	starry flounder	Common
Psettichthys melanostictus	Pacific sandsole	Abundant
Pleuronichthys decurrens	curlfin turbot	Rare

Source: Mulligan (2007).

Chapter 5. Occurrence of Listed Species and Critical Habitat

Four federally listed species and species proposed for listing, potentially present in the action area, were identified by the USFWS and NMFS (Table 5-1). There is no critical habitat for any of these species within the action area.

Table 5-1. ESA-listed and Proposed Species that May Occur in Action Area

Species	Listing Status	Agency	Occurrence in the Action Area
Chinook salmon, California coastal ESU	Threatened	NMFS	Habitat marginally suitable, species has been observed but is rare.
Coho salmon, Southern Oregon/ Northern California Coast ESU	Threatened	NMFS	Habitat marginally suitable, species has not been observed in 18 years of beach seining.
Steelhead, Northern California DPS	Threatened	NMFS	Habitat marginally suitable, species has not been observed in 18 years of beach seining.
Steller sea lion (Eastern DPS)	Threatened	NMFS	Habitat present; species has been observed but is rare.

DPS: Distinct Population Segment

ESU: Evolutionarily Significant Unit

NMFS: National Marine Fisheries Service

USFWS: United States Fish and Wildlife Service

5.1. Species that May Occur in the Action Area

5.1.1. Chinook Salmon, California Coastal ESU

Status

The California coastal ESU of Chinook salmon was listed as threatened on June 28, 2005 (70 FR 37160). Critical habitat was designated on September 2, 2005 (70 FR 52488). Currently there is no approved recovery plan for this species.

Available historical Chinook salmon abundance information are summarized by Myers et al. (1998), who assert that "escapement of this ESU was estimated at 73,000 fish, predominantly in the Eel River (55,500) with smaller populations in Redwood Creek, Mad River, Mattole River (5,000 each), Russian River (500), and several small streams in Del Norte and Humboldt Counties. ... Data available to assess trends in abundance are limited. Recent trends have been mixed, with predominantly strong negative trends in the Eel River Basin, and mostly upward trends elsewhere. Previous assessments of stocks within this ESU have identified several stocks as being at risk or of concern. Nehlsen et al. (1991) identified Redwood Creek, Mad River, and Eel River stocks as stocks of concern." None of the stocks identified in this paragraph are particularly close to the action area; the closest, Mad River, enters the ocean approximately 7 miles due south of the project area.

Biological Requirements

Healey (1991) describes two basic life history strategies (races) for Chinook salmon, stream-type and ocean-type. Both types occur within the California coastal ESU, but as there are no Chinook-bearing streams in the action area, any fish occurring in this nearshore habitat likely are ocean-type. Fall-run Chinook salmon are unambiguously ocean-type (Moyle 2002). Adults move into rivers and streams from the ocean in the fall or early winter in a sexually mature state and spawn within a few weeks or days upon arrival on the spawning grounds (Moyle 2002). Juveniles emerge from the gravel in late winter or early spring and within a matter of months, migrate downstream to the estuary and the ocean (Moyle 2002, Quinn 2005).

Critical Habitat

There is no designated critical habitat for Chinook salmon within the action area.

5.1.2. Coho Salmon, Southern Oregon/Northern California Coast ESU

Status

The southern Oregon / northern California coast ESU of coho salmon was listed as threatened on June 28, 2005 (70 FR 37160). Designated critical habitat was designated on May 5, 1999 (64 FR 24049). Currently there is no approved recovery plan for this species.

Although there are few data, the information that is available for this ESU indicates the component populations are in decline and strongly suggests the ESU is at risk (Weitkamp et al. 1995, CDFG 2002, Good et al. 2005). The most recent status review concluded that coho salmon populations in this ESU "continue to be depressed relative to historical numbers, and [there are] strong indications that breeding groups have been lost from a significant percentage of streams within their historical range (Good et al. 2005)."

Biological Requirements

Coho salmon adults migrate and spawn in small streams that flow directly into the ocean, or tributaries and headwater creeks of larger rivers (Sandercock 1991, Moyle 2002). Adults migrate upstream to spawning grounds from September through late December, peaking in October and November. Spawning occurs mainly in November and December, with fry emerging from the gravel in the spring, approximately 3 to 4 months after spawning. Juvenile rearing usually occurs in tributary streams. They may spend 1 to 2 years rearing in freshwater (Bell and Duffy 2007), or emigrate to an estuary shortly after emerging from spawning gravels (Tschaplinski 1987). Emigration from streams to the estuary and ocean generally takes place from March through May.

Critical Habitat

There is no designated critical habitat for coho salmon within the action area.

5.1.3. Steelhead, Northern California DPS

Status

The northern California DPS of steelhead was listed as threatened on January 5, 2006 (71 FR 834). Critical habitat was designated on September 2, 2005 (70 FR 52488). Currently there is no approved recovery plan for this species.

Steelhead abundance estimates are summarized in the most recent NMFS west coast steelhead status reviews (Good et al. 2005). The Biological Review Team (BRT) made a few conclusions, albeit with limited data: (1) population abundances are low,

compared to historical estimates; (2) recent trends are downward (except for a few small summer-run stocks), and (3) summer-run steelhead abundance was "very low" (Good et al. 2005).

Biological Requirements

Steelhead probably have the most variable life history of any salmonid (Quinn 2005). There are two basic steelhead life history patterns, winter-run and summer-run (Quinn 2005, Moyle 2002). Winter-run steelhead enter rivers and streams from December to March in a sexually mature state and spawn in tributaries to mainstem rivers, often ascending long distances (Moyle 2005). Summer steelhead (also known as spring-run steelhead) enter rivers in a sexually immature state during receding flows of spring and migrate to headwater reaches of tributary streams where they hold in deep pools until spawning the following winter or spring (Moyle 2002). Spawning for all runs generally takes place in the late winter or early spring. Eggs hatch in 3-4 weeks and fry emerge from the gravel 2 to 3 weeks later (Moyle 2002). Juveniles spend 1 to 4 years in freshwater before migrating to estuaries and the ocean where they spend I to 3 years before returning to freshwater to spawn (Moyle 2002).

Critical Habitat

There is no designated critical habitat for steelhead within the action area.

5.1.4. Steller Sea Lion

Status

Steller sea lion populations located east of 144°W were designated by NMFS as threatened on April 5, 1990 (55 FR 49204). Designated critical habitat for this species is associated with habitats used for breeding. Critical habitat was designated on August 27, 1993 (58 FR 45269) and refined on June 15, 1994 (59 FR 30715). No critical habitat occurs within the action area. A recovery plan for the species was issued on February 3, 2006 (70 FR 37175).

The most recent stock assessment (Angliss and Outlaw 2006) indicates that the eastern DPS of Steller sea lion has a stable or increasing population trend with a total population size of approximately 45,000 animals. There is a minimum population estimate for California of 2,396 animals, also with a stable or slightly increasing trend.

Biological Requirements

The Steller sea lion is the largest of 14 species in the eared seal family, Otariidiae. Males are often over 10 feet long and weigh 2,200 pounds, while females are usually 8 feet long and weigh about 660 pounds (Ridgeway 1972). Steller sea lions typically occur as individuals or in small groups of up to a dozen individuals.

The Steller sea lion is found around the North Pacific Rim from the Channel Islands of Southern California to northern Hokkaido, Japan. The center of distribution is in Alaska (NMFS 1992). Within this distribution, land sites used by Steller sea lions are referred to as rookeries and haul-out sites. Rookeries are used by adult males and females for mating, pupping, and nursing from late May to early July. Haul-outs are used by all size and sex classes but are generally not sites of reproductive activity. Presumably, these sites were chosen and continue to be used because they provide protection from predators, some measure of protection from severe climate or sea surface conditions, and (perhaps most importantly) are in close proximity to prey resources.

Steller sea lions are not known to migrate, but individuals disperse widely outside of the breeding season. Exchange between rookeries by breeding adult males and females appears low. Steller sea lions feed in open water between the nearshore zone and the edge of the continental shelf (NMFS 1992).

Declines in species abundance have been linked to reduced prey supply, which is in turn tied chiefly to overfishing. Reported mortality due to incidental take is primarily associated with troll, trawl and gillnet fisheries, and with predator control at aquaculture facilities (in British Columbia) (Angliss and Outlaw 2006).

Steller sea lions are migratory and appear to be most abundant in the Humboldt County area during spring and fall. The nearest documented haul-out site for Steller sea lions is Blank Rock, situated approximately 1 km due west of the Trinidad Pier, on the opposite side of Trinidad Head (Figure 3). Surveys have documented absence of Steller sea lions at this haul-out between the months of October through April, and very few have been observed in the months of August and September (Sullivan 1980). Furthermore, when leaving haul-outs, sea lions generally travel seaward to forage in deeper waters where their prey is more abundant (National Marine Fisheries Service 2008). Steller sea lions have not been documented within Trinidad Bay over eight years of surveys conducted at the site (Dr. Dawn Goley, 2008, pers.comm). The areas surrounding the project site could be used by non-breeding adults and juveniles and by sea lions after the breeding season (National Marine Fisheries Service 2006).

Chapter 6. Project Effects

This section discusses anticipated effects from the proposed action. The ESA requires that federal agencies consider several types of effects, as defined below.

Direct effects are effects from actions that would immediately remove or destroy habitat, harm (injure or kill) species, or adversely modify designated critical habitat. Direct effects include actions that would potentially remove or destroy habitat, or displace or otherwise influence the species, either positively (beneficial effects) or negatively (adverse effects).

Indirect effects are those effects that are caused by the proposed action and occur later in time, but are still reasonably certain to occur. Indirect effects may include impacts on food resources, or foraging areas, and impacts from increased long-term human access/activities.

Effects from interdependent and/or interrelated actions. These include effects from actions that (1) have no independent utility apart from the primary action, or (2) are part of a larger action and depend on the larger action for their justification, and/or (3) are required as part of the action, including maintenance and/or use of the project, as well as other actions that would be carried out to implement, maintain, and/or operate the project.

Conservation measures (or mitigation measures) are measures proposed to minimize or compensate for project effects on the species under review. Unless stated otherwise, the effects determinations, as defined below are based on the assumption that conservation measures will be incorporated into the project.

The ***effect determinations*** are the specific conclusions of the biological assessment concerning the overall effect of the covered activities on each species and/or critical habitat type. The possible effect determination categories for listed species and their

designated critical habitat are (1) No Effect; (2) May Affect, Not Likely to Adversely Affect; Or (3) May Affect, Likely to Adversely Affect.

6.1. Direct Effects

The primary direct effects of the authorized activities within this RGP include

- underwater noise generated from vibratory pile removal and placement;
- subaerial noise generated from vibratory pile removal and placement, and operation of construction equipment;
- construction effects on water quality from demolition, turbidity, uncured concrete, minor fuel and oil spills, and surface erosion;
- operational effects due to lighting and shading;
- operational effects on water quality from stormwater and minor material spills; and
- beneficial effects.

The following sections describe these direct effects in detail.

6.1.1. Underwater Noise

Background

When a pile is vibrated, the vibration propagates through the pile and radiates sound into the water and the ground substrate as well as the air. Sound pressure pulse as a function of time is referred to as the waveform. The peak pressure is the highest absolute value of the measured waveform, and can be a negative or positive pressure peak (see Table 6-1 for definitions of terms used in this analysis). The RMS level is determined by analyzing the waveform and computing the average of the squared pressures over the time that comprise that portion of the waveform containing 90 percent of the sound energy(Richardson et al. 1995, Illingworth & Rodkin 2008). This RMS term is described as $RMS_{90\%}$ in this report. This has been approximated in the field for impact pile driving sounds by measuring the signal with a precision sound level meter set to the "impulse" RMS setting ($RMS_{impulse}$). Another measure of the pressure waveform that can be used to describe the pulse is the sound energy itself. The total sound energy in the pulse is referred to in many ways, such as the "total energy flux"'. The "total energy flux" (Finerran et al. 2002) is equivalent to the un-weighted sound exposure level (SEL) for a plane wave propagating in a free field, a common unit of sound energy used in airborne acoustics to describe short-duration events. The unit is dB re $1\mu Pa^2$/sec. In this analysis, underwater peak pressures and RMS sound pressure levels are expressed in decibels re $1\mu Pa$; however, in other literature they can take other forms such as a Pascal or pounds per square inch. The total sound energy in an impulse accumulates over the duration of that impulse.

Table 6-1. Hydroacoustic terminology

Term	Definition
Peak Sound Pressure, unweighted (dB)	Peak sound pressure level based on the largest absolute value of the instantaneous sound pressure. This pressure is expressed in this report as a decibel (referenced to a pressure of 1µPa) but can also be expressed in units of pressure, such as a µPa or PSI.
RMS Sound Pressure Level, (NOAA Criterion), dB re:1µPa	The average of the squared pressures over the time that comprise that portion of the waveform containing 90 percent of the sound energy for one pile driving impulse.
Sound Exposure Level (SEL), dB re:1µPa^2/sec	Proportionally equivalent to the time integral of the pressure squared and is described in this report in terms of µPa2/sec over the duration of the impulse. Similar to the unweighted Sound Exposure Level (SEL) standardized in airborne acoustics to study noise from single events.
Waveforms, µPa over time	A graphical plot illustrating the time history of positive and negative sound pressure of individual pile strikes shown as a plot of µPa over time (i.e., seconds).
Frequency Spectra, dB over frequency range	A graphical plot illustrating the distribution of sound pressure vs. frequency for a waveform, dimension in rms pressure and defined frequency bandwidth.

Baseline Underwater Noise Level

Currently, no data are available describing baseline levels of underwater sound in Trinidad Bay. Relevant index information can be derived from underwater sound baselines in other areas. The quietest waters in the oceans of the world are at Sea State Zero, 90 dB at 100 Hz (National Research Council 2003, Guedel 1992). Underwater sound levels in Elliott Bay near Seattle, WA, representative of an area receiving moderately heavy vessel traffic, are about 130 dB_{RMS} (WSDOT 2006). In Lake Pend Oreille, ID, an area which, like Trinidad Bay, receives moderate to heavy traffic from smaller vessels, underwater sound levels of 140 dB_{RMS} are reached on summer weekends, dropping to 120 dB_{RMS} during quiet midweek periods (Cummings 1987). Since Trinidad Bay receives daily, year-round use by a variety of recreational and fishing vessels, a background underwater sound estimate of 120 dB_{RMS} is a conservative estimator for daytime underwater noise levels, and was used to calculate the action area for the proposed action.

Noise Thresholds

There has been extensive effort directed towards the establishment of underwater sound thresholds for marine life. Interim criteria for fish were recently adopted. Various criteria for marine mammals have been established through precedent. Acoustical data are presented in terms of the criteria metrics.

Fish

On June 12, 2008 the Fisheries Hydroacoustic Working Group released a memo with the subject being an Agreement in Principle for Interim Criteria for Injury to Fish from Pile Driving Activities. Representatives from Federal Highway Administration,

NMFS, USFWS, California Department of Fish and Game, and the Departments of Transportation from California, Oregon, and Washington signed this memo. The agreed upon criteria identify sound pressure levels of 206 dB peak and 187 dB accumulated sound exposure level (SEL) for all listed fish except those that are smaller than 2 grams. In that case, the criterion for the accumulated SEL is 183 dB.

Marine Mammals

Current NMFS practice[1] regarding exposure of marine mammals to high-level sounds is that cetaceans and pinnipeds exposed to impulsive sounds of 180 and 190 dB RMS or above, respectively, have the potential to be injured (i.e., Level A harassment). NMFS considers the potential for behavioral (Level B) harassment to occur when marine mammals are exposed to sounds below injury thresholds but at or above 160 dB RMS threshold for impulse sounds (e.g., impact pile driving) and 120 dB RMS threshold for continuous noise (e.g., vibratory pile driving).

Extent of Underwater Project Noise

Pile Driving

There are several sources of measurement data for piles that have been driven with a vibratory hammer. Illingworth & Rodkin (2008) collected data at several different projects with pile sizes ranging from 13-inch to 72-inches. The most representative data from these measurements would be from the Ten Mile River Bridge Replacement Project[2] and the Port of Anchorage Marine Terminal Redevelopment Project. At Ten Mile, ninety-six 30-inch CISS piles were measured in cofferdams filled with water in the Ten Mile River at 33 feet and 330 feet from the piles. The sound level in the water channel ranged from <160 to 182 dB peak and from <150 to 166 dB RMS. The SEL levels were not measured, however the SEL_{1sec} would be similar to the RMS due to the constant sound of the vibratory hammer. Levels generally increase gradually with increasing pile size. These sound levels are, therefore, considered a conservative (credible worst case) estimate of the expected levels given that the size of the piles proposed for this project are smaller in diameter (18 in.) than the piles measured at Ten Mile.

Illingworth & Rodkin (2008) gathered data at the Port of Anchorage during the vibratory driving of steel H piles. These data, and data gathered by others, were used as the basis for the Environmental Assessment (EA) that was prepared by NMFS for

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[1] Environmental Assessment on the Issuance of an Incidental Harassment Authorization and Subsequent Rule Making for Take of Small Numbers of Marine Mammals Incidental to the Port of Anchorage Terminal Redevelopment Project, Anchorage, Alaska, prepared by National Marine Fisheries Service, July 2008.

[2] Memos from K, Pommerenck (Illingworth & Rodkin, Inc.) to Lisa Embree of Caltrans dated 4/25/2007 through 8/28/2007 transmitting underwater noise measurement results for CISS piles at Bents 5, 6, 7 and 8 of the Ten Mile River.

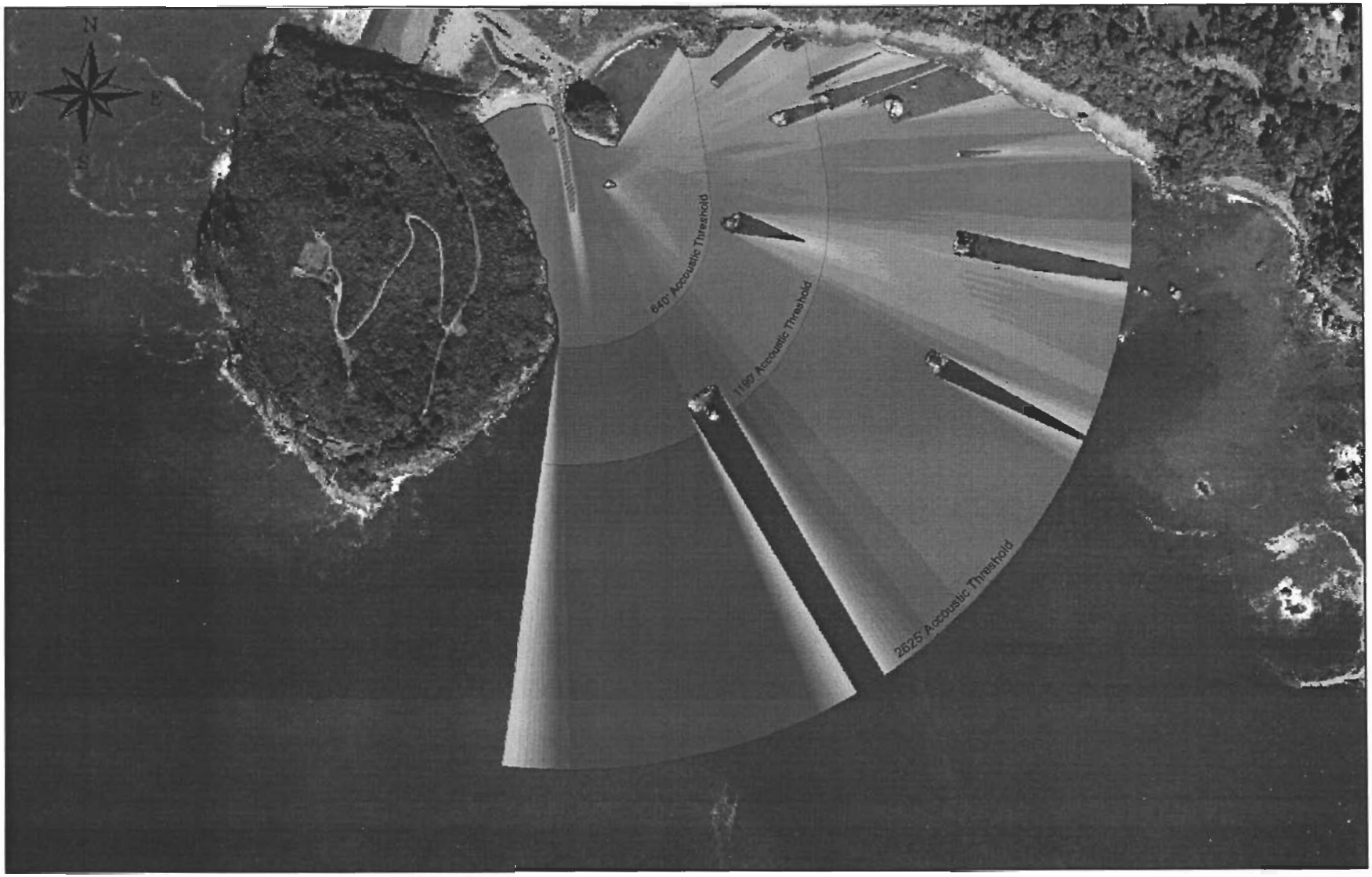
the issuance of an incidental harassment authorization (IHA). These data were summarized in the IHA. The Port of Anchorage IHA concluded that average sound levels of vibratory pile driving sounds would be approximately 162 dB re:1μPa at a distance of 20 meters. Furthermore, for vibratory driving, the 190 and 180 dB levels would occur at distances of less than 33 feet and the 120 dB level would occur out to about 2,625 feet from the vibratory hammer. Data are summarized in Table 6-2. The data correlate well after accounting for the difference in distance between the two measurement positions.

Table 6-2. Sound Level Data

Source	Distance	Peak dB re:1μPa	RMS dB re:1μPa	SEL (1 sec) dB re:1μPa²/sec
10 Mile	33 feet	182	166	166
10 Mile	330 feet	<160	<150	<150
Anchorage IHA	66 feet	NA	162	NA

Source: Illingworth & Rodkin (2008).

For this analysis, close to the pile, it is assumed that there would be a 4.5 dB decrease for every doubling of the distance. Levels of 180 dB_{RMS} or 190 dB_{RMS} are not expected to occur in the water. Peak sound pressures would not exceed 190 dB_{peak} in water. Long distance sound propagation in shallow water varies considerably. Limited measurements of vibratory pile driving made at distances where levels approached 120 dB_{RMS} indicate that the 2,625-feet distance identified in the Port of Anchorage IHA would be a conservative and reasonable prediction for where the 120 dB_{RMS} level would occur during the installation of the CISS piles for the Trinidad Pier Reconstruction Project. The accumulated SEL is both a function of the received sound level and the duration of exposure. The maximum number of piles that would be driven in any given day is two (more typically only one pile would be vibrated in in a day). It is estimated based on past projects that each pile would be driven for approximately 15 minutes (900 seconds per pile, 1800 seconds per day maximum). A conservative assessment assumes fish would be within the ensonified area all day to receive the sound and all of the driving would produce the maximum SEL. Under this scenario, the accumulated SEL would be 197 dB at about 40 feet. The distance to the 187 dB accumulated SEL would be approximately 150 ft and the distance to the 183 dB accumulated SEL would be about 260 ft. Results are summarized in Table 6-3 and in Figure 6-1, which shows both the area of effect and the relative exposure risk based on the presence of shielding features (headlands and sea stacks). Under no circumstances would the peak threshold for fish, or the Level A (injury) threshold for cetaceans or pinnipeds, be exceeded.



Legend

Trinidad Pier

Accoustic Thresholds

Visibility from individual pilings.*

1 - 10
10 - 20
20 - 30
30 - 40
40 - 50
50 - 60
60 - 70
70 - 80
80 - 90
90 - 100
100 - 115

0 250 500 1,000 Feet

*Value represents number of pilings in direct line of site from each square meter cell within the Action Area.

Figure 6-1. Area of Effect For Underwater Noise.

ICF Jones & Stokes

Table 6-3. Predicted Distances to Acoustic Threshold Levels for the Trinidad Pier Reconstruction

Construction Activity	Distance from activity to Effect Threshold		
	Fish (>2gm) Daily Accumulated SEL 187 dB	Fish (<2gm) Daily Accumulated SEL 183 dB	Marine Mammal level B 120 dB RMS
18" pile Installation	150 ft	260 ft	2625 ft
Augering	Not expected to occur	Not expected to occur	640 ft
Wood Pile Removal	Not expected to occur	Not expected to occur	1190 ft

Noise Levels from Augering

An attempt was made to measure the noise from augering out the 30-inch piles at the Ten Mile Bridge Replacement Project. The levels were below the peak detector of the equipment, 160 dB_{peak}, and so measurements were stopped. Based on this the levels for augering the 18-inch piles would be below 160 dB_{peak}, and the SEL would be below 150 dB re:1μPa^2/sec. Augering is expected to generate noise levels at or below the lower end of this range (Illingworth & Rodkin 2008).

Noise Levels from Removal of Wood Piles

Removal of the existing wood piles would be accomplished with the use of a vibratory hammer. It would take approximately 30 to 45 minutes to extract each pile. Typically the noise levels for installing and removing a pile are approximately the same when a vibratory hammer is used. The noise generated by installing woodpiles is generally lower than steel shell piles. I&R has had only one opportunity to measure the installation of woodpiles and this was with a 3,000-pound drop hammer. The levels measured at a distance of 10 meters were as follows: 172 - 182 dB_{peak}, 163 - 168 dB_{RMS}, the SEL was not measured. For a comparable CISS pile, using a 3,000-pound drop hammer, the levels measured were 188 - 192 dB_{peak}, 172 - 177 dB_{RMS} and again the SEL was not measured. The noise generated during the installation of the wood pile was approximately 10 dB lower than the CISS piles. Following this logic, the sound produced when removing the wood piles would be about 10 dB lower than when installing the CISS piles.

Levels of 180 dB or 190 dB RMS are not expected to occur in the water as a result of pile removal. Peak sound pressures would not be expected to exceed 190 dB in water. The average sound level of vibratory woodpile removal would be approximately 152 dB re:1μPa at a distance of 66 feet. Using the transmission loss rate assumed in the Anchorage IHA, the distance to the 120 dB RMS level is calculated to be about 1,190 feet. As noted earlier, the accumulated SEL received is both a function of the received sound level and the duration. The maximum number of piles that would be

removed in any given day is five and the engineer estimates that each pile would take between 30 to 45 minutes to remove. Assuming that it would take an average of 40 minutes per pile, there would be about 2,400 pile removal seconds for each pile, or approximately 12,000 seconds per day (3.3 hours over the course of a day if five piles were removed – more typically fewer piles would be removed in a day). A conservative assessment assumes fish would be there all day to receive the sound and all of the driving would produce the maximum SEL. NMFS methodology states that when the single strike SEL (or SEL_{1sec}) is less than 150 dB (Effective Quiet) the SEL would not accumulate to cause injury. Under this scenario, the accumulated SEL at about 33 ft (10m) would be less than 150 dB and therefore the SEL would not be accumulated. Results are summarized in Table 6-3.

Biological Effects

Based on the foregoing analysis, the proposed action could result in underwater acoustic effects to all fish, bird, and mammal species addressed in this analysis.

Any Chinook and coho salmon present in the action area would almost certainly all be larger than 2 gm because the nearest stream supporting these species, the Mad River, is approximately 7 miles south of the project area. Thus any fish present in the area would be fingerlings or larger. For these fish, the 187 dB SEL daily threshold would be exceeded within 150 feet of pile installation activities, which would be performed during the months of August through January (possibly February if winter storms result in excessive work delays). The exceedance would occur on approximately 30% of days during this period. The work period comes after these species have migrated to the ocean, and there is very little likelihood that either Chinook or coho salmon would be present in the action area when the work occurs. This presumption is further supported by the beach seine data of Mulligan (2007), who has collected a total of four Chinook and zero coho salmon during 18 years of June and December seines at Trinidad Bay.

The injury thresholds for pinnipeds and cetaceans would not be attained, but the behavioral response threshold of 120 dB RMS would be attained during use of the vibratory pile driver (for wood piling removal and for CISS pile placement), and during augering of the CISS pile placements. Effect distances for these activities are shown in Table 6-3, and range from 640 feet to 2,625 feet. The duration of exposure varies between activities. Pile installation would occur for approximately 30 minutes on each of 58 days, resulting in sound levels exceeding the behavioral effect threshold within 2,625 feet of the activity. Pile removal, the next-noisiest activity, would require approximately 50 hours total distributed over approximately a 180 day period, with activity primarily occurring on approximately 60 days evenly distributed during the period. Sound levels would exceed the behavioral effect threshold within 1,190 feet of the activity. Augering is estimated to require 1 hour per pile with activity occurring on each of approximately 60 days evenly distributed during a 180-

day period. Sound levels would exceed the behavioral effect threshold within 640 feet of the activity. These activities could be performed on the same day, but more often they would occur on consecutive days, with a cycle of pile removal - pile installation - augering - grouting occurring as each of 25 successive bents is placed.

Steller sea lions are extremely unlikely to be exposed to elevated underwater sound levels. Surveys performed between October through April have not documented any Steller sea lions at the Blank Rock haul-out (Figure 3), which is the closest haul-out to the action area. Very few animals have been seen at this haul-out in August or September (Sullivan 1980). Furthermore, when leaving haul-outs, sea lions generally travel seaward to forage in deeper waters where their prey is more abundant (National Marine Fisheries Service 2008). Steller sea lions have not been documented within Trinidad Bay over eight years of surveys conducted at the site (Dr. Dawn Goley, 2008, pers. comm.). Thus they are extremely unlikely to enter within the 2,625-foot radius within which behavioral harassment might occur. Due to the shallow waters in the affected area and the large size of these animals, they would quickly be detected by the marine mammal monitor (see Section 3.11.1) and work would be stopped until after the animals departed. Thus it is unlikely that they would be exposed to elevated underwater sound levels, and any exposure that did occur would be very brief.

6.1.2. Subaerial Noise

Noise Sources

The principal source of subaerial noise would be the vibratory pile driver used to extract old wood piles and to place the new CISS piles. In measurements of 44 vibratory pile drivers, the Federal Highway Administration (2006) determined that the maximum noise production of a vibratory pile driver operating at full power is 101 dBA at 50 feet. All other power equipment that would be used as part of the proposed action (trucks, pumps, compressors, etc.) produces at least 10 dB less noise and thus has much less potential to affect listed species.

Effects of Subaerial Noise

Data on sensitivity to subaerial noise are not available for Steller sea lions, but the nearest recorded Steller sea lion haul-out is on the other side of Trinidad Head from the pier. The mass of Trinidad Head blocks sound transmission in that direction, and the haul-out is located approximately 3,400 feet from the pier (Figure 3). Surveys performed between October through April have not documented any Steller sea lions at the Blank Rock haul-out (Figure 3), which is the closest haul-out to the action area. Very few animals have been seen at this haul-out in August or September (Sullivan 1980). Thus it is very unlikely that any Steller sea lions would be exposed to noise from construction at the pier.

6.1.3. Construction Effects on Water Quality

During construction, proposed activities may affect water quality by demolition activities, generation of turbidity, seawater contact with uncured concrete, minor fuel and oil spills, and surface erosion. The anticipated effects under each of these mechanisms are explained below.

Demolition activities include the removal of structures on the old pier, removal of the old pier superstructure, and removal of pilings supporting the old pier. There is minimal risk of affects to water quality during structure and superstructure removal due to implementation of the pier demolition BMPs described in section 3.11.2. Those BMPs include suspending a protective cover beneath the pier and above the water, placing a floating oil containment boom around the work area, and removal of creosote-treated wood to an approved upland disposal area.

Removal of the pilings has the potential to cause local turbidity and the release of toxic organic compounds if the creosoted piles are fractured or broken. The duration and intensity of turbidity depends upon the quantity of materials in suspension, the particle size of suspended sediments, the currents in the affected area, and the physical and chemical properties of the suspended sediments (NMFS 2001). Turbidity within the immediate vicinity of the construction activity (several meters) would likely exceed the background levels by a significant margin and potentially affect fish and their prey by plugging gills, temporarily depleting the affected area of dissolved oxygen, and by burying bottom-dwelling benthic communities (USACE 2002, Martin et al. 1977, Carrasquero 2001). Given that sediments in the dock area are described as sand-size or coarser (Taber 2007) due to the presence of heavy wave action and tidal currents, turbidity effects are expected to be minor, with disturbed material primarily consisting of sand that settles to the bottom within a distance of a few meters. Release of toxic organic compounds is similarly expected to be a minor concern due to the extent of leaching since the pilings were installed in 1946. However, as noted above, the work area will be enclosed with a floating oil containment boom. Oil-absorbent materials will be deployed if a visible sheen is detected on the water. These precautions are intended to minimize introduction of organic chemicals to the marine environment. Any chemicals released will also be rapidly dispersed and diluted by the energetic wave and tidal environment. Exposure of marine animals to such contaminants would be brief, primarily occurring during the 50 minutes (approximately) on each of 60 days (approximately) when wood pile removal is occurring. Given the brief exposure time, small dose, and rapid dilution of organic chemical releases, no detectable biological effects are anticipated beyond the necessary mortality of sessile algae and invertebrates living on the pilings.

For the same reasons cited above, turbidity associated with piling installation is expected to have minimal effects on water quality. During augering-out of the CISS piles, augered material will be prevented from falling into the water by the design of

the auger. Augered material will be placed in 55 gallon drums and the drums sealed before removing the material from the dock to the staging area, thereby minimizing the risk of material entering the water due to spillage on the dock.

Seawater will only be allowed to contact uncured concrete when a tremie is used to seal the lower end of each CISS pile after the pile has been driven and augered out. As described in Section 3.11.2, BMPs for tremie use include allowing an overnight curing period, testing the pH of the water in the CISS shell after curing and delivering the water to a certified wastewater treatment facility if a pH excursion of more than 0.2 units is detected, dewatering the CISS shell to an upland settling basin before placing rebar and filling the shell with concrete, and additional precautions intended to prevent any accidental concrete spillage during the filling process. Wet concrete will also be applied to the deck of the pier after the precast decking pieces have been laid on. Drainage from this concrete will be collected by the stormwater collection system (which will have been constructed by that time) and conveyed to the upland treatment vault. Implementation of these measures is expected to entirely avoid the risk of water quality impacts associated with uncured concrete.

Machinery required for the construction will operate near the water, either from the shoreline or, primarily, from atop the existing pier. No machinery will operate directly within waters, other than the auger and tremie that will operate under water inside of a driven CISS pile. Although no machinery will operate directly within waters, there is a risk that petroleum products will leak or spill into the water. The risk to marine organisms would depend on the type of contaminant spilled, time of the year, spill amount, and success of containment efforts (USACE 2002). As noted above, the work area will be enclosed with a floating oil containment boom. Oil-absorbent materials will be deployed if a visible sheen is detected on the water. These precautions are intended to minimize the risk of introducing contaminants to the marine environment. The level of effect to the aquatic environment is expected to be minor because of the small amounts of petroleum products likely to be spilled during typical construction activities and because of required spill containment measures.

The only location where surface erosion may potentially occur and thereby carry sediment to a surface water, is at the staging area, which is an existing graveled parking lot. Turbidity and sedimentation effects from use of the staging area will be avoided by placement of temporary erosion and sedimentation control measures, to be detailed in the project stormwater pollution prevention plan. Given implementation of those measures, sedimentation and turbidity effects are expected to be avoided entirely.

6.1.4. Construction Lighting

Artificial lighting in the vicinity of docks and other aquatic structures has been shown to have a variety of effects on fish and wildlife. Effects observed in juvenile salmon include an attraction to the light/dark interface (Nightingale and Simenstad 2001), reduced visual acuity during adaptation to sudden changes in illumination, and patterns of seeking out or avoiding artificial lights (Rich and Longcore 2005). These studies have generally not looked at essential behaviors such as foraging, migration and predator avoidance, but it seems likely that there is a potential for adverse effects. For instance, predator and prey detection is likely impaired while a fish is adapting to a suddenly changed light environment.

It is thus plausible that construction lighting at the pier could have a detrimental effect on fish in the area. These effects will be minimized by limiting construction and intense illumination in the work area to the hours of 7 AM to 7 PM. On the shortest day of the year, this corresponds to lighting of the site for 2 hours and 47 minutes before sunrise or after sunset, and for 1 hour and 37 minutes after the end of civil twilight. During the remainder of the night, the only lighting used will be low-intensity security lighting. Moreover, lights will be positioned and directed to focus on the work areas, and to minimize delivery of incident light into the sky or onto the water surface. With these precautions, measurable effects on fish due to construction lighting are not likely to occur.

6.1.5. Operational Effects

Stormwater and Water Quality

Currently storm water discharges into the bay through gaps in the pier decking. A new storm water system shall be incorporated into the design of the new pier. All runoff from the new pier shall be collected and routed upland, where it will be treated and infiltrated. The pier shall be sloped from the east to west and drainage from the pier shall be routed upland through a storm water utility pipe discharging via gravity feed to a treatment cell buried beneath the upland gravel parking area (drawings in Appendix C). The treatment cell will provide settling, infiltration, and active filtration. No surface water discharge will occur. As such there is no potential to affect habitat of listed species or their prey, and the potential effects are much reduced compared to baseline conditions at the site.

There is also a possibility of materials spills during operations. Although no bulk material transfers occur at the dock, routine handling of containers of fuel, lubricants, and hydraulic fluid occurs and will continue to occur. Normally, the volumes are small enough to be hand-carried in standard containers. The presence of curbs around the dock and an impervious concrete dock surface would produce a high

likelihood that material spills on the dock could be cleaned up without delivering any contamination to the waters of the bay.

Effects of Lighting after Construction

The completed pier may potentially affect lighting in one of two ways: by artificial illumination of the water surface at night, or by shading of the water surface due to the presence of the overwater structure represented by the pier.

Lighting design for the pier calls for a design that avoids illumination of the water surface. Instead, the pier will be lit by horizontally-directed lights along the sides of the pier that illuminate the structure's surface without casting light on the water surface. This lighting design also minimizes direction of light upwards, so it has minimal potential to affect birds as well. Thus the project design effectively minimizes the potential effects of artificial lighting.

The pier does, however, shade a portion of the water surface. As described by Nightingale and Simenstad (2001), "by virtue of light refraction from the water's surface, the underwater light environment is by nature a light- reduced environment. Overwater structures enhance this light reduction through an increased loss of underwater light energy." This reduction in light energy may be expected to result in decreased algal and diatom productivity near the pier structure, and this outcome is reflected in the current distribution of algae near the existing pier, described in Chapter 4. Relatively little algae now grows beneath the pier, except in the shallowest (intertidal) waters and on the shallow portions of the existing pilings. The replaced pier structure is likely to perpetuate these effects, but to a slightly reduced extent because the new structure will contain approximately half as many pilings, and the new structure will be lighter in color, being composed of concrete rather than treated wood. Thus more incident light will be reflected from the pier onto the water surface, and fewer structural members beneath the pier deck will cast shade, in comparison to current conditions. Given the relatively energetic wave- and tide-influenced environment, and the nearby presence of highly productive kelp beds, it is likely that the new pier structure will have little potential to materially alter the existing site potential to provide habitat for Chinook or coho salmon, or to alter the existing potential to provide forage fish utilized by marine mammals. Thus effects of the proposed action on lighting are expected to be insignificant.

6.1.6. Beneficial Effects

The principal beneficial effects that will accrue from the proposed action are:

- Existing creosote-treated wooden piles will be completely removed and disposed at an approved upland site, being replaced by approximately half as many CISS pilings. This will eliminate on ongoing source of organic toxin contamination and provide a more suitable substrate for colonization by marine life.

- The existing pier has no stormwater collection and treatment system. The replacement pier will have an impervious deck with curbs enclosing a space where all stormwater is collected and routed by gravity feed to an upland treatment cell that will provide detention, settling, and active filtering prior to complete infiltration. This will eliminate an ongoing source of contaminants including dirt, organic waste, and petrochemical derivatives, resulting in a likely measurable improvement in water quality near the pier.
- The stormwater treatment system described above will also facilitate detection, control and cleanup of any materials spills that may occur on the dock.
- The renovated dock will have reduced shading and artificial lighting effects compared to the existing structure.
- The marine lab water intake associated with the dock will be fitted with NMFS approved screens, minimizing the risk of entrainment of juvenile salmon or forage fish.

6.2. Indirect Effects

Effects associated with operation of the renovated pier are described above. These effects will commence during the latter stages of construction and will continue indefinitely, and are thus treated as direct effects of the proposed action. Apart from those effects, the proposed action:

- Does not create a new facility or increase the capacity of the existing facility. The renovated pier will be in the same location and of the same size as the existing facility, and will provide the same services to the same number of users.
- Is not required for any other proposed or approved development action.
- Is not expected to result in any other development proposals.

For these reasons, no indirect effects are anticipated to result from the proposed action, and no interrelated or interdependent actions are known to exist.

Chapter 7. Effect Determinations

This chapter presents effect determinations for listed species potentially affected by the Project. Effect determinations are summarized in Table 7-1. There is no critical habitat in the action area.

Table 7-1. Effect Determinations Summary

Species/ Critical Habitat	Effect on Species	Justification
Chinook salmon, California coastal ESU	May affect, not likely to adversely affect	Species has very rarely been observed in action area despite many years of surveys, and all observed fish have been relatively large and highly mobile, thus unlikely to be harmed by action.
Coho salmon, southern Oregon/ northern California coast ESU	May affect, not likely to adversely affect	Species has never been observed in action area despite many years of surveys, and action area does not contain suitable habitat for species.
Steelhead, northern California DPS	May affect, not likely to adversely affect	Species has never been observed in action area despite many years of surveys, and action area does not contain suitable habitat for species.
Steller sea lion,eastern DPS	May affect, not likely to adversely affect	Although underwater sound will exceed behavioral modification threshold, animals are very unlikely to be present at the time this activity occurs.

ESU = evolutionarily significant unit

DPS = distinct population segment

7.1. Chinook Salmon, California Coastal ESU

Chinook salmon have rarely been observed in the action area. Mulligan (2007) relates the results of 18 years of biannual (June and December) beach seines in the action area, which produced a total of four Chinook salmon, including three adults and one juvenile. The action area is seven miles from the nearest Chinook spawning stream (the Mad River), and at the time when construction occurred, no Chinook

salmon would be expected to enter the action area except potentially as adults. Adult salmon are normally highly mobile, so it is unlikely that an adult would enter the zone of elevated underwater sound and would then remain there for long enough to exceed the SEL criterion. Thus the potential of harm by the mechanism of underwater sound is discountable due to the extended exposure needed to exceed the SEL, the small area within such exposure could occur, and the very low probability of Chinook salmon presence at the time of the activity. Other potential mechanisms of harm are all related to water quality effects that are extremely small in magnitude and/or would only occur in the event of an accident. Since the potential effects are all of very low severity or very unlikely to occur, and since in any event Chniook salmon are not expected to be present during the construction period, the proposed action may affect but is not likely to adversely affect Chinook salmon.

7.2. Coho Salmon, Southern Oregon/ Northern California Coast ESU

The effect analysis for coho salmon is the same as that described for Chinook salmon, except that the surveys reported by Mulligan (2007) have never detected any coho salmon. This is consistent with the known life history of coho salmon, which would be expected to head to sea very soon after leaving their natal river. Thus coho salmon would be even less at risk of harm, and the proposed action may affect but is not likely to adversely affect coho salmon.

7.3. Steelhead, Northern California DPS

The effect analysis for steelhead is the same as that described for Chinook salmon, except that the surveys reported by Mulligan (2007) have never detected any steelhead. This is consistent with the known life history of steelhead, which would be expected to head to sea very soon after leaving their natal river. Thus steelhead would be even less at risk of harm, and the proposed action may affect but is not likely to adversely affect steelhead.

7.4. Steller Sea Lion, Eastern DPS

Steller sea lions are migratory and are known to occupy waters in the vicinity of Trinidad Bay during spring and fall. The nearest documented haul-out site for Steller sea lions is Blank Rock, approximately 1 km due west of the Trinidad Pier, on the opposite side of Trinidad Head (Figure 3).

The principal mechanism of potential effect to Steller sea lions is underwater sound, which would exceed the behavioral modification criterion of 120 dB RMS within a radius of not more than 2,625 feet from the activity, and which would under no

circumstances exceed the criterion for physical injury. Surveys performed between October through April have not documented any Steller sea lions at the Blank Rock haul-out (Figure 3), which is the closest haul-out to the action area. Very few animals have been seen at this haul-out in August or September (Sullivan 1980). Furthermore, when leaving haul-outs, sea lions generally travel seaward to forage in deeper waters where their prey is more abundant (National Marine Fisheries Service 2008). Steller sea lions have not been documented within Trinidad Bay over eight years of surveys conducted at the site (Dr. Dawn Goley, 2008, pers.comm). Thus they are extremely unlikely to enter within the 2,625-foot radius within which behavioral harassment might occur. Due to the shallow waters in the affected area and the large size of these animals, they would quickly be detected by the marine mammal monitor (see Section 3.11.1) and work would be stopped until after the animals departed. Thus it is unlikely that they would be exposed to elevated underwater sound levels, and any exposure that did occur would be very brief. Accordingly, the proposed action may affect, but is not likely to adversely affect Steller sea lions.

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Appendix A. Essential Fish Habitat

Background

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established a requirement to describe and identify "essential fish habitat" (EFH) in each fishery management plan. The Act requires all federal agencies to consult with NMFS on all actions or proposed actions that are permitted, funded or undertaken by the agency that may adversely affect EFH. Only species managed under a federal fishery management plan are covered under EFH regulations.

EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purpose of interpreting the definition of essential fish habitat, "waters" includes aquatic areas and their associated physical, chemical, and biological properties that are used by fish (this may include areas historically used by fish, where appropriate). "Substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities. "Necessary" means habitat required to support a sustainable fishery and a healthy ecosystem. "Spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

EFH for Pacific coast groundfish, coastal pelagic species and Pacific salmon occurs in waters off the northern California coast. The project action area supports EFH for each of these groups.

In addition to EFH, the MSA encourages fishery management councils to designate habitat areas of particular concern (HAPCs). These are specific habitat areas, a subset of the much larger area identified as EFH, that play a particularly important ecological role in the fish life cycle or that are especially sensitive, rare, or

vulnerable. Designating HAPCs allows managers to focus their attention on conservation priorities during review of proposals, gives those habitats extra management protection, and gives the fish species within HAPCs an extra buffer against adverse impacts. To date, the Pacific Fishery Management Council has only designated HAPCs in EFH for groundfish species.

EFH in the Action Area

EFH for groundfish includes all waters from the high tide line (and parts of estuaries) to 3,500 meters (1,914 fathoms) in depth. There are five HAPCs for groundfish EFH, including estuaries, canopy kelp, seagrass, rocky reefs, and "areas of interest" (a variety of submarine features, such as banks, seamounts, and canyons). Of these, the canopy kelp and rocky reef HAPCs occur in the action area.

EFH for coastal pelagic species is based on the temperature range where they are found, and on the geographic area where they occur at any life stage. This range varies widely according to ocean temperatures. The EFH for CPS also takes into account where these species have been found in the past, and where they may be found in the future. The east-west boundary of CPS EFH includes all marine and estuary waters from the coasts of California, Oregon, and Washington to the limits of the EEZ (the 200-mile limit) and above the thermocline where sea surface temperatures range between 10° and 26° Celsius. The northern boundary is changeable and is defined as the position of the 10° C isotherm, which varies seasonally and annually. In years with cold winter sea surface temperatures, the 10° C isotherm during February is around 43° N latitude offshore, and slightly further south along the coast. In August, this northern boundary moves up to Canada or Alaska. Based on this criterion, EFH for coastal pelagic species will occur within the action area for much or all of the time construction is occurring.

EFH for Pacific coast salmon includes waters and substrate necessary for salmon production needed to support a long-term, sustainable salmon fishery and a healthy ecosystem. To achieve that level of production, EFH includes all streams, lakes, ponds, wetlands, and other currently viable water bodies (and most of the historical habitat) accessible to salmon in Washington, Oregon, Idaho, and California. In estuarine and marine areas, salmon EFH extends from the near shore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone, 200 miles offshore of Washington, Oregon, and California north of Point Conception. Thus all waters in the action area are included within EFH for Pacific coast salmon.

Effects of the Proposed Action

The effects of the proposed action are detailed in Section 6 of the biological assessment. The described effects on the marine environment would also affect EFH, and no further effects on EFH have been identified. Those effects are summarized here:

- During construction, water quality could be affected due to demolition, turbidity, uncured concrete, minor fuel and oil spills, and surface erosion. Mitigation measures and best management practices described in Section 3.11 would be used to avoid or minimize the risk of demolition material entering the water, excessive turbidity, exposure of seawater to uncured concrete or runoff from uncured concrete, and surface erosion. These measures and a spill response plan would we used to minimize the potential damage from spills. These precautions and response measures would result in a small overall risk of habitat impairments due to water quality effects.
- Similar precautions and a similar conclusion proceed from the potential effects on water quality from stormwater runoff and material spills during operations and maintenance of the renovated pier. Moreover, the renovated pier will have a stormwater system where none currently exists, resulting in a beneficial change in water quality.
- Following construction, lighting and shading could affect habitat beneath the pier. As detailed in Section 6, those effects would be small and would be reduced compared to baseline conditions, as the renovated pier would have lighting that is directed away from the water surface.
- Beneficial effects on habitat, detailed in Section 6.1.6, include replacement of existing creosote-treated pilings and pier decking with CISS pilings and a concrete deck. Surveys (Donahue et al. 2007)) have documented juvenile rockfish use of macroalgae growing on existing pilings; the algae will colonize the new pilings and will support a similar habitat function, without exposing marine organisms to the bioaccumulative toxins found in creosote.

Determinations of Effects to EFH

Proposed construction activities may have an adverse impact on EFH for groundfish, coastal pelagic and salmon due to short-term effects of construction activities on water quality. The project has been designed to minimize the risk and magnitude of these potential effects, and the institution of stormwater treatment measures and replacement of treated wood with concrete in the structure will provide long-term benefits to EFH in the action area.

Appendix B. Marine Mammal Analysis

Introduction

The proposed action may result in effects to species protected under the Marine Mammal Protection Act. Within the action area, the principal such species are:

- Harbor seal
- California sea lion
- Steller sea lion (note that a detailed analysis of potential project effects on the Steller sea lion is presented in the BA)
- Transient killer whale
- Gray whale

A variety of other marine mammal species could very rarely occur in the action area, but would experience effects substantially similar to those experienced by the pinnipeds and cetacean species named above.

The preceding BA details the proposed project, delineates the project and action areas, and describes the environmental baseline in the action area. Section 6 of the BA details the anticipated project effects on habitat and organisms; please refer to that section for a discussion of the environmental effects of the proposed action. The analysis hereunder focuses on how those effects may be expressed upon marine mammal species that may occur in the action area.

Status of Species in the Action Area

Species status in the action area is presented in detail by Goley et al. (2007), "Gray Whale and Harbour Seal Distribution and Abundance in Northern California: A report to supplement the Trinidad Pier Reconstruction Project." In view of the comprehensive and relevant nature of this report, it is included *in toto* as Attachment 1 to this analysis.

Potential Effects on Marine Mammals

Gray Whales

Table 1 of Goley et al. (2007) lists the sighting rates for gray whales during 8 years of monthly observations at Trinidad Bay. Sighting rates varied from 0 to 1.38 whales per hour of observation time. The average detection rate during the period when pile removal and placement would occur, in the months from August through January, was 0.21 whales per hour of observation time. In contrast, the average detection rate in the months of February through July was 0.48 whales per hour. As shown in Figure 2 of Goley et al. (2007), the majority of these detections were within 2 km of the shoreline, and about 15 of 92 detections (16%) were within the 2,625-foot radius where underwater sound levels during CISS pile placement were greater than 120 dB RMS, the behavioral effect threshold for marine mammals. Thus these data suggest that the effect rate for gray whales would be approximately 16% of 0.21 whales per hour, or 0.034 whales per hour. Since vibratory driving of CISS piles would occur for a total of approximately 28.75 hours (115 piles at 15 minutes drive time apiece), vibratory pile driving activities would be expected to affect $0.034 \times 28.75 = 0.98$ or approximately one gray whale on one occasion.

Acoustic effects would also be expected to result from pile removal, which is a quieter activity performed for a longer time. For this activity, noise levels of 120 dB RMS would be exceeded within 1,190 feet of the pile driving, so the affected area would be $1{,}190^2 / 2{,}625^2 = 21\%$ as large as for pile placement. Thus the average detection rate would be 21% of 0.034, or 0.0070 whales per hour. Approximately 205 piles will be removed, with 40 minutes of vibratory pile driver noise for each pile, resulting in a total exposure of 136 hours and 40 minutes. Thus this activity would be expected to affect $0.007 \times 136.7 = 0.96$ or approximately one gray whale on one occasion.

No mechanism other than underwater sound generation is expected to affect gray whales in the action area.

Harbor Seals

Goley et al. (2007) details harbor seal abundance at varied sites in Humboldt County, including the haul-out at Indian Beach, which generally refers to beaches in Trinidad Bay. In actuality, seals haul out on a variety of rocks within the Bay, some of which are as little as 70 m from the pier (Dawn Goley pers. comm.. 2009.03.23). Seals haul out at rocks in the Bay regularly throughout the year and many or most of these haul-outs are within 2,625 feet from the pier, thus seals approaching or departing these haul-outs would be subject to underwater noise from pile driving at levels that would exceed the 120 dB RMS criterion for noise above ambient levels and thus, potential behavioral modification. The area so affected is shown in Figure 6-1, which also shows the relative exposure in the area based on the presence of noise-shielding features such as headlands and sea stacks. Table 7 in Goley et al. (2007) lists the sighting rates for harbor seals during 9 years of monthly observations at Trinidad Bay. A sighting rate of zero occurred only 3 times in a total of 62 observations, and the average number of animals observed per month ranged from a low of 25 in November to a maximum of 67 in July. On four occasions, over 120 seals were counted at the haul-out. The average sighting rate during the period when pile removal and placement would occur, in the months from August through January, was 36.5 seals per observation. In contrast, the average detection rate in the months of February through July was 50.7 seals per observation. In practice, seals are almost always present in the water or on haul-outs near the dock (Dawn Goley pers. comm.. 2009.03.23).

No data were collected on how much time the seals spend in the water near the haul-out. Goley et al. (2007) note that they "are typically less abundant during the winter months as seals tend to spend more time foraging at sea during this time. Seals are more abundant in the area in spring and summer. During this time both male and females increase their use of near shore habitat for hauling out and feeding (Thompson et al. 1994, Coltman et al. 1997, Van Parijs et al. 1997, Baechler et al. 2002)." From early March to June harbor seals in Trinidad Bay bear and rear pups, and in June and July the seals molt; both activities tie them closely to land and correlate to intensive use of available haul-outs. It is not clear whether seals may disperse to use alternative haul-outs. The Trinidad Bay harbor seal population, which consists of approximately 200 seals, shows very little interchange with the nearby Humboldt Bay population. However, there is also a much larger population of over 1,000 seals at Patrick's Point, a few miles to the north. It is not known whether seals move back and forth between the Trinidad Bay and Patrick's Point populations. If not, then Trinidad Bay seals are highly dependent upon available haul-outs in Trinidad Bay (Dawn Goley pers. comm.. 2009.03.23).

At the beginning of the construction period, in August, the average number of harbor seals observed at the haul-out is 63.5 (based on one observation of 121 animals and 3 observations of 33 to 52 animals). At this time it is highly probable that harbor seals

require frequent use of this haul-out for essential activities such as rearing pups and molting, and that, given the limits on animal mobility imposed by these activities, much activity occurs nearshore within the area affected by pile-driving noise. Thereafter, seal use of the haul-out declines greatly (average of 30.3, 25.2, 32.5 and 27.6 animals recorded in September, October, November, December, and January, respectively), and most foraging occurs in offshore areas unaffected by pile driving noise.

The probability of an individual seal being exposed to pile driving noise is difficult to quantify. As an example, driving of CISS piles would occur for a total of approximately 0.5 hours per day on each of 58 days within a 180-day period (August 1 to January 31). Pile driving would occur during daylight hours, at which time harbor seals would be periodically coming to or leaving from haul-outs, and possibly foraging within the 2,625-foot radius of effect around the pile driving activity. If each seal were to visit a haul-out once during the day, and if each such seal spent 10 minutes within the radius of effect, then the total number of seal-minutes in the water per day would average 2×36.6 seals/day $\times$ 10 minutes = 732 seal-minutes per day. On days when CISS pile driving occurred, pile driving would occur $0.5/12 = 4.2\%$ of the day, producing an average exposure to pile driving noise of $4.2\% \times 732 = 30.5$ seal-minutes on each pile-driving day, or 29.5 seal-hours of exposure for the entire pile-driving season. That number could increase if more seal trips occurred per day or if seals spent more time within the radius of effect. A comparable total exposure would result from pile removal activities, subject to the same uncertainties regarding seal behavior.

Harbor seals could also be affected by subaerial noise and activity associated with construction at the pier. Seals at Trinidad Bay haul-outs are presumably habituated to human activity to some extent due to the daily coming and going of fishing and recreational vessels, and to existing activities at the pier such as operation of the hoists and the loading and unloading of commercial crab boats. These activities may occur at any time of the day and may produce noise levels up to approximately 80 dBA (at 50 feet) for periods of up to several hours at a time. However the operation of loud equipment, including the vibratory pile driving rig and the auger, are outside of the range of normal activity at the pier and could cause seals to leave a haul-out. This would constitute behavioral harassment, and during sensitive life history stages such as pupping could lead to injury or death of affected seals (Dawn Goley pers. comm. 2009.03.23).

As discussed in Section 6 of the Biological Assessment, the principal source of subaerial noise would be the vibratory pile driver used to extract old wood piles and to place the new CISS piles. In measurements of 44 vibratory pile drivers, the Federal Highway Administration (2006) determined that the maximum noise production of a vibratory pile driver operating at full power is 101 dBA (at 50 feet). All other power equipment that would be used as part of the proposed action (trucks,

pumps, compressors, etc.) produces at least 10 dB less noise and thus has much less potential to affect harbor seals.

Assuming that sound generated on the pier attenuates at the rate of 6 dB for each doubling of distance, the noise of the vibratory pile driver would attenuate to approximately 80 dBA at approximately 500 feet from the pier. Greater attenuation would occur at locations where headlands or sea stacks interfere with sound transmission, as shown in Figure 6-1. Regardless, at distances of more than 500 feet from the pier, the noise received by the seals may be quieter than the sound of surf or wind at the haul-out; certainly it is of the same order of magnitude. Few data are available on potential impacts of such acoustic disturbance on receptor species. Some information can be derived from existing guidance intended to protect nesting bald eagles and marbled murrelets from excessive noise levels. The current bald eagle guidelines (USFWS 2006) restrict loud noise-generating activity (the example given is aircraft operation, a sound considerably louder than vibratory pile driver operation) within 1,000 feet of active nests, while a disturbance threshold for nesting murrelets has been set at 70 dB (WSDOT 2006). Murrelets, however, nest in locations that normally have an extremely quiet background noise level.

Based on these examples it appears unlikely that the seals at haul-outs more than about 500 feet from the pier would show a behavioral response to noise at the pier, particularly in view of their existing habituation to noisy activities at the pier. However, at least one minor haul-out is as close as 230 feet from the pier (Dawn Goley pers. comm.. 2009.03.23) and thus there is a small but definite risk of incidental harassment. Therefore the marine mammal monitor (Section 3.11) will also monitor seal activity at visible haul-outs during pile driver operation, and periodically at other times during construction. If there is evidence of seals abandoning the haul-out in response to construction activities, NMFS will be contacted immediately.

Other Marine Mammals

Steller sea lions are analyzed in Section 6 of the Biological Assessment. As described there, they are unlikely to be affected by the proposed project because their local haul-out is acoustically isolated, their foraging activities are directed away from the action area, and in any event they are absent from the area for most of the proposed construction period.

California sea lions, although abundant in northern California waters, have seldom been recorded at Trinidad Bay. This may be due to the presence of a large and active harbor seal population there. Any sea lions that did visit the action area during construction activities would be subject to the same type of impacts described above for harbor seals.

Killer whales are rare visitors to Trinidad Bay, but there is currently a very high awareness of their potential presence due to an incident in May, 2008 when a transient killer whale was observed to take a seal on the beach at Trinidad Bay (Driscoll 2008). Any killer whales that did visit the action area during construction activities would be subject to the same type of impacts described above for gray whales.

PROPOSED MITIGATED NEGATIVE DECALRATION
TRINIDAD PIER RECONSTRUCTION PROJECT

September 2007

Lead Agency
City of Trinidad
P.O. Box 390
Trinidad, CA 95570
Phone (707) 677-0233
Contact: Mr. Gabe Adams, City Clerk

Project Proponent
Trinidad Rancheria

PROJECT DESCRIPTION

The Trinidad Pier is the northern most oceanfront pier in California and has been used for commercial and recreational purposes over the last 50 years. Trinidad harbor and pier serve a fleet of commercial winter crab fishermen and year-round water angling for salmon, and nearshore/finfish species. Trinidad Pier was first built by Bob Hallmark in 1946. Since that time only minor maintenance activities have occurred on the pier. Today, Trinidad's economy is based on fishing and tourism and the pier supports these activities. The pier also provides educational opportunities by accommodating the HSU Telonicher Marine Lab's saltwater intake pipe, and the California Center of Integrated Technology's (CICORE) water quality sonde.

Currently, the Trinidad Rancheria plays an important role in the economic development of the Trinidad area through three main business enterprises, one of which is the SeaScape Restaurant and Pier. The Cher-Ae Heights Indian Community of the Trinidad Rancheria is a federally-recognized tribe composed of descendants of three tribes, the Yurok, Weott, and Tolowa. The Trinidad Rancheria was established in 1906 by a United States Congressional enactment. In 1908, 60 acres of land were purchased on Trinidad Bay for homeless Indians. The community began developing in the 1950's. In January 2000, Trinidad Rancheria leased a total area of 14 Acres in Trinidad Bay and currently owns and operates the pier, and upland improvements including a boat launch ramp and the SeaScape Restaurant. Funds for permitting and designs of the pier were granted to the Trinidad Rancheria by the California State Coastal Conservancy.

The purpose of the Trinidad Pier Reconstruction Project is to correct the structural deficiencies of the pier and improve pier utilities for the benefit of the public, and indirectly improve the water quality conditions and provide additional habitat for the biological community in the ASBS. Currently it is difficult to maintain the safety of the pier due to excessive deterioration of the creosote-treated Douglas fir piles and the pressure treated decking.

Existing pier improvements are proposed to be replaced one-to-one with approximately 13,500 ft^2 (1,254m^2) of pre-cast concrete decking, 115 concrete piles including batter and moorage piles (18 inches (45.7cm) in diameter)), four hoists, standard lights, guardrail, and dock utility pipes including water, power, phone. In addition, a new stormwater collection system will be incorporated into the reconstructed pier design. The new cast-in-steel-shell (CISS) concrete piles

will be separated at 5 ft. (1.5m) intervals along 25 ft. - long (7.6m) concrete bents. A total of 22 bents separated 25 ft. (7.6m) apart shall be used. The decking of the new pier will be constructed of pre-cast 20 ft. - long (6.1m) concrete sections. The new pier will be 540 ft. (164.6m) - long and will vary in width. The southern part of the pier will be 26 ft. (7.9m) - wide and the remaining part of the pier will be 24 ft. (7.31m) - wide (corresponding to the existing footprint).

An additional pile bent will be installed at the existing elevation of the lower deck to provide access to the floating dock. The existing stairs to the lower deck will be replaced with a ramp that is ADA compliant. The decking of the pier will be constructed at an elevation of 21.0 ft. above Mean Lower Low Water (MLLW). The top of the decking will be concrete poured to create a slope for drainage and to incorporate a pattern and a color into the concrete surface in order to provide the pier with an aesthetical pleasing look. An open guardrail, 42 inches (106.7 cm) in height shall be constructed of tubular galvanized steel rail bars (approximately 3/4 inch ((1.2cm)) - diameter)) uniform in shape throughout the length of pier. Lighting will be installed in the decking (and railing in the landing area) along the length of the pier to prevent light pollution. The hoists shall be installed at their current location. A new fish cleaning station will be constructed on the upland area (as a separate project). All design specifications shall conform to the Uniform Building Code.

HSU Marine Lab leases space on Trinidad Pier for placement of a pump and associated plumbing to obtain seawater for the Telonicher Marine Laboratory which will also be replaced. The existing saltwater intake PVC pipes, located directly under the decking of the pier, will be replaced and their size shall be reduced to 4-inches (10.2cm) in diameter. A new shed to house the pump will be built on the pier. CICORE have an Acrylonitrile-Butadiene-Styrene (ABS) pipe attached to a piling on the Trinidad pier that contains the water quality sonde. The proposed water quality sonde system is similar to the existing system and will be composed of the YSI 6600 Extended Deployment System, 6200 Data Acquisition System and two solar panels.

The project is expected to be completed within nine months. Reconstruction of the pier is proposed to commence on August 1st, 2008 and terminate on May 1st, 2009. Excluding weekends and holidays, a total of 217 working days will be available for work during this period. Public access during crab and salmon season will be maintained to the extent possible. During the winter months (November – March) severe weather conditions are expected to occur periodically at the project site. The Contractor may have to halt the work during pile installation due to strong gales winds, large swells, and/or heavy precipitation. Construction of the rest of the pier should not be interfered by large swells, but may be halted due to strong winds or precipitation. The Contractor will work five days per week from 7 a.m. to 7 p.m.

Construction of the new pier will facilitate the use of the existing pier during construction. The existing piles will be removed by vibratory extraction and new piles will be installed from the existing dock. All removed piles shall be temporarily stored at the upland staging areas until all demolition activities are complete (approximately 6 months). Following the cessation of demolition activities, the creosote treated piles will be transported by the Contractor to an approved upland disposal site. Following the removal of the existing piles, steel casings will be vibrated to a depth of approximately 2.5 ft. (0.8 meters) above the tip elevation of the proposed pile (25-35 ft. (7.6-10.7m) below the mud line). The steel shell will be coated with a polymer to protect the casings from deteriorating in the salt-water environment. The steel shell shall be used

to augur the holes and then left permanently in the ground to support the integrity of the hole. The steel shell is cleaned and concrete is poured underwater using a tremie to seal the area below the shell. The holes are dewatered and steel cages are installed prior to pouring concrete to fill the holes and form the piles.

The staging area utilized for the project consists of the gravel parking lot located west of the pier and is approximately 0.53 acres. The Contractor shall utilize the staging area to store construction equipment and materials. Removed sediment from CISS pile installation (approximately 10 - 100 yd^3, (7.7 - 67.5 m^3) will also be temporarily stockpiled at the staging area until transported by the Contractor to an approved upland disposal site. Seawater removed from the holes will be discharged through peculation at the staging area. The edge of the staging area will be at least 50 ft. (15m) from the beach to the west in order to prevent impacts to the beach.

PROJECT LOCATION

The Trinidad Pier is located on the northern California coast in Humboldt County, approximately 300 miles north of San Francisco. The project site is located in Trinidad Bay, and is bounded from the north by the City of Trinidad. The project site is bounded from the east and west by two large rocks named Little Head and Trinidad Head respectively. The pier is located on Tidelands granted by the State of California to the City of Trinidad and are leased by the Trinidad Rancheria. The project site is located on APN 042-071-014, which encompass approximately 0.30 acres (Figure 1, Vicinity Map).

PROPOSED FINDING OF NO SIGNIFICANT EFFECT ON THE ENVIRONMENT

Based on the attached Initial Study and other pertinent information, with the recommended mitigation measures, the project will not have a significant effect on the environment. Mitigation measures have been added to the project to reduce potentially significant impacts to a less than significant level.

MITIGATION MEASURES

The mitigation measures below are compiled from the attached Initial Study (their numbers are keyed to the environmental checklist). These mitigation measures have been added to the project, and they will reduce all potentially significant impacts of the proposed project to less than significant.

IMPACT IV-1: Potential impacts to mammals and fish from noise levels generated underwater as result of construction activities.

MITIGATION IV-1: To insure that no impacts occur to fish and mammals during pile installation, the Contractor shall perform a noise study to confirm that noise levels are not above the thresholds specified by NMFS.

The noise study will be conducted by Illingworth & Rodkin, Inc. based in Petaluma, California. Illingworth & Rodkin, Inc. has unique experience in measuring and assessing the impacts of underwater sounds on the marine environment and has made presentations of the sound pressures from these activities to a number of agencies on the behalf of Caltrans and several different construction companies. Illingworth & Rodkin, Inc will measure the ambient sound levels in the air and water in Trinidad Harbor and will measure noise levels generated from drilling and steel casing installation for the piles.

"Based on past experience Illingworth and Rodkin , Inc. had with NMFS, noise levels would be measured simultaneously at 10m (32.8 ft.) from pile installation and an attempt would also be made to measure the sound levels at 20 - 100m (6.1 ft. – 328 ft.) depending on conditions. "Measurements will be made using G.R.A.S. 10CT hydrophones with PCB in-line charge amplifiers (Model 422E13) and PCB Multi-Gain Signal Conditioners (Model 480M122) or equivalent systems. The signals will be fed into Integrating Sound Level Meters (SLM) and Solid State Recorders (SSR) or equivalent equipment (Keith Pommerenck Email comm., 2007)."

"The peak pressure and root-mean square average sound pressure levels ($RMS_{impulse}$ levels) will be measured 'live' using the SLM. The SLM will have the ability to measure the unweighted peak sound pressure and RMS sound pressure levels over the relative short periods (e.g., less than 50 milliseconds). Many SLMs can measure the RMS sound pressure level of these pulses using the standard 'impulse exponential-time weighting' (35 millisecond rise time) function.

Additional subsequent analyses of the acoustical impulses will be performed using a Real Time Analyzer capable of providing narrow band frequency and corresponding pressure over time analysis (waveform), (Keith Pommerenck Email comm., 2007)."

"Quality Control. The measurement systems will be calibrated prior to use in the field. For example, an acoustical pistonphone and hydrophone coupler could be used to send known sound signals to the underwater sound measurement system. This type of pistonphone used with the hydrophone coupler, produces a continuous 145 dB (re 1 μPa) tone at 250Hz. The SLMs are calibrated to this tone prior to use in the field. The tone is then measured by the SLM and is recorded on to the beginning of the digital audiotapes that will be used. The system calibration status would be checked at the end of the measurement event by both measuring the calibration tone and recording the post-measurement on the tape. The taped calibration tones are used to calibrate the real time analyzer prior to analysis of tape-recorded pulses."

All field notes would be recorded in water-resistant field notebooks. Such notebook entries would include calibration notes, measurement positions, pile-installation information, system gain setting, and equipment used to make each measurement (Keith Pommerenck Email comm., 2007).

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc Project Manager/NMFS, USAOCE, CDFG.
Monitoring Frequency: Once during CISS pile installation.
Evidence of Compliance: Submit report to USACOE, CCC, NMFS, CDFG, and the City of Trinidad.

MITIGATION IV-2: Daily work windows would be enforced for noisy work. Any work that is above peak ambient levels would be restricted to the period between 7 AM and 7 PM except for concrete pouring.

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc Project Manager
Monitoring Frequency: Daily
Evidence of Compliance: Project Manager Daily Logs.

MITIGATION IV-3: Minimize noise impacts during pile installation of CIP piles by vibrating steel plates into place, drilling the holes, and pouring the concrete.

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc. Project Manager
Monitoring Frequency: During CISS pile installation.
Evidence of Compliance: Project Manager Daily Logs.

MITIGATION IV-4: Two trained personnel in identification of marine mammals shall attend the project site one hour prior until one hour after construction activities cease each day throughout the construction window. The trained personnel shall be trained by Dr. Dawn Goley, which prepared the biological assessment for the Harbour seals and Gray whales for the project. Should the trained personnel identify marine mammals within 500m (1640 ft.) of the project

area, they shall notify the Project Manager/Engineer whom will notify the Contractor. When working on pile removal or installation, the Contractor shall temporarily stop work to allow the species to move away from the project site. The Contractor will not be required to stop the work when working on the removal or construction of the pier decking. The trained personnel shall invoke clapping motion to force the mammals to move away from the project site. All sighting will be recorded and documented for future references.

Timing for Implementation/Compliance: During pile replacement.
Person/Agency Responsible for Monitoring: Trained personnel and Pacific Affiliates, Inc Project Manager/NMFS, USAOCE, CCC, and CDFG.
Monitoring Frequency: Daily during reconstruction work.
Evidence of Compliance: Monitoring logs submitted to the USACOE, CCC, NMFS, and the CDFG.

IMPACT V-1: Potential impacts to historical, archeological and human remains.

MITIGATION V-1: The Trinidad Rancheria will employ an elder of the Yurok Tribe qualified by the State Historical Preservation Officer to monitor the construction site for cultural and archeological resources. The monitor will be present during pile removal and pile installation activities. The Tribe monitor will inspect the sediment removed from the construction area for cultural or archeological resources. The Tribe monitor will inspect the material as it is bored out of the holes and will also be able to continuously inspect the material at the temporary stockpiling location.

Timing for Implementation/Compliance: During pile replacement activities.
Person/Agency Responsible for Monitoring: Certified Cultural Monitor, Elder of the Yurok Tribe.
Monitoring Frequency: As needed during pile replacement activities.
Evidence of Compliance: Reports to the NCIC, USACOE, CCC, NMFS, and the CDFG

MITIGATION V-2: The Contractor will be notified of, and required to monitor for signs of potential undiscovered archeological, ethnic, religious, or paleontological resources. If cultural/archeological resources are discovered during pile removal or pile installation, operations will be halted until a qualified cultural resources specialist is consulted. Subsurface surveys shall be conducted to determine the boundaries of the resource. If human remains are discovered, the County Coroner must be contacted. Required procedures to be followed in the event of accidental discovery of cultural materials or human remains are described in sections 15064.5(e) and 1564.5(f) of the State CEQA Guidelines (California Code of Regulations, Title 14, Sec 15000-15387). A protocol to follow in the event that cultural/archeological resources are discovered shall be prepared by the contractor prior to commencement of the project. A copy of this protocol shall be submitted to the City of Trinidad and the Yurok Tribe.

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: NCIC and Yurok Tribe.
Monitoring Frequency: As needed.
Evidence of Compliance: Reports to the NCIC, USACOE, CCC, NMFS, and the CDFG.

IMPACT VII-1: Potential impacts to water quality from the use of hazardous construction materials and fueling of construction equipment.

MITIGATION VII-1: The contractor shall submit to the Project Engineer a Hazardous Materials Spill Prevention Plan that will include a list of all materials and equipment to be used, a list of equipment that shall be used in case of a spill and the necessary resource and regulatory agencies that must be notified in case of an accidental spill of any hazardous material. A copy of this plan will be submitted to the City of Trinidad.

Timing for Implementation/Compliance: Submit plan prior to construction/during project.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc. Project Manager/RWQCB, USACOE, CCC and the City of Trinidad.
Monitoring Frequency: Implement as needed.
Evidence of Compliance: Daily project logs.

Additional Mitigation Measures and BMP's to prevent impacts to water quality and the biological resources from the use of Hazardous Materials during construction activities are described in Section IV - Biological Resources and Section VIII - Hydrology and Water Quality.

IMPACT VIII-1: Potential impacts to water quality during reconstruction activities.

MITIGATION VIII-1: The following measures are proposed to reduce the effect of potential project impacts to water quality and will be implemented at the staging area and the project site:

- The demolition plan as described in Section IV.B.3, shall be implemented including provision that no debris shall be allowed to fall into Trinidad Bay.

- Sediment and cuttings from CISS pile installation shall be removed from the work site into closed containers and shall receive appropriate treatment, as required by the Regional Water Quality Control Board prior to disposal.

- The contractor shall test the pH of the water one day following pouring of the concrete seal to insure that the pH of the water did not change by more than 0.2 units from the ambient pH. The water shall then be pumped into 50-gallon drums and transported to the staging area for discharge through percolation to eliminate solids. Should the pH of the water change by more than 0.2 units from ambient pH, then the contractor shall haul the water to the Eureka Wastewater Treatment Plant for treatment prior to discharge.

- No concrete washing or water from concrete will be allowed to flow into the ASBS and no concrete will be poured within flowing water.

- Temporary construction BMP's for the staging area will be implemented in accordance with the Contractor's approved Storm Water Pollution Prevention Plan (SWPPP). BMP's for the staging area may include, but are limited to: mulches, silt fences, fiber rolls, straw bales, and sandbag barriers. The contractor shall utilize those BMPs listed in the CASQA Handbook and throughout this document as they apply.

- Temporary construction BMP's for the project area in accordance with the Contractor's approved Storm Water Pollution Prevention Plan (SWPPP). BMP's for the construction site include protecting the waters from incidental discharge of debris by providing a protective cover directly under the pier and above the water to capture any incidental loss of demolition or construction debris. A copy of the SWPPP shall be provided to the City of Trinidad.

  Timing for Implementation/Compliance: During Construction.
  Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc. Project Manager/RWQCB, USACOE, CCC, and the City of Trinidad.
  Monitoring Frequency: Daily.
  Evidence of Compliance: Daily project logs.

IMPACT VIII-2: Potential impacts to substrate and water quality during tremie concrete seal pouring.

MITIGATION VIII-2: The following measures shall be implemented in the event of leaking of concrete into the sediment during tremie pouring:

- Stop construction activities.
- Notify the Regional Water Quality Control Board
- Determine the cause for leaking of concrete
- Develop mitigation restoration plan with regulatory agencies

  Timing for Implementation/Compliance: During Construction.
  Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc. Project Manager/RWQCB, USACOE, CCC.
  Monitoring Frequency: Daily.
  Evidence of Compliance: Daily project logs.

IMPACT IX-1: Potential temporary impacts to public access to the pier during construction of the pier.

MITIGATION IX-1: The following BMP shall be implemented by the contractor to insure that public access is maintained to the extent possible while securing the safety of the public:

- The Contractor shall clearly mark with orange barrier fencing the perimeter of the working area and the staging area to insure the safety of the public and to alert the public of the areas that are closed for use.
- Signs shall be installed in the vicinity of the pier and the parking lots to alert the public of the construction activities.
- The contractor shall submit a detailed plan to the Project Engineer describing the procedures that will be followed to maintain public access to the pier and upland parking lot to the extent possible during construction activities.
- The Project Engineer shall coordinate all construction activities with the Trinidad Pier Harbor Master.

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc. Project Manager/USACOE, CCC, and the City of Trinidad.
Monitoring Frequency: Daily.
Evidence of Compliance: Daily project logs.

IMPACT XI.-1: Potential increase in noise levels above the NAC value of 67 Leq within 450 ft. (137m) of the project site.

MITIGATION XI-1: **Construction site tool or equipment noise.** The following shall apply to construction noise from tools and equipment: Hours of Construction. The operation of tools or equipment used in construction, drilling, repair, alteration or demolition shall be limited to between the hours of 7 A.M. and 7 P.M. Monday through Friday, and between 9 A.M. and 7 P.M. on Saturdays. No heavy equipment related construction activities shall be allowed on Sundays or holidays. Concrete pouring shall be allowed after 7 P.M. in order to allow the concrete to cure during the night. **Stationary and construction equipment noise.** Trucks used for transport and all stationary and construction equipment shall be maintained in good working order, and fitted with factory approved muffler system. A sign shall be posted at the project site notifying the public of the hour of work.

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc. Project Manager/USACOE, CCC, and the City of Trinidad.
Monitoring Frequency: Daily.
Evidence of Compliance: Daily project logs.

All Best Management practices (BMP) specified in the Initial Study in addition to the mitigation measures described above are referenced to the California Storm Quality Association (CASQA) Construction Handbook.

IMPACT IV-1: Potential impacts to mammals and fish from noise levels generated underwater as result of construction activities.

MITIGATION IV-1: To insure that no impacts occur to fish and mammals during pile installation, the Contractor shall perform a noise study to confirm that noise levels are not above the thresholds specified by NMFS.

The noise study will be conducted by Illingworth & Rodkin, Inc. based in Petaluma, California. Illingworth & Rodkin, Inc. has unique experience in measuring and assessing the impacts of underwater sounds on the marine environment and has made presentations of the sound pressures from these activities to a number of agencies on the behalf of Caltrans and several different construction companies. Illingworth & Rodkin, Inc will measure the ambient sound levels in the air and water in Trinidad Harbor and will measure noise levels generated from drilling and steel casing installation for the piles.

Underwater measurements shall be taken at one location during auguring along the pier. Measurements shall be taken at a distance of 10m (23.8ft), 20m (66ft), and 100m (328ft) from the north, south, east, and west sides of the pile. An undetected sound level from pile installation would be considered a measurement.

"Measurements will be made using G.R.A.S. 10CT hydrophones with PCB in-line charge amplifiers (Model 422E13) and PCB Multi-Gain Signal Conditioners (Model 480M122) or equivalent systems. The signals will be fed into Integrating Sound Level Meters (SLM) and Solid State Recorders (SSR) or equivalent equipment (Keith Pommerenck Email comm., 2007)."

"The peak pressure and root-mean square average sound pressure levels ($RMS_{impulse}$ levels) will be measured 'live' using the SLM. The SLM will have the ability to measure the unweighted peak sound pressure and RMS sound pressure levels over the relative short periods (e.g., less than 50 milliseconds). Many SLMs can measure the RMS sound pressure level of these pulses using the standard 'impulse exponential-time weighting' (35 millisecond rise time) function. Additional subsequent analyses of the acoustical impulses will be performed using a Real Time Analyzer capable of providing narrow band frequency and corresponding pressure over time analysis (waveform), (Keith Pommerenck Email comm., 2007)."

"Quality Control. The measurement systems will be calibrated prior to use in the field. For example, an acoustical pistonphone and hydrophone coupler could be used to send known sound signals to the underwater sound measurement system. This type of pistonphone used with the hydrophone coupler, produces a continuous 145 dB (re 1 μPa) tone at 250Hz. The SLMs are calibrated to this tone prior to use in the field. The tone is then measured by the SLM and is recorded on to the beginning of the digital audiotapes that will be used. The system calibration status would be checked at the end of the measurement event by both measuring the calibration tone and recording the post-measurement on the tape. The taped calibration tones are used to calibrate the real time analyzer prior to analysis of tape-recorded pulses."

All field notes would be recorded in water-resistant field notebooks. Such notebook entries would include calibration notes, measurement positions, pile-installation information, system gain setting, and equipment used to make each measurement (Keith Pommerenck Email comm., 2007).

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc., Project Manager/NMFS, USAOCE, CDFG.
Monitoring Frequency: Once during CISS pile installation.
Evidence of Compliance: Submit report to USACOE, CCC, NMFS, CDFG, and the City of Trinidad.

All sound study data shall be submitted to the agencies listed above. If the sound study indicates that sound levels underwater are exceeding the thresholds set by NMFS for the protection of fish and mammals the following actions shall be taken by the Project Engineer and/or Contractor:

1. Stop work until regulatory and resource agencies are consulted.
2. Notify the CDFG, NMFS, USACOE, and the CCC that noise levels were exceeded.
3. Develop with the regulatory/resource agencies a mitigation plan prior to continuing the work.

MITIGATION IV-2: Daily work windows would be enforced for noisy work. Any work that is above peak ambient levels would be restricted to the period between 7 AM and 7 PM except for concrete pouring. Noise levels in the air should be monitored by the Contractor and/or Project Manager once a day during construction work for the duration of the project.

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc., Project Manager
Monitoring Frequency: Daily
Evidence of Compliance: Project Manager Daily Logs.

MITIGATION IV-3: Minimize noise impacts during pile installation of CISS piles by vibrating steel plates into place, drilling the holes, and pouring the concrete.

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc., Project Manager
Monitoring Frequency: During CISS pile installation.
Evidence of Compliance: Project Manager Daily Logs.

MITIGATION IV-4: Two trained personnel in identification of marine mammals shall attend the project site one hour prior until one hour after construction activities cease each day throughout the construction window. The trained personnel shall be trained by Dr. Dawn Goley, which prepared the biological assessment for the Harbour seals and Gray whales for the project. Should the trained personnel identify marine mammals within 500m (1640 ft.) of the project area, they shall notify the Project Manager/Engineer whom will notify the Contractor. The trained personnel shall focus on the area west of Little Head where potential construction impacts may occur. When working on pile removal or installation, the Contractor shall temporarily stop work to allow the species to move away from the project site. The Contractor will not be required to stop the work when working on the removal or construction of the pier decking. All sighting will be recorded and documented for future references.

Timing for Implementation/Compliance: During pile replacement.
Person/Agency Responsible for Monitoring: Trained personnel and Pacific Affiliates, Inc., Project Manager/NMFS, USAOCE, CCC, and CDFG.
Monitoring Frequency: Daily during reconstruction work.
Evidence of Compliance: Monitoring logs submitted to the USACOE, CCC, NMFS, and the CDFG.

If the marine mammal are found west of Little Head and East of the Trinidad Hea, within the project area, and the observers are not able to cause the marine mammals to leave the project site during underwater work, then the following actions shall be taken by the Project Engineer and/or Contractor:

1. Stop work until regulatory and resource agencies are consulted.
2. Notify the CDFG, NMFS, USACOE, and the CCC that marine mammal are present and will not leave the project area..
3. Develop with the regulatory/resource agencies a mitigation plan prior to continuing the work.

MITIGATION IV-5: The Contractor shall remove with a crane or other approved equipment to the extent possible solid debris that may be encountered directly under the pier during and/or following reconstruction activities. The removal of solid waste to the extent possible will be accepted by the CDFG as a compensation for the shading effects of the pier on the intertidal habitat.

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc. Project Manager/USACOE, CCC, CDFG, and the City of Trinidad.
Monitoring Frequency: Daily during reconstruction activities as applicable.
Evidence of Compliance: Daily project logs.

IMPACT V-1: Potential impacts to historical, archeological and human remains.

MITIGATION V-1: The Trinidad Rancheria will employ an elder of the Yurok Tribe certified by the Yurok Tribe State Historic Preservation Officer to monitor the construction site for cultural and archeological resources. The monitor will be present during excavation of sediment, pile removal and pile installation activities. The Tribe monitor will inspect the sediment removed from the construction area for cultural or archeological resources. The Tribe monitor will inspect the material as it is bored out of the holes and will also be able to continuously inspect the material at the temporary stockpiling location.

Timing for Implementation/Compliance: During pile replacement activities.
Person/Agency Responsible for Monitoring: Certified Cultural Monitor, Elder of the Yurok Tribe.
Monitoring Frequency: As needed during pile replacement activities.
Evidence of Compliance: Reports to the NCIC, USACOE, CCC, NMFS, and the CDFG

MITIGATION V-2: The Contractor will be notified of, and required to monitor for signs of potential undiscovered archeological, ethnic, religious, or paleontological resources. If cultural/archeological resources are discovered during pile removal or pile installation, operations will be halted until a qualified cultural resources specialist is consulted. Subsurface surveys shall be conducted to determine the boundaries of the resource. If human remains are discovered, the County Coroner must be contacted. Required procedures to be followed in the event of accidental discovery of cultural materials or human remains are described in sections 15064.5(e) and 1564.5(f) of the State CEQA Guidelines (California Code of Regulations, Title 14, Sec 15000-15387). A protocol to follow in the event that cultural/archeological resources are discovered shall be prepared by the contractor and approved by the Yurok Tribe prior to commencement of the project. A copy of this protocol shall be submitted to the City of Trinidad and the Yurok Tribe.

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: NCIC, Yurok Tribe and Tsurai Ancestral Society.
Monitoring Frequency: As needed.
Evidence of Compliance: Reports to the NCIC, USACOE, CCC, NMFS, and the CDFG.

IMPACT VII-1: Potential impacts to water quality from the use of hazardous construction materials and fueling of construction equipment.

MITIGATION VII-1: The contractor shall submit to the Project Engineer a Hazardous Materials Spill Prevention Plan that will include a list of all materials and equipment to be used, a list of equipment that shall be used in case of a spill and the necessary resource and regulatory agencies that must be notified in case of an accidental spill of any hazardous material. A copy of this plan will be submitted to the City of Trinidad.

Timing for Implementation/Compliance: Submit plan prior to construction/during project.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc. Project Manager/RWQCB, USACOE, CCC and the City of Trinidad.
Monitoring Frequency: Implement as needed.
Evidence of Compliance: Daily project logs.

Additional Mitigation Measures and BMP's to prevent impacts to water quality and the biological resources from the use of Hazardous Materials during construction activities are described in Section IV - Biological Resources and Section VIII - Hydrology and Water Quality.

IMPACT VIII-1: Potential impacts to water quality during reconstruction activities.

MITIGATION VIII-1: The following measures are proposed to reduce the effect of potential project impacts to water quality and will be implemented at the staging area and the project site:

- The demolition plan as described in Section IV.B.3, shall be implemented including provision that no debris shall be allowed to fall into Trinidad Bay.

- Sediment and cuttings from CISS pile installation shall be removed from the work site into watertight containers and transferred to the staging area for temporary storage until transported by the contractor to an approved upland disposal site.

- The contractor shall test the pH of the seawater within the steel casings one day following pouring of the concrete seal to insure that the pH of the seawater water did not change by more than 0.2 units from the ambient pH. The water shall then be pumped into 55-gallon drums and transported to the staging area for discharge through percolation to eliminate solids. Should the pH of the water change by more than 0.2 units from ambient pH, then the contractor shall haul the water to the Eureka Wastewater Treatment Plant for treatment prior to discharge.

- No concrete washing will be allowed to flow into the ASBS and no concrete will be poured within flowing water.

- Temporary construction BMP's for the staging area will be implemented in accordance with the Contractor's approved Storm Water Pollution Prevention Plan (SWPPP). BMP's for the staging area may include, but are not limited to: mulches, silt fences, fiber rolls, straw bales, and sandbag barriers. The contractor shall utilize those BMPs listed in the CASQA Handbook and throughout this document as they apply.

- Temporary construction BMP's for the project area will be implemented in accordance with the Contractor's approved Storm Water Pollution Prevention Plan (SWPPP). The approved SWPPP should cover of all the project area including the staging area. The construction site includes the pier and the staging area includes all stockpiles, concrete washout area, and fueling area if any used for construction purposes. BMP's for the construction site include protecting the waters from incidental discharge of debris by providing a protective cover directly under the pier and above the water to capture any incidental loss of demolition or construction debris. BMP for the staging area include secondary containment for hazardous waste, use of sand bags and sediment barrier, placing impermeable plastic lining under and above stockpiles, placing construction materials stockpiled on piles, etc... These BMPs are detailed in the attached list of BMPs. A copy of the SWPPP shall be provided to the City of Trinidad.

  Timing for Implementation/Compliance: During Construction.
  Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc. Project Manager/RWQCB, USACOE, CCC, and the City of Trinidad.
  Monitoring Frequency: Daily.
  Evidence of Compliance: Daily project logs.

IMPACT VIII-2: Potential impacts to substrate and water quality during tremie concrete seal pouring.

MITIGATION VIII-2: The following measures shall be implemented in the event of leaking of concrete into the sediment during tremie pouring:

- Stop construction activities.
- Notify the Regional Water Quality Control Board.
- Determine the cause for leaking of concrete.
- Develop mitigation restoration plan with regulatory agencies.

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc. Project Manager/RWQCB, USACOE, CCC.
Monitoring Frequency: Daily.
Evidence of Compliance: Daily project logs.

IMPACT IX-1: Potential temporary impacts to public access to the pier during construction of the pier.

MITIGATION IX-1: The following BMP shall be implemented by the contractor to insure that public access is maintained to the extent possible while securing the safety of the public:

- The Contractor shall clearly mark with orange barrier fencing the perimeter of the working area and the staging area to insure the safety of the public and to alert the public of the areas that are closed for use.
- Signs shall be installed in the vicinity of the pier and the parking lots to alert the public of the construction activities.
- The contractor shall submit a detailed plan to the Project Engineer describing the procedures that will be followed to maintain public access to the pier and upland parking lot to the extent possible during construction activities.
- The Project Engineer shall coordinate all construction activities with the Trinidad Pier Harbor Master.

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc. Project Manager/USACOE, CCC, and the City of Trinidad.
Monitoring Frequency: Daily.
Evidence of Compliance: Daily project logs.

IMPACT XI.-1: Potential increase in noise levels above the NAC value of 67 Leq within 450 ft. (137m) of the project site.

MITIGATION XI-1: **Construction site tool or equipment noise.** The following shall apply to construction noise from tools and equipment: Hours of Construction. The operation of tools or equipment used in construction, drilling, repair, alteration or demolition shall be limited to between the hours of 7 A.M. and 7 P.M. Monday through Friday, and between 9 A.M. and 7 P.M. on Saturdays. No heavy equipment related construction activities shall be allowed on

Sundays or holidays. Concrete pouring shall be allowed after 7 P.M. in order to allow the concrete to cure during the night. **Stationary and construction equipment noise.** Trucks used for transport and all stationary and construction equipment shall be maintained in good working order, and fitted with factory approved muffler system. A sign shall be posted at the project site notifying the public of the hour of work.

Timing for Implementation/Compliance: During Construction.
Person/Agency Responsible for Monitoring: Pacific Affiliates, Inc. Project Manager/USACOE, CCC, and the City of Trinidad.
Monitoring Frequency: Daily.
Evidence of Compliance: Daily project logs.

All Best Management practices (BMP) specified in the Initial Study in addition to the mitigation measures described above are referenced to the California Storm Quality Association (CASQA) Construction Handbook.

Construction Best Management Practices (BMPs) were selected from the California Stormwater BMP Handbook published by the California Stormwater Quality Association (CASQA). The following BMPs and specific procedures shall be implemented by the contractor:

WM-1 Material Delivery and Storage
WM-2 Material Use
WM-3 Stockpile Management
WM-4 Spill Prevention and Control
WM-5 Solid Waste Management
WM-6 Hazardous Waste Management
WM-8 Concrete Waste Management
WM-9 Sanitary/Septic Waste Management
NS-9 Vehicle and Equipment Fueling
NS-14 Material Over Water
NS-15 Demolition Adjacent to Water

WM-1 Material Delivery and Storage
Primary objective: Waste Management and Materials Pollution Control

Description and Purpose: Prevent or reduce or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.

This best management practice covers only material delivery and storage. For other information on materials, see WM-2 Material Use, or WM-4, Spill Prevention and Control.

Applications:
- Delivery and storage of concrete components
- Delivery and storage of petroleum products such as fuel, oil, and grease
- Hazardous chemical acids, lime, glues, adhesives, paints, solvents, and curing compounds.
- Concrete compounds
- Other materials that may be detrimental if released to the environment.

Limitations: Space limitations may preclude indoor storage.
Storage sheds often must meet building and fire code requirements.

Implementation:
The following steps should be taken to minimize risk:
- Temporary storage area should be located away from vehicular traffic. The temporary storage area will be located on the northeast side of the staging area as shown on Sheet 3 of the plan.
- Material Safety Data Sheets (MSDS) should be supplied for all materials stored. The Spill Prevention and Control Plan shall include all MSDS.

- Construction site areas should be designated for material delivery and storage. The material and delivery area shall be located adjacent to the temporary storage area on the east side of the staging area as shown on Sheet 3 of the plans.
- Material delivery and storage areas should be located near the construction entrances, away from waterways, if possible. The material and delivery storage area shall be located the furthest distance away, within the boundary of the staging area, from Trinidad State Beach of the Pacific Ocean, which is the closest waterbody to the staging area. This area will also be located the shortest distance away from the access to the staging area and adjacent to the construction trailer to insure safe delivery and storage of construction materials.
    - Avoid transport near drainage paths or waterway.
    - Surround with earth berms. See EC-9, Earth Dikes and Draining Swales.
    - Place in an area, which will be paved. Currently, there are no plans to pave the Trinidad State Beach where the staging area is located.
- Storage of reactive, ignitable, or flammable liquids must comply with the fire codes of your area. Contact the local Fire Marshal to review materials, quantities, and proposed storage area to determine specific requirements. See the Flammable and Combustible Liquid Code, NFA A30
- An up to date inventory of materials delivered and stored onsite should be kept.
- Hazardous materials should be handled as infrequently as possible.
- During the rainy season, consider materials in a covered area. Store materials in secondary containments such as earthen dike, horse trough, for non-reactive materials such as detergents, oil, grease, and paints. Non-reactive materials such as detergents, oil, grease, and paints shall be contained in a watertight container
- Do not store chemicals, drums, or bagged materials directly on the ground. Place these items on a pallet and when possible, in secondary containment.
    - Sediment removed shall be stored on an impermeable 10 mil plastic cover and covered with the same. See BMP Stockpile Management WM-3. The preferred method for storage of sediment is in an impermeable closed container that may be directly loaded onto a truck and transported to an approved upland disposal site after reaching full capacity.
    - Cuttings from auguring will be stored in 55 gallon drums on pallets.
    - Unbroken removed creosote treated piles will be stored on pallets.
    - Woody debris removed shall be stored transported from the construction site in trucks to the staging area for temporary disposal in a watertight dumpster which will be transported to an approved upland disposal site when reached full capacity.
    - Other debris removed including but not limited to steels, metals, and plastics shall be stored in a separate dumpster for upland disposal.
    - Construction materials including but not limited to steel cages, and steel casings, and plastic fender piles shall be stored on pallets.
    - All chemicals shall be labeled and stored in a closed container.

  All of the above materials shall be stored at the staging area as listed in Attachment II, Staging Area and Traffic Control and shown on sheet 3 of the plans.
- drums must be kept uncovered, store them at a slight angle to reduce ponding of rainwater on the lids to reduce corrosion. Domed plastic covers are inexpensive and snap to the top of the drums, preventing water from collecting.

- Chemicals should be kept in their original labeled containers.
- Employees and subcontractors should be trained on the proper material delivery and storage practices.
- Employees trained in emergency spill cleanup procedures must be present when dangerous materials or liquids chemicals are unloaded.
- If significant residual materials remain on the ground after construction complete, properly remove materials, and any contaminated soil. See WM-7, Contaminated Soil Management. If the area is to be paved, pave as soon as materials are removed to stabilize the soil.

Material Storage Area and Practices

- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 should be stored in approved containers and drums and should not be overfilled. Containers and drums should be placed in temporary containment facilities for storage.
- A temporary containment facility should provide for a spill containment volume able to contain precipitation from a 25 year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest container within its boundary, whichever is greater.
- A temporary containment facility should be impervious to the materials stored therein for a minimum contact time of 72 hours.
- A temporary containment facility should be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills should be collected and placed into drums. These liquids should be handled as a hazardous waste unless testing determines them to be non-hazardous. All collected liquids or non-hazardous liquids should be sent to an approved disposal site.
- Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response to access.
- Incompatible materials, such as chlorine and ammonia, should not be stored in the same temporary containment facility.
- Throughout the rainy season, each temporary containment facility should be covered during non-working days, prior to, and during rain events.
- Materials should be stored in their original containers and the original product labels should be maintained in place in a legible condition. Damaged or otherwise illegible labels should be replaced immediately.
- Bagged and boxed materials should be stored on pallets and should not be allowed to accumulate on the ground. To provide protection from wind and rain throughout the rainy season, bagged and boxed materials should be covered during non-working days and prior to and during rain events.
- Stockpiles should be protected in accordance with WM-3, Stockpile Management.
- Materials should be stored indoors within existing structures or sheds when available.
- Am ample supply of appropriate spill clean up material should be kept near storage areas.

Material Storage Area and Practices

- Keep an accurate, up-to-date inventory of material delivered and stored onsite.
- Arrange for employees trained in emergency spill cleanup procedures to be present when dangerous materials or liquid chemicals are unloaded.

Spill Cleanup

- Contain and clean up any spill immediately.
- Properly remove and dispose of any hazardous materials or contaminated soil if significant residual materials remain on the ground after construction is complete. See WM-7, Contaminated Soil Management.
- See WM-4, Spill Prevention and Control, for spills of chemicals and/or hazardous materials.

Cost:

- The largest cost of implementation may be in the construction of a materials storage area that is covered and provided secondary containment.

Inspection and Maintenance:

- Inspect and verify that activity-based BMPs are in place prior to commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Keep an ample supply of spill cleanup materials near the storage area.
- Keep storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored.
- Repair or replace perimeter controls, containment structures, covers, and liners as needed to maintain proper function.
-

WM-2 Material Use

Primary objective: Waste Management and Materials Pollution Control

Description and Purpose: Prevent or reduce the discharge of pollutants to the storm drain system or watercourses from material use by using alternative products, minimizing hazardous material use onsite, and training employees and subcontractors.

Description and Purpose: Apply for the following materials used onsite:

- Petroleum products such has fuel, oil, and grease
- Asphalt and other concrete compounds
- Other hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds.
- Concrete compounds
- Other materials that may be detrimental to the environment

Implementation: The following steps should be taken to minimize risk:

- Minimize use of hazardous materials onsite.
- Follow manufacturer instruction regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.
- Train employee and subcontractors in proper material use.
- Supply Material Safety Data Sheets (MSDS) for all materials.

- Dispose of latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths, when thoroughly dry and are no longer hazardous, with other construction debris.
- Do not remove the original product label; it contains important safety and disposal information. Use the entire product before disposing of the container.
- Mix paint indoor or in containment area. Never clean paintbrushes or rinse paint containers into a street, gutter, storm drain, or watercourse. Dispose of any paint thinners, residue, and sludge(s) that cannot be recycled, as hazardous waste.
- For water-based paint, clean brushes to the extent practicable, and rinse into a concrete washout pit located in the staging area. For oil based, paint, clean brushes to the extent practicable, and filter and reuse thinners and solvents.
- Use recycled and less hazardous products when practical. Recycle residual paints, solvents, non-treated lumber, and other materials.
- Use materials only where and when needed to complete the construction activity. Use safer alternative materials as much as possible. Reduce or eliminate use of hazardous materials onsite when practical.
- Keep an ample supply of spill clean up material near use areas. Train employees in spill clean up procedures.
- Avoid exposing applied materials to rainfall and runoff unless sufficient time has been allowed for the to dry.

Cost: All of the above are low cost measures

Inspection and Maintenance:
- Inspect and verify that activity-based BMPs are in place prior to commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Maintenance of this best management practice is minimal
- Spot check employees and subcontractors throughout the job to ensure appropriate practices are being employed.

WM-3 Stockpile Management
Primary objective: Waste Management and Materials Pollution Control

Description and Purpose: Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, paving materials and pressure-treated wood.

Implementation: Protection of stockpiles is a year-round requirement. To properly manage stockpiles:
- Locate stockpiles a minimum of 50 feet away from concentrated flows of stormwater, drainage courses, and inlets. Stockpiles of sediment may be located on the southeast side of the staging area as shown on Sheet 3 of the plans and described in Attachment II.
- Protect all stockpiles from stormwater runon using a temporary perimeter sediment barrier. Use sandbags as a temporary perimeter sediment barrier.

- Implement wind erosion control practices as appropriate on all stockpiled material. For specific information, see WE-1, Wind Erosion Control.
- Manage stockpiles of contaminated soil in accordance with WM-7, Contaminated Soil Management. The project site is not located on contaminated soil. Should testing indicate the soil is contaminated then manage stockpile in accordance with WM-7, Contaminated Soil Management.
- Place bagged materials on pallets and under cover.

Protection of Non-Active Stockpiles

Non-active stockpiles of the identified materials should be protected further as follows:

Soil stockpiles

- During the rainy season, soil stockpiles should be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.
- During the non-rainy season, soil stockpiles should be covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

Stockpiles of Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, or aggregate sub base

- During the rainy season, the stockpiles should be covered or protected with a temporary sediment perimeter barrier at all times.
- During the non-rainy season, the stockpiles should be covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

Stockpile of "cold m ix"

- During the rainy season, cold mix stockpiles should be placed on and covered with plastic or comparable material at all times.
- During the non-rainy season, cold mix stockpiles should be placed on and covered with plastic or comparable material prior to the onset of precipitation.

Stockpile/Storage of pressure treated wood with copper, chromium, and arsenic or ammonical, copper, zinc, and arsenate.

- During the rainy season, treated wood should be covered with plastic or comparable material at all times.
- During the non-rainy season, treated wood should be covered with plastic or comparable material at all times and cold mix stockpiles should be placed on and covered with plastic or comparable material prior to the onset of precipitation.

Protection of Active Stockpiles

Active stockpiles of the identified materials should be protected further as follows:

- All stockpiles should be protected with sandbags prior to the onset of precipitation.
- Stockpile of "cold mix" should be placed on and covered with plastic or comparable material prior to the onset of precipitation.

Cost

All of the above are low cost measures.

Inspection and Maintenance:

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Repair and/or replace perimeter controls and covers as needed to keep them functioning properly.

WM-4 Spill Prevention and Control
Primary objective: Waste Management and Materials Pollution Control

Description and Purpose: Prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

This best management practice covers only spill prevention and control. However, WM-1, Materials Delivery and Storage, and WM-2, Material Use, also contain useful information particularly on spill prevention. For information on water, see the waste management BMPs in this section.

Applications:
- Soil stabilizers/binders
- Dust palliatives
- Fuels
- Lubricants
- Other petroleum distillates

Limitations:
- This BMP applies to spills caused by contractor and subcontractors.
- Procedures and practices presented in this BMP are general. Contractor should identify appropriate practices for the specific materials used or stored on site. This BMP has been specifically written to address this project. The contractor will include additional information when hired.

Implementation:
The following steps will help reduce the stormwater impacts of leaks and spills.

Education
- Be aware that different materials pollute in different amounts. Make sure that each employee knows that a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills.
- Educate employees and subcontractors on potential dangers to humans and the environment form spills and leaks.
- Hold regular meetings to discuss and reinforce appropriated disposal procedures (incorporate into regular safety meetings). The project Manager and/or Engineer shall hold weekly

meeting with the contractor and all employees at the staging area to discuss construction activities and BMPs.
- Establish a continuing education program to indoctrinate new employees.
- Have contractor's superintendent or representative oversee and enforce spill prevention and control measures.

General Measures
- To the extent that the work can be accomplished safely, spill of oils, petroleum products, substances listed under 40 CDF parts 110, 107, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
- Store hazardous materials and wastes in covered containers and protect from vandalism.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- Train employees in spill prevention and cleanup.
- Designate responsible individuals to oversee and enforce control measures.
- Spill should be covered and protected from stormwater runon during rainfall to the extent that it doesn't compromise clean up activities.
- Do not bury or wash spill with water.
- Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
- Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with WM-10, Liquid Waste Management.
- Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
- Place proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
- Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter control, containment structures, covers, and liners should be respired or replaced as needed to maintain proper function.

Cleanup
- Clean up leaks and spills immediately.
- Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the applied material is hazardous, the used cleanup materials are also hazardous and must be sent to either a certified laundry (rag) or disposed of as hazardous waste.
- Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills
- Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
- Use absorbent materials on small spills rather than hosing down or burying the spill.

- Absorbent materials should be promptly removed and disposed of properly.
- Follow the practice below for a minor spill:
  - Contain the spread of the spill
  - Recover spilled materials.
  - Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

- Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.
- Spills should be cleaned up immediately
  - Contain spread of the spill
  - Notify the project foreman immediately.
  - If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
  - If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
  - If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

- For significant or hazardous spills that cannot be controlled by personnel in the immediate vicinity, the following steps should be take:
  - Notify the local emergency response by dialing 911. In addition to 911, the contractor will notify the following City of Trinidad Fire Department and the following agencies:

    county officials. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
  - Notify the Governor's Office of Emergency Services Warning Center, (916) 845-8911.
  - For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the national Response Center at (800) 424-8802.
  - Notification should first be made by telephone and followed up with a written report.
  - The services of spill contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staff have arrived at the job site.
  - Other agencies which may need to be consulted, but are not limited to, the Fire Department, the Public Works Department, the Coast Guard, the Highway Patrol, the City/County Police Department, Department of Toxic Substances, California Division of Oil and Gas, CAL/OSHA, etc.

Reporting

- Report significant spills to local agencies, such as Fire Department; they can assist in cleanup.

- Federal regulations require that any significant oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hours).

Use the following measures related to specific activities:

Vehicle and Equipment Maintenance

- If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills. See designated vehicle and equipment maintenance location on Sheet 3 of the plans
- Regularly inspect onsite vehicles and equipment for leaks and repair immediately.
- Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fuel. Do not allow leaking vehicles or equipment onsite.
- Always use secondary containment, such as drain pan to catch spills or leaks when removing or changing fluids.
- Place drips pans under construction equipment when not in use.
- Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
- Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
- Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.
- Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it is as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

- If fueling must occur onsite, use designated area, located away from drainage course, to prevent the runon of stormwater and the runoff of spills.
- Discourage "topping off" of fuel tanks.
- Always use secondary containment, such as drain pan, when fueling to catch spill/leaks.

Costs:

Prevention of leaks and spills is inexpensive. Treatment and/or disposal of contaminated soil or water can be quite expensive.

Inspection and Maintenance:

- Inspect and verify that activity-based BMPs are in place prior to commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.

- Keep supplies of spill control and cleanup materials onsite, near storage, unloading and maintenance areas.
- Update your spill prevention and control plan and stock cleanup materials as changes occur in the types of chemicals onsite.

WM-5 Solid Waste Management
Primary objective: Waste Management and Materials Pollution Control

Description and Purpose: Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Applications:
- Solid waste generated from packaging materials including wood, paper, and plastic.
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces and masonry products.
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes.
- Construction waste including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, Styrofoam and other materials used to transport and package construction materials.

Implementation:
The following steps will help keep a clean site and reduce stormwater pollution:
- Select designated waste collection areas onsite.
- Inform trash-hauling contractors that you will accept only watertight dumpsters for onsite use. Inspect dumpsters for leaks and repair any dumpster that is not watertight.
- Locate containers in a covered area or in a secondary containment.
- Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy.
- Plan for additional containers and more frequent pickup during the demolition of construction. Container filled with solid waste shall be transported to the Eureka transfer center daily during dock demolition.
- Collect site trash each day, especially during rainy and windy conditions.
- Remove this solid waste promptly since erosion and sediment control devices tend to collect litter.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Do not hose out dumpsters on the construction site. Leave dumpsters cleaning to the trash hauling contractor.
- Arrange for regular waste collection before containers overflow.
- Clean up immediately if a container does spill.

- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas.

Education

- Have the contractor's superintendant or representative oversee and enforce proper solid waste management procedures and practices.
- Instruct employees and subcontractors on identification of solid waste and hazardous waste.
- Educate employees and subcontractor on solid waste storage and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Require that employees and subcontractors follow solid waste handling and storage procedures.
- Prohibit littering by employees, subcontractors, and visitors.
- Minimize production of solid waste materials wherever possible.

Collection, Storage, and Disposal

- Littering on the project site should be prohibited.
- To prevent clogging of the storm drainage system, litter and debris removal from drainage graters, trash racks, and ditch lines should be priority.
- Trash receptacles should be provided in the staging area where workers also congregate for lunch and break periods.
- Litter from work areas within the construction limits of the project site should be collected and placed in watertight dumpsters at least weekly, regardless of whether the litter was generated by the contractor, the public, or others. Collected litter and debris should not be placed in or next to drain inlets, stormwater drainage inlets, stormwater drainage systems, or watercourses.
- Dumpsters of sufficient size and number should be provided to contain the solid waste generated by the project.
- Full dumpsters should be removed from the project site and the contents should be disposed of by the trash hauling contractor.
- Construction debris and waste should be removed from the site biweekly or more frequently as needed.
- Construction material visible to the public such as steel casings, steel cages, and fender piles should be stored or stacked in an orderly manner at the locations shown on the Sheet 3 of the plans.
- Stormwater runon should be prevented from contacting stored solid waste. All solid waste shall be stored in watertight dumpsters.
- Solid waste storage areas should be located at least 50 feet from drainage facilities and watercourses and should not be located in areas prone to flooding or ponding.
- Segregate potentially hazardous waste from non-hazardous construction site waste.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- For disposal of hazardous waste, see WM-6, Hazardous Waste Management. Have hazardous waste hauled to an appropriate disposal site and/or recycling facility.

- Salvage or recycle useful vegetation debris, packaging and surplus building materials when practical. For example, trees and brush from land clearing can be used as a brush barrier, or converted into wood chips, then used as mulch on graded areas. Wood pallets, cardboard boxes, and construction scraps can also be recycled.

Cost:
All of the above are low cost measures.

Inspection and Maintenance:
- Inspect and verify that activity-based BMPs are in place prior to commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.
- Inspect construction waste areas regularly
- Arrange for regular waste collection.

WM-6 Hazardous Waste Management
Primary objective: Waste Management and Materials Pollution Control

Description and Purpose: Prevent or reduce the discharge of pollutants to stormwater from concrete waste through proper material use, waste disposal, and training of employees and subcontractors.

Applications:
Hazardous waste management practices are implemented on construction projects that generate waste from the use of:
- Petroleum products
- Concrete curing compounds
- Palliatives
- Wood Preservatives
- Acids
- Paints
- Solvents
- Any material deemed as hazardous waste in California Title 22 Division 4.5, or listed in 40 CFR Parts 110, 117, 261, or 302

In addition, sites with existing structures may contain wastes, which must be disposed of in accordance with federal, state, and local regulations. These wastes include:
- Sandblasting grit mixed lead-, cadmium,- or chromium-based paints
- Asbestos
- PCBs (particularly in older transformers)

The sheds of the existing pier contain mixed based paint and should be treated as hazardous waste. Pressure treated wood and creosote treated piles should also be treated as hazardous waste.

Implementation:
The following steps will help reduce stormwater pollution from hazardous wastes:

Material Use

- Wastes should be stored in sealed containers constructed of suitable material and should be labeled as required by Title 22 CCR, Division 4.5 and 49 CFR Parts 172, 173, 178, and, 179.
- All hazardous waste should be stored, transported, and disposed as required in Title 22 CCR, Division 4.4 and 49 CFR 261-263.
- Waste containers should be stored in temporary containment facilities that should comply with the following requirements:
  - Temporary containment facility should provide for a spill containment volume equal to 1. 1.5 times the volume of all containers able to contain precipitation from a 25 year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest tank within its boundary, whichever is greater.
  - Temporary containment facility should be impervious to the materials stored there for a minimum contact time of 72 hours.
  - Temporary containment facilities should be free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills should be placed into drums after each rainfall. Those liquids should be handled as hazardous waste unless testing determines them to be non-hazardous. Non-hazardous liquids should be sent to an approved disposal site.
  - Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.
  - Incompatible materials, such as chlorine and ammonia, should not be stored in the same temporary containment facility.
  - Throughout the rainy season, temporary containment facilities should be covered during non-working days, and prior to rain events. Covered facilities may include use of plastic tarps for small facilities or constructed roofs with overhangs.
- Drums should not be overfilled and wastes should not be mixed.
- Unless watertight, containers of dry waste should not be stored on pallets.
- Paint brushes equipment for water and oil based paints should be cleaned within a contained area and should not be allowed to contaminate site soils, watercourses, or drainage systems. Waste paints, thinners, solvents, residues, and sludge that cannot be recycled or reused should be disposed of a hazardous waste. When thoroughly dry, latex paint and paint cans, used brushes, rages, absorbent materials, and drop cloths should be disposed of as solid waste.
- Do not clean out paint brushes or rinse paint containers into dirt, street, gutter, storm drain, or stream. "Paint out" brushes as much as possible. Rinse water-based paints to the sanitary sewer. Filter and reuse thinners and solvents. Dispose of excess oil-based paints and sludge as hazardous waste.
- The following actions should be taken with respect to temporary containment:

- Ensure that adequate hazardous waste storage volume is available.
- Ensure that hazardous waste collection containers are conveniently located.
- Designate hazardous waste storage areas onsite away from storm drains or watercourses and away from moving vehicles and equipment to prevent accidental spills.
- Minimize production of generation of hazardous materials and hazardous waste on the job site.
- Use containment berms in fueling and maintenance areas and where the potential for spills is high.
- Segregate potentially hazardous waste from non-hazardous construction site debris.
- Keep liquid or semi-liquid hazardous waste in appropriate containers (closed drums or similar) and under cover.
- Clearly label all hazardous waste containers with the waste being stored and the date of accumulation.
- Place hazardous waste containers in secondary containment.
- Do not allow potentially hazardous waste materials to accumulate on the ground.
- Do not mix wastes.
- Use all of the product before disposing of the container.
- Do not remove the original product label; it contains important safety and disposal information.

Waste Recycling Disposal

- Select designated hazardous waste collection areas on site.
- Hazardous materials and wastes should be stored in secondary containment.
- Do not mix wastes, this can cause chemical reactions, making recycling impossible and complicating disposal.
- Recycle any useful materials such as used oil or water-based paints.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Arrange for regular waste collection before containers overflow.
- Make sure that hazardous waste (e.g., excess oil-based paint and sludge) is collected, removed, and disposed of only at authorized disposal areas.

Disposal Procedures

- Waste should be disposed of by licensed hazardous waste transported at an authorized and licensed disposal facility or recycling facility utilizing properly completed Uniform Hazardous Waste Manifest forms.
- A Department of Health Services certified laboratory should sample waste to determine the appropriate disposal facility.
- Properly dispose of rainwater in secondary containment that may have mixed with hazardous waste.
- Attention is directed to "Hazardous Material", "Contaminated Material", and "Aerially Deposited Lead" of the contract documents regarding the handling and disposal of hazardous materials.

Education

- Educate employees and subcontractors on hazardous waste storage and disposal procedures.
- Educate employees and subcontractors on potential dangers to humans and the environment for hazardous wastes.
- Instruct employees and subcontractors on safety procedures for common construction site hazardous waste.
- Instruct employees and subcontractors in identification of hazardous and solid waste.
- Hold regular meetings to discuss and reinforce hazardous waste management procedures (incorporate into regular safety meeting).
- The contractor's superintendant or representative should oversee and enforce proper hazardous waste management procedures and practices.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.
- Warning signs should be placed in areas recently treated with chemicals.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- If a container does spill, clean up immediately.

Costs:
All of the above are low cost measures

Inspection and Maintenance:

- Inspect and verify that activity-based BMPs are in place prior to commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily when non-stormwater discharges occur.
- Hazardous waste should be regularly collected.
- A foreman or construction supervisor should monitor onsite hazardous waste storage and disposal procedures.
- Waste storage areas should be kept clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored.
- Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.
- Hazardous spills should be cleaned up and reported in conformance with applicable Material Safety Data Sheet (MSDS) and the instructions posted at the project site.
- The National Response Center at (800) 424-8802, should be notified of spills of federal reportable quantities in conformance with the requirements in 40 CFR parts 110, 117, and 302. Aldo notify the Governors Office of Emergency Services Warning Center at (916) 845-8911.
- A copy of hazardous waste manifests should be provided.

WM-8 Concrete Waste Management
Primary objective: Waste Management and Materials Pollution Control

Description and Purpose: Prevent or reduce the discharge of pollutants to stormwater from concrete waste by performing onsite washout in designated area and training employee and subcontractors.

Applications:
- Concrete is used as a construction material.
- Concrete trucks and other concrete-coated equipment are washed onsite.

Limitations: Offsite washout of concrete waste may not be possible.

Implementation: The following steps will help reduce stormwater pollution from concrete waste:
- Discuss the concrete management techniques described in the BMP (such as handling of concrete waste and washout) with ready-mix concrete supplier before any deliveries are made.
- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Store dry and wet materials under cover, away from drainage areas
- Avoid mixing excess amount of fresh concrete
- Perform washout of concrete trucks offsite or in designated areas only. A concreter washout area shall be designated at the staging area as shown on Sheet 3 of the plan and described in Attachment II.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- Do not allow excess concrete to be dumped on site.
- For onsite washout:
  - Locate washout area at least 50 feet from storm drains, open ditches, or water bodies. The designated concrete washout area shall be located on the northeast corner of the staging area as shown on Sheet 3 - Staging Area Site Map shows.
  - Do not allow runoff from this area by constructing a temporary pit large enough for liquid and solid waste. See Sheet 3 and Attachment II-4-C – Staging Area Configuration for concrete washout area specifications.
- Wash out wastes into the temporary pit where the concrete can set, broken up, and disposed properly.
- Avoid creating runoff by draining water to the pit area when washing concrete to remove fine particles and expose the aggregate.

Education:
- Educate employees, subcontractors, and suppliers on the concrete waste management techniques described herein.
- Arrange for contractor's superintendant or representative to oversee and enforce concrete waste management procedures.

Concrete Slurry Wastes
- PCC and AC waste should not be allowed to enter storm drains or watercourses.
- PCC and AC waste should be collected and disposed of or placed in temporary concrete washout facility.

- A sign should be installed adjacent to the temporary concrete washout facility to inform concrete equipment operators to utilize the proper facility.
- The contractor shall utilize a below grade washout facility. The sediment is primarily composed of sand at the staging area. If excavation is not practical (i.e., pit collapses due to high fraction of sand in the sediment), then above temporary washout facility may be constructed.
- A foreman or construction supervisor should monitor onsite concrete working tasks, such as saw cutting, coring, grinding, and grooving to insure proper methods are implemented.
- Slurry residue should be vacuumed and disposed in a temporary pit (as described in Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Procedures below) and allowed to dry. Dispose of dry slurry residue in accordance with WM-5, Solid Waste Management.

Onsite Temporary Concrete Washout Facility, Transit Truck Washout Procedures

- Temporary concrete washout facilities should be located a minimum of 50 feet from storm drain inlets, open drainage facilities, and watercourses. Each facility should be located away from construction traffic or access areas to prevent disturbance or tracking.
- A sign should be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.
- Temporary concrete washout facilities should be constructed above grade or below grade at the option of the contractor. Temporary concrete washout facilities should be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations.
- Temporary washout facilities should have a temporary pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete materials generated during washout procedures.
- Washout of concrete trucks shall be performed in designated areas only.
- Only concrete from mixer truck chutes should be washed into concrete wash out.
- Concrete washout from concrete pumper bins can be washed into concrete pumper trucks and discharged into designated washout area or properly disposed offsite.
- Once concrete wastes area washed into the designated area and allowed to harden, the concrete should be broken up, removed, and disposed per WM-5, Solid Waste Management. Dispose of hardened concrete on a regular basis.
- Temporary Concrete Washout Facility (Type Above Grade)
  - Temporary concrete washout facility (type above grade) should be constructed as shown on the details on Sheet 6 of the plans, with a recommended minimum length and minimum width of 10 ft, but with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations.
  - Sandbag materials should be used as a sediment barrier.
  - Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.
- Temporary Concrete Washout Facility (Type Below Grade)
  - Temporary concrete washout facilities (type below grade) should be constructed as shown on Sheet 6 of the plans, with recommended minimum length and minimum width

of 10 ft. The quantity and volume should be sufficient to contain all liquid and concrete waste generated by washout operations.
- Lath and flagging should be commercial type.
- Plastic lining material should be a minimum of 10 mil polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

Removal of Temporary Concrete Washout Facilities
- When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of.
- Holes, depressions or other ground disturbance caused by removal of the temporary concrete washout facility should be backfilled and repaired.

Costs: All of the above are low cost measures.

Inspection and Maintenance:
- Inspect and verify that activity-based BMPs are in place prior to commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Temporary concrete washout facility should be maintained to provide adequate holding capacity with a minimum freeboard of 4 in. for above grade facilities and 12in for below grade facilities. Maintaining temporary concrete washout facilities should include removing and disposing of hardened concrete and returning the facilities to a functional condition. Hardened concrete materials should be removed and disposed of.
- Washout facilities must be clean, or new facilities must be constructed and ready for use once the washout is 75% full.

WM-9 Sanitary/Septic Waste Management
Primary objective: Waste Management and Materials Pollution Control

Description and Purpose: Proper sanitary and septic waste management prevent the discharge of pollutants to stormwater from sanitary and septic waste by providing convenient, well maintained facilities, and arranging for regular service and disposal.

Applications:
Sanitary septic waste management practices are suitable for use at all construction sites that use temporary or portable sanitary and septic waste systems.

Implementation:
Sanitary and septic wastes should be treated or disposed of in accordance with state and local requirements. In many cases, one contract with a local facility supplier will be all that it takes to make sure sanitary wastes re properly disposed.

Storage and Disposal Procedures

- Temporary sanitary facilities should be located away from drainage facilities, watercourses, and from traffic circulation. When subjected to high winds or risk of high winds, temporary sanitary facilities should be secured to prevent overturning.
- Wastewater should not be discharged or buried within the project site.
- Only reputable, licensed sanitary and septic waste haulers should be used.
- Sanitary facilities should be located in a convenient location.
- Untreated raw wastewater should never be discharged or buried.
- Sanitary facilities should be maintained in good working order by a licensed service.
- Regular waste collection by a licensed hauler should be arranged before facilities overflow.

Education

- Educate employees and subcontractors and suppliers on sanitary waste storage and disposal procedures.
- Educate employees and subcontractors and suppliers in identification of sanitary waste.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meeting).
- Establish a continuing education program to indoctrinate new employees.

Cost:

All of the above are low cost measures.

Inspection and Maintenance:

- Inspect and verify that activity-based BMPs are in place prior to commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.
- Arrange for regular waste collection
- Since high winds are expected a the project site throughout the construction season, portable sanitary facilities must be secured with spikes down to prevent over turning.

NS-9 Vehicle and Equipment Fueling

Objectives:

- Non-Stormwater Management Control

Description and Purpose: Vehicle equipment fueling procedures and practices are designed to prevent fuel spills and leaks, and reduce or eliminate contamination of stormwater. This can be accomplished by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementation spill control, and training employees and subcontractors in proper fueling procedures.

Application: These procedures are suitable on all construction sites where vehicle and equipment take place.

Implementation:

- Use offsite fueling stations as much as possible. These businesses are better equipped to handle fuel and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate fueling area at a site. The closest offsite fueling station is located on the west side of Highway 101 at the entrance to the City of Trinidad.
- Discourage "topping off" fuel tanks.
- Absorbent spill cleanup materials and spill kits should be available in fueling areas on fueling trucks, and should be disposed of properly after use. All absorbent pads will be placed in the hazardous material dumpster for later disposal at an approved disposal site.
- Drip pans should be used during vehicle and equipment fueling. The contractor shall use the designated space in the staging area for fueling construction equipment (Sheet 3). The surface at the staging area is permeable. All fuel collected in drip pans shall be disposed into watertight 55-gal drum and transported to an approved disposal site.
- Avoid mobile fueling of mobile construction equipment around the site, rather, transport the equipment to designated fueling areas. With the exception of tracked equipment such as bulldozers and large excavators, most vehicles should be able to travel to a designated area with little lost time. All construction equipment will be transported back to the staging area at the end of each working day. No equipment shall remain on the pier, except for the crane if needed.
- Train employees and subcontractors in proper fueling and cleanup procedures.
- When fueling must take place onsite, designate an area away from drainage courses to be used. Fueling area should be identified in the SWPPP.
- Dedicate fueling areas should be protected from stormwater runon and runoff, and should be located at least 50 feet away from downstream drainage facilities and watercourses. Fueling must be performed on level-grade areas. The staging area, where fueling will occur, is mostly on a flat grade. The contractor shall level-grade the fueling area when preparing the staging area prior to commencement of construction.
- Protect fueling areas with berms and dikes to prevent runoff, and to contain spills.
- Nozzles used in vehicle and equipment fueling should be equipped with automatic shutoff to control drips. Fueling operations should not be left unattended.

- Use vapor recovery nozzles to help control drips as well as air pollution where required by Air Quality Management Districts. The contractor shall determine if recovery nozzles are need at the project site.
- Federal, state, and local requirements should be observed for any stationary above ground storage tanks. There will be no fuel storage tanks at the project site. A fuel delivery truck shall deliver the fuel once a day to the staging area and fuel the equipment before leaving the site.

Cost:
All of the above measures a re low cost.
Inspection and Maintenance:

- Vehicle and equipment should be inspected each day of use for leaks. Leaks should be repaired immediately or problem vehicles or equipment should be removed from the project site.
- Keep ample supplies of spill cleanup materials onsite.
- Immediately clean up spills and properly dispose of contaminated soil and cleanup materials. Should contaminated soil be collected at the staging area, then it shall be stockpiled separately form non-contaminated sediment stockpile, and disposed appropriately.

NS-14 Material Over Water
Objectives:
- Non-Stormwater Management Control
- Waste Management and Materials Pollution Control

Description and Purpose: Procedures for proper use, storage, and disposal of materials and equipment on temporary construction pads, or similar locations, such as the pier decking, that minimize or eliminate the discharge of potential pollutants to Trinidad Bay. Demolition of the existing Trinidad pier will occur from the decking of the existing pier above the ocean water.

Implementation:
- Refer to WM-1, Material; Delivery and Storage and WM-4 Spill Prevention and Control.
- Use drip pans and/or absorbent pads for equipment and vehicles and ensure that an adequate supply of spill clean up material is available.
- Drip pans should be placed under all vehicles and equipment placed on the pier located over Trinidad Bay waterbody when the vehicle is expected to be idle for more than one hour.
- Maintain equipment in accordance with NS-10, Vehicle and Equipment Maintenance. If a leaking line cannot be repaired, remove equipment from the pier.
- Provide a 10 mil impermeable protective cover on the pier decking and water tight toe boards on the sides of the pier decking to contain spills and prevent materials and debris from leaving the deck.
- Secure all materials to prevent discharges to receiving water via wind.

- Identify types of spill control measures to be employed, including the storage of such materials and equipment. Ensure that staff is trained regarding the use of the materials, deployment and access of control measures, and reporting measures.
- In case of spill, contact the North Coats Regional Water Quality Control Board and all agencies listed in the Spill Prevention and Control Plan within 48 hours.
- Refer to WM-5, Solid Waste Management and WM-6-, Hazardous Waste Management. Ensure the timely and proper removal of accumulated waste.
- Comply with all necessary permits and conditions for construction within or near the watercourse, such as the North Coast Regional Water Quality Control Board, U.S. Army Corps of engineers, California Coastal Commission, and other permitting and resource agencies.
- Discharges to the Trinidad Bay should be reported to the North Coats Regional Water Quality Control Board immediately upon discovery. A written discharge notification must follow within 7 days. Follow the spill reporting procedures contained in SWPPP.

Cost: These measures are generally of low to moderate cost. Exceptions are areas for temporary storage of materials or engine fluid.

Inspection and Maintenance:
- Inspect and verify that activity-based BMPs are in place prior to commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.
- Ensure that employees and subcontractors implement the appropriate measures for storage and use of materials and equipment.
- Inspect and maintain all associated BMPs and perimeter controls to ensure continuous protection of the water courses, including waters of the United States.

NS-15 Demolition Adjacent to Water
Objectives:
- Non-Stormwater Management Control

Description and Purpose: Procedures for to protect water bodies from debris ands wastes associated with structure demolition or removal over or adjacent to watercourses.

Implementation:
- Use attachments on construction equipment (crane) to catch debris removed during pile removal.
- Use covers to collect debris.
- Covers are to be approved by the owner.
- Stockpile accumulated debris and waste generated during demolition away from watercourses at the staging area and in accordance with WM-3, Stockpile Management.
- Insure safe passage of wildlife as necessary (see Attachment III-2- Mitigation Measure IV-4).

- Discharges to the Trinidad Bay should be reported to the North Coats Regional Water Quality Control Board and all agencies listed in the Spill Prevention and Control Plan immediately upon discovery. A written discharge notification must follow within 7 days. Follow the spill reporting procedures contained in SWPPP.
- For sheds and piles containing hazardous materials, i.e., creosote or lead refers to BMP WM-6, Hazardous Waste Management.

Cost: May vary depending on combination of practices implemented.

Inspection and Maintenance:

- Inspect and verify that activity-based BMPs are in place prior to commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and two-week intervals in the non-rainy season to verify continued BMP implementation.
- Inspect BMP subject to non-stormwater discharge daily while non-stormwater discharges occur.
- Any debris-catching devices shall be emptied regularly. Collected debris shall be removed and stored away from the watercourse and protected from runon and runoff.

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FOUNDATION INVESTIGATION

Trinidad Pier Replacement
Trinidad, California

Pacific Affiliates, Inc.
Design Engineer

Cher-Ae-Heights Indian Community
Project Owner

1P2/507/089
41124-A2: 580N:560W

September 2007

EXHIBIT NO. **10**
APPLICATION NO.
1-07-046
CHER-AE HEIGHTS INDIAN COMMUNITY
EXCERPT, GEOTECHNICAL INVESTIGATION (1 of 15)

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FOUNDATION INVESTIGATION

Trinidad Pier Replacement
Trinidad, California

1P2/507/089

Introduction

A limited study of subsurface materials and conditions has been completed at the above site in accordance with the agreement between Pacific Affiliates and Taber Consultants. The purpose of the investigation is to evaluate subsurface materials and to establish soils criteria for design of Trinidad Pier replacement. The recommendations contained herein are based on load requirements and pier layout provided by Pacific Affiliates. Limitations of study are discussed in the attached "General Conditions". We note that a fault investigation was not part of our scope of work and therefore this report can not be relied on for determining the presence or absence of any faults within the project boundaries.

Site Description

The subject pier is located near the base of the prominent Trinidad Head and to the southwest of the developed portions of the City of Trinidad (see attached "Vicinity Map"). More specifically, the pier starts near the western side of the rock named Little Head and projects approximately 540 ft into Trinidad Bay to the south from a low bench that connects the mainland to Trinidad Head.

The project is located within a designated Area of Special Biological Significance (ARBS) and as such special provisions must be made to minimize impact to the marine environment and organisms in this area. The requirements imposed by ARBS include additional controls on discharges to the marine environment, limitations on radiated sound/noise, and other restrictions that may impact the method and execution of construction projects within the ARBS boundaries, in particular pile foundation construction.

Project Description

The existing deteriorated wooden piles and decking are to be replaced by precast concrete decking supported on steel or concrete piles. The proposed replacement pier will consist of 22 bents at 25-feet on-center. Both vertical and battered piles are planed. Replacement pier dimensions and deck areas are to match the existing pier (540-ft long and 13,200 ft^2 deck area). Construction is to be accomplished from the existing structure.

Background

The existing pier was constructed in 1947 of creosote treated Douglas Fir piles and treated wooden decking. The pier was purchased by the Cher-Ae-Heights Indian Community in 2000. The pier lies on land leased from the City of Trinidad and is currently used by the local fishing and tourism industries. It is understood that the pier structure requires replacement due to deterioration.

Exploration and Testing

Information on the nature and distribution of subsurface materials and conditions for this project was obtained by means of four sampled test borings to maximum depth 90.5±ft (lowest elev. -70.2±). Test borings were drilled with a track-mounted CME 55 drill rig. Drilling methods used to advance the borings included combinations of dynamic cone penetrometer, mud rotary, and diamond core rotary drilling. Four borings were made along the existing pier.

Samples of earth materials were obtained from the borings by means of 2.0-inch O.D. (1.4-inch I.D.) "standard penetration" samplers lined with brass tubes to retain the samples. The sampler was advanced with standard 350 ft-lb striking force (per ASTM D1586) using an automatic hammer system. Sampler penetration resistance was

recorded to provide a field measure of soil consistency and can be correlated to soils strength and bearing characteristics. Rock materials were sampled using diamond bit coring techniques.

The earth materials were field-classified and borings logged by an engineering geologist on the bases of sampler penetration resistance, drill action, examination of samples and inspection of soil cuttings and rock cores. All borings were left open at the end of drilling per the instruction of the California Coastal Commission.

Portions of recovered drive-samples were retained in containers for laboratory testing and reference. Moisture content-dry density and unconfined compressive strength tests were performed on selected drive samples in the laboratory to supplement field evaluation of earth materials parameters.

Where diamond coring was used to advance the borings, the recovered cores were logged as to percent recovery and Rock Quality Designation (RQD). Cores were stored in core boxes for reference and for laboratory testing. Triaxial Shear Tests and Corrosivity Screening (pH and minimum resistivity per CTM 643, Sulfate per CTM 417 and Chloride per CTM 422) were performed on selected portions of the retained rock cores.

Boring locations and elevations were referenced to existing site features. Locations, elevations, details of borings and results of tests are shown on the "Log of Test Borings" drawings, Figures-2-4, and Appendix-A. Eric Hilmer, C.E.G., was the field engineering geologist for this project.

Geologic Setting

The site is shown on published geologic mapping ("Geologic Map of the Weed Quadrangle", CDMG, 1987, 1:250,000; "Geologic Reconnaissance of the Northern Coast

Ranges and Klamath Mountains, California" CDMG Bulletin 179, 1960; and "Geologic Map Trinidad Quadrangle" California Department of Forestry 1979, 1:62,500) as underlain by pre-Cretaceous rocks of the Franciscan Complex and Quaternary marine terrace deposits. This rock is described in publications as variably weathered, highly fractured/sheared with variable composition, composed predominately of mudstones, greywacke, and metasedimentary rocks, with lesser amounts of igneous and metamorphic rocks.

Proximity to the Mendocino Triple Junction results in both reverse/thrust and right lateral strike-slip motion being accommodated on a complex system of local faults. A potentially active trace of the Trinidad Fault has been mapped to cross through the project area (USGS OFR-96-656). This fault is considered to be a reverse/thrust fault and is reported to have displaced older marine terrace deposits near Trinidad Head. This displacement suggests that this fault could produce tsunami in the local area. The project area is not located within an Alquist-Priolo "Earthquake Fault Zone" requiring special studies for fault rupture hazard.

Earth Materials and Conditions

Materials encountered during our subsurface investigation are consistent with published mapping. Earth materials observed during the subsurface investigation can be broken into two general categories which are described below:

Recent marine deposits

A thin veneer (3.5 to 7.5±ft thickness) of recently deposited loose to compact gray sand with shell fragments and other debris overlies the entire site. Some gravel size rock fragments were also observed in the cuttings (possibly derived from the adjacent Trinidad Head and Little Head). Large (2-3±ft dia) blocks of Franciscan material were observed at the base of both Trinidad Head and Little Head.

Recent marine material was penetrated from mud line surface to 39.5±feet, 36.0±feet, 26.0±feet, and 19.2±feet depth from deck surface (elev. -19.2±feet, -15.8±feet, -6.1±feet, and -0.8±feet) in Borings B-1, B-2, B-3, and B-4 respectively.

Bedrock

Bedrock of the Franciscan Formation underlies the recent marine deposits in each of our boreholes. This unit predominately consists of gray, green, and black weathered to decomposed mudstone, shale, and sandstone, with some zones of hard grey sandstone. As described in published mapping, decomposed igneous and metamorphic rocks are also likely present. This unit is variably fractured and sheared with significant localized slickensided surfaces. Carbonate (likely calcite) filled fractures and stringers are found throughout, with some zones containing approximately 30-40± percent calcite by volume. Bedrock materials are considered to be generally stable and capable of contributing to structure support.

Shear Zones

Zones of extremely fractured and slickensided rock material were found in several borings and may relate to a shear zone or the trace of Trinidad Fault observed at the base of Trinidad Head by Woodward-Clyde (1980). Further investigation would be required to fully delineate and categorize this material and to determine its relationship with local faults, if any.

Site Seismic Conditions

Due to the ambiguous classification of the pier structure it is not clear whether the proposed structure falls under Caltrans Seismic Design Criteria (SDC) or California Building Code (CBC) earthquake design criteria. Therefore, both seismic design criteria are presented.

In accordance with current Caltrans Division of Structures site seismicity evaluation procedures (with reference to "California Seismic Hazards Map 1996" and "Attenuation Curves" by Mualchin and Jones, 1992), a "Peak Bedrock Acceleration" (PBA) of 0.72 g is assigned the site, associated with an event of 7.50 magnitude on the Trinidad fault located approximately 1.0 km easterly. The fault is considered "active" and capable of producing significant seismic accelerations at the pier site. Technical information accompanying the "California Seismic Hazards Map 1996" lists this fault as not known, though geologic mapping of the area categorize this fault as a reverse/thrust.

The site may conservatively be assigned a "Type-C" soil profile per Table B.1 of Caltrans "Seismic Design Criteria, Version 1.4" (June 2006).

Caltrans procedures require increases in seismic parameters for certain types of faults – namely "reverse thrust" and "reverse oblique" faults – which are also applied to faults of unknown type. Increases in SDC response curves are also required where a fault is located within 16 km of the site. Staged increases in spectral accelerations depending upon structure period are therefore recommended and are provide below.

Based on the above information, structure design is recommended to be based on the following SDC parameters:

- Controlling Fault: Trinidad,
- Soil Profile Type C,
- Magnitude 7.25± 0.25,
- Peak Bedrock Acceleration (PBA) of 0.70 g, and
- Modified ARS Curve from SDC Figure B.5 with staged increase in spectral accelerations per below is attached (Figure 2).

Structure Period (seconds)	Increase in Spectral Acceleration (%)
0-0.5	No Increase
0.5-1.0	0% to 20% Linear Increase
≥1.0	20% Increase

The site is located within 2001 CBC Seismic Zone 4 with the nearest fault <2 km from the site (Type B). The site materials can be conservatively categorized by Soil Type "D". The 2001 CBC near-source factors for Zone 4, Soils Profile Type D with the nearest fault <2 km from the site are N_a= 1.3, N_v=1.6, with the corresponding seismic coefficients of C_a=0.44 and C_v= 0.64.

A probabilistic ground motion value determination for the site was obtained from the USGS website (http://earthquake.usgs.gov/research/hazmaps/products_data/2002/wus2002.php as accessed on 7/14/07). An interpreted peak ground acceleration of about 0.60g is anticipated based on a 10% probability of exceedance, (PE), in 50 years. A copy of a printout from the website is attached.

Seismic effects other than ground shaking (including ground rupture, tsunami, and slope failures) are considered possibilities at the subject site owing to its low elevation and proximity to known active faults. Seismic shaking from the nearby Trinidad Fault or other regional faults may lead to instability of material on Trinidad Head, Little Head, or other nearby terrain bordering Trinidad Bay. Blocks of material cleaved from the heads or large landslides could potentially generate large waves locally. The possible trace of the Trinidad Fault believed to run next to Trinidad Head posses the possibility of ground rupture near or below the proposed structure and may directly generate tsunami in the local area.

Groundwater

The subject site is entirely below groundwater surface (sea level) and as such all excavations can be expected to be filled with water. Substantial seepage can be expected even in partially or fully cased excavations.

Corrosivity

Caltrans Corrosion Guidelines defines corrosive soil as having a pH of 5.5 or less or concentrations of chlorides ≥ 500ppm or concentrations of sulfates ≥ 2000ppm. Soil resistivity is also tested but resistivity results are not used to define a corrosive soil per Caltrans Guidelines.

Soil corrosivity testing was performed on three samples. Results of the tests indicate pH values of 8.31, 8.15 and 7.86 (CTM 643); minimum resistivity values of 2,300 ohm-cm, 1,200 ohm-cm, and 1,000 ohm-cm (CTM 643); chloride values of 1252.9 ppm, 2,258.6 ppm, and 3,136.7 ppm (CTM 422); and sulfate values of 117.7 ppm, 458.4 ppm, and 645.9 ppm (CTM 417). These results indicate a "corrosive" soils environment for both concrete and steel (per Caltrans "Corrosion Guidelines", September 2003).

Conclusions

The site is adequately stable for the proposed foundation and support is available by means of foundations penetrating into the underlying weathered rock materials. The use of typical driven piles is considered possible at the site but may be unsuitable due to possible difficult driving conditions, environmental impacts, and regulatory restrictions. Cast-in-steel-shell (CISS) piling is likely the preferred method of installation, though special procedures may be required (i.e. tremie seal, relief drilling,

etc.). Cast-in-drilled-hole (CIDH) piling is also considered feasible with casing and other special procedures, but would be unsuitable for battered pile installation.

Wet construction conditions should be expected and the appropriate construction procedures should be followed. Rock surface contours are approximately interpreted from available boring data, and significant deviations from the assumed surface are likely. Depth to bedrock should be verified during construction. Casing will likely be required for construction; placement by the contractor may involve impact driving or vibratory installation.

Fault movement, either on or nearby the subject site, has the potential to create high seismic accelerations, differential movement of the pier structure, and tsunami. These effects should be taken into consideration if the pier structure is meant to stay in-service after a large earthquake event. Basis for service would be based on the owners "reasonable risk," which is further described in "Basis for Evaluation of a 'Geologic Hazard'", attached.

Recommendations

CISS Piling

Geotechnical criteria for axial resistance of 18-inch diameter CISS piles were derived following methods outlined in FHWA publication "Drilled Shafts: Construction Procedures and Design Methods" (FHWA-IF-99-025) and Caltrans Bridge Design Specifications. These piles are presumed to develop axial resistance for compression and tensile loading entirely in side-friction. Substantial end-bearing could be available at the specified tip elevations indicated below, but may require up to several inches of settlement to develop, so end-bearing has been neglected. These piles are presumed to be concrete filled.

Design tip elevations of 1.5-ft diameter CISS piles are controlled by axial compressive capacity and are based on required axial loads provided by Pacific Affiliates, Inc. It is understood that lateral loads will be handled by battered piles and no lateral required lateral capacities have been provided. Design tip elevations and axial capacity are provided in the following Pile Data Table.

Pile Data Table:

Location	Type	Design Loading (service load) (tons)	Nominal Resistance		Design Tip Elevations	Specified Tip Elevation
			Compression (kips)	Tension (kips)		
Bent 1	18-inch CISS	50	203	-	-37 (1); -37 (2)	-37.0
Bent 2	18-inch CISS	50	203	-	-37 (1); -37 (2)	-37.0
Bent 3	18-inch CISS	50	203	-	-37 (1); -37 (2)	-37.0
Bent 4	18-inch CISS	50	203	-	-39 (1); -39 (2)	-39.0
Bent 5	18-inch CISS	50	203	-	-40 (1); -40 (2)	-40.0
Bent 6	18-inch CISS	50	203	-	-42 (1); -42 (2)	-42.0
Bent 7	18-inch CISS	50	203	-	-43 (1); -43 (2)	-43.0
Bent 8	18-inch CISS	50	203	-	-45 (1); -45 (2)	-45.0
Bent 9	18-inch CISS	50	203	-	-46 (1); -46 (2)	-46.0
Bent 10	18-inch CISS	50	203	-	-48 (1); -48 (2)	-48.0
Bent 11	18-inch CISS	50	203	-	-50 (1); -50 (2)	-50.0
Bent 12	18-inch CISS	50	203	-	-51 (1); -51 (2)	-51.0
Bent 13	18-inch CISS	50	203	-	-53 (1); -53 (2)	-53.0
Bent 14	18-inch CISS	50	203	-	-54 (1); -54 (2)	-54.0
Bent 15	18-inch CISS	50	203	-	-54 (1); -54 (2)	-54.0
Bent 16	18-inch CISS	50	203	-	-54 (1); -54 (2)	-54.0
Bent 17	18-inch CISS	50	203	-	-54 (1); -54 (2)	-54.0
Bent 18	18-inch CISS	50	203	-	-54 (1); -54 (2)	-54.0
Bent 19	18-inch CISS	50	203	-	-53 (1); -53 (2)	-53.0
Bent 20	18-inch CISS	50	203	-	-53 (1); -53 (2)	-53.0
Bent 21	18-inch CISS	50	203	-	-53 (1); -53 (2)	-53.0
Bent 22	18-inch CISS	50	203	-	-53 (1); -53 (2)	-53.0

Pile tip elevations are controlled by the following demands: 1) Compression, 2) Lateral

The materials encountered in the test borings are expected to be excavated with moderate difficulty using "typical" heavy duty foundation drilling equipment, though

areas of difficult drilling should be expected. It should be expected that CISS excavations will require core drilling, the use of downhole hammers, or other means to penetrate harder material.

Before mobilizing to the site, the foundation contractor should prepare and submit a detailed work plan for the engineer's review and approval. The work plan should state explicitly any assumptions that the contractor has made regarding earth materials and foundation construction conditions. The work plan should include details of proposed equipment, personnel, materials, methods and order of work.

The use of impact or vibratory driving to place temporary or permanent casing is considered likely. The contractor should be prepared to mitigate any adverse effects to the ARBS Zone created by this activity.

Drainage and Dewatering

Free groundwater will be present within the entire depth of CISS pile excavations and "wet" specifications should be applied, including special inspection, slurry and tremie pour requirements. Attempts to de-water CISS pile excavations should not be permitted prior to placement of a tremie seal.

Plans should indicate a tremie seal filling the lower most portion of the shell. The tremie seal should fill a minimum of 2.5 ft axially. Before the seal is poured, the inside walls of the pile should be cleaned by brushing or similar method of any adhering soil or debris to improve the effectiveness of the seal. A "cleaning bucket" or similar apparatus should be used to clean the bottom of the excavation of loose or disrupted material. The tremie seal should be in-place and allowed to cure before de-watering of the pile is attempted. Although it might be possible to de-water the CISS piles without the use of a seal, the potential effects of seepage into the pile are so severe that it should not be attempted.

Concrete Decking

Pier superstructure and decking are subject to substantial horizontal and vertical loads either directly from ground shaking or by secondary earthquake effects such as tsunami. Ground rupture associated with the possible thread of the Trinidad Fault could impose several feet of vertical or horizontal displacement. Tsunami action could lead to lifting/displacement of the decking. It is therefore recommended that connections between bents and the decking be designed to accommodate some amount of differential vertical and horizontal movement and to provide provisions to prevent lifting of the deck surface.

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Attachments:
"General Conditions"
"Selected References"
"Basis for Evaluation of 'Geologic Hazard'"
Figure-1 "Vicinity Map"
Figure-2 "Log of Test Borings" drawing (half-size, 2 sheets)
Figure-3 "Engineering Geology Field Descriptors"
Figure-4 "Laboratory Test Data Summary"
Appendix-A "Laboratory Test Data"
"Seismic Hazard Map California/Nevada Region"

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GENERAL CONDITIONS

The conclusions and recommendations of this study are professional opinion based upon the indicated project criteria and the limited data described herein. It is recognized there is potential for variation in subsurface conditions and modification of conclusions and recommendations might emerge from further, more detailed study.

This report is intended only for the purpose, site location and project description indicated and assumes design and construction in accordance with Caltrans practice.

As changes in appropriate standards, site conditions and technical knowledge cannot be adequately predicted, review of recommendations by this office for use after a period of two years is a condition of this report.

A review by this office of any foundation and/or grading plans and specifications or other work product insofar as they rely upon or implement the content of this report, together with the opportunity to make supplemental recommendations as indicated therefrom is considered an integral part of this study and a condition of recommendations.

Subsequently defined construction observation procedures and/or agencies are an element of work, which may affect supplementary recommendations.

Should there be significant change in the project or should soils conditions different from those described in this report be encountered during construction, this office should be notified for evaluation and supplemental recommendations as necessary or appropriate.

Opinions and recommendations apply to current site conditions and those reasonably foreseeable for the described development--which includes appropriate operation and maintenance thereof. They cannot apply to site changes occurring, made, or induced, of which this office is not aware and has not had opportunity to evaluate.

The scope of this study specifically excluded sampling and/or testing for, or evaluation of the occurrence and distribution of, hazardous substances. No opinion is intended regarding the presence or distribution of any hazardous substances at this or nearby sites.

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Since 1954

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

In response refer to:
2008/00878:MLD

NOV 30 2009

Lieutenant Colonel Laurence M. Farrell
Commander, San Francisco District
U.S. Army Corps of Engineers
1455 Market Street
San Francisco, California 94103-1398

Dear Colonel Farrell:

On July 13, 2009, NOAA's National Marine Fisheries Service (NMFS) received the U.S. Army Corps of Engineers (Corps) July 9, 2009, letter and Biological Assessment (BA), requesting initiation of informal consultation on the issuance of a permit (File Number 400318) to the Cher-Ae Heights Indian Community of the Trinidad Rancheria (Trinidad Rancheria), pursuant to section 7(a) (2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*), and its implementing regulations (50 CFR 402). The permit would allow implementation of the Trinidad Rancheria Pier Reconstruction Project (Project). The Project will replace an existing wooden pier and pilings with a pier comprised of a pre-cast concrete deck and concrete pilings. The Project is located in Trinidad Bay in the City of Trinidad, California, Humboldt County. The Corps concluded that the project may affect, but is not likely to adversely affect the Steller sea lion (*Eumetopias jubatus*) and requests NMFS' concurrence with this determination.

This letter constitutes informal consultation for the federally listed threatened Steller sea lion (November 26, 1990, 55 FR 49204), and assesses Project effects relative to the ESA and Marine Mammal Protection Act (MMPA). A separate letter dated October 27, 2009, from our office to the Corps, completed consultation on Essential Fish Habitat, pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (Public Law 104-267, 16 U.S.C. 1801 *et seq.*) and its implementing regulations [50 CFR 600.920(a)] and served as consultation under the authority of and in accordance with provisions of the Fish and Wildlife Coordination Act of 1934. That letter concluded informal consultation under the ESA for the following federally threatened species: (1) Southern Oregon/Northern California Coast coho salmon (*Oncorhynchus kisutch*); (2) California Coastal chinook salmon (*O. tshawytscha*); and (3) Northern California steelhead (*O. mykiss*).

Trinidad Bay, a commercial port located between Humboldt Bay and Crescent City, contains numerous vessel moorings which include permanent commercial fishing vessel anchors as well

100 moorings that are placed for recreational vessel owners. The Trinidad Rancheria Pier, provides services for: (1) commercial fisherman, (2) recreational boaters, kayakers, and whale-watching vessels; and (3) education and research by housing the Humboldt State University Telonicher Marine Laboratory saltwater intake pipe and the California Center for Integrated Technology water quality data sonde. The Project area is comprised of the 0.31 acre Trinidad Rancheria Pier extending over marine habitats, and a staging area (a gravel parking lot located west of the pier), covering 0.53 acres of upland area.

The purpose of the Project is to demolish the existing wooden structure, construct a new pier, and upgrade pier utilities (water, sewer, electricity, telephone). The new pier will be: (1) constructed within the existing pier footprint; (2) 540 ft long, and (3) vary in width from 24 ft at the shore to 26 ft at the pier end. Prior to demolition, all utilities (water, electrical, power and phone lines) and structures (ladders hoists, sheds, and benches) will be removed.

A total of 205 wooden piles (12-inch diameter) will be removed using a vibratory hammer, and 115 cast-in-steel-shell (CISS) concrete piles (18-inch diameter) will be installed using a vibratory hammer. Installation of the CISS piles will require: (1) removal of 100 yds^3 of sediment by augering, (2) dewatering of the shells, and (3) pouring of concrete to fill the shells. Five CISS concrete piles will be separated at 5-foot intervals along each 25-foot long concrete bents. A total of 22 bents separated 25 feet apart shall be used. The decking of the new pier (approximately 13,500 ft^2) will be constructed of 20-foot-long concrete sections. Lighting will be embedded in the decking and railing of the pier to minimize light pollution from the pier. The pier decking will be sloped to the west in order to direct water runoff from the pier to the stormwater collection pipe, and conveyed by gravity to a new upland manhole and storm chamber containing treatment media. The new saltwater intake pumps for Humboldt State University will be screened in accordance with NMFS standards for such intakes.

Project Timing and Sequencing

The Project is expected to be completed within nine months, commencing on August 1, 2010, and terminating on May 1, 2011. Pile removal and installation will require approximately six months (August through January), and deck and utilities reconstruction will be completed in the remaining three months (February through April). Construction activities will occur five days per week between 7 a.m. and 7 p.m. Should severe weather conditions result in delays in the construction schedule, construction may occur seven days per week as needed to ensure completion by May 1, 2011.

Removal of the existing piles and installation of new piles will occur will occur successively, beginning from the north end (shore) to south end (water terminus) of the existing pier. Each day, one wooden pile will be removed, one new steel shell installed, and a concrete seal poured, with a total of six to eight hours required for the process. Each week, one row of five concrete piles and concrete bents will be constructed. Following the installation of two successive pile bents at 25 ft intervals, a new precast concrete deck section will be installed.

Pier Decking and Piling Removal
The pier decking will be removed prior to piling removal. Piles will be unseated from the sediment by slowly lifting up on the vibratory hammer with the aid of a crane. Once unseated, the crane will continue to raise the hammer and pull the pile from the sediment. When the bottom of the pile reaches the mudline, the vibratory hammer will be disengaged. A choker cable connected to the crane will be attached to the pile, and the pile will be lifted from the water and placed upland. Each such extraction will require approximately 40 minutes of vibratory hammer operation. A marine mammal monitor will be present during construction operations, and if a Steller sea lion(s) enters the area, operations would cease and not resume until after the animal had departed the area.

CISS Pile Installation
Steel casings will be vibrated to a depth of approximately 2.5 ft above the top elevation of the proposed pile (25 to 35 ft below the mud line), and an auger drill will be used to excavate the sediment and rock from the steel shell. Concrete will be poured using a tremie to seal the area below the shell. A tremie, a steel pipe long enough to pass through the water to the required depth of placement, will be used to deliver concrete to seal the bottom 3 ft. of the hole below the bottom of the steel shell and above the ground. After the concrete seal has been poured, the water will be pumped out of the steel shells. Following poring of the concrete seal, pumping of water from steel casings will be required to maintain a dewatered work area. Following dewatering, steel rebar cage will be installed prior to pouring the remaining concrete to fill the shell.

EFFECTS OF THE PROPOSED ACTION

Sounds introduced into the sea by man-made devices could have a deleterious effect on marine mammals by causing stress or injury, interfering with communication and predator/prey detection, and changing behavior. Acoustic exposure to loud sounds, may result in a temporary or permanent loss of hearing (termed a temporary (TTS) or permanent (PTS) threshold shift) depending upon the location of the marine mammal in relation to the source of the sound. NMFS is currently in the process of determining safety criteria (*i.e.,* guidelines) for marine species exposed to underwater sound. However, pending adoption of these guidelines we have preliminarily determined, based on past projects, consultations with experts, and published studies, that 180 dB re $1\mu Pa_{RMS}$ (190 dB re $1\mu Pa_{RMS}$ for pinnipeds) is the impulse sound pressure level that can be received by marine mammals without injury. Marine mammals have shown behavioral changes when exposed to impulse sound pressure levels of 160 dB re $1\mu Pa_{RMS}$ and when exposed to continuous sound levels of 120 re $1\mu Pa_{RMS}$.

The eastern distinct population segment (DPS) of Steller sea lions are migratory and appear to be most abundant in the Humboldt County area during spring and fall. The nearest haul out site for Steller sea lions is Blank Rock, located approximately 1 kilometer due west of Trinidad Pier, on the opposite side of Trinidad Head. Surveys document the absence of Steller sea lions at this haul out site between the months of October through April, and few have been observed during the months of August and September. Steller sea lions have not been observed in Trinidad Bay over eight years of surveys conducted within Trinidad Bay (D. Goley, Humboldt State

University, pers. comm., 2009). The area surrounding the project site could be used by non-breeding adults and juveniles and by adults after the breeding season. The principal mechanism of potential effect to Steller sea lions is exposure to underwater sound generated by the vibratory hammer, which would exceed the 120 dB Root Mean Square (RMS) threshold for continuous noise within a radius of not more than 2,625 feet from the proposed activity, and would not exceed, at any distance, the criterion for physical injury. As mentioned above, Steller sea lions have not been observed in Trinidad Bay; thus, we do not expect any individuals to be present within the 2,625 foot radius, where behavioral harassment could occur. The extremely shallow waters in the affected area also facilitate detection by the marine mammal monitor, and work would cease should a Steller sea lion enter the area and would not resume until after the animal had departed through its own volition. Thus, the likelihood that a Steller sea lion would be exposed to underwater sound levels within the behavioral harassment threshold from a continuous source (120 dB $_{RMS}$) generated by the vibratory hammer is extremely low, and any exposure that could occur would be very brief, as work would cease in the unlikely event that an animal enter the area.

Based on the timing of the Project (August 1, 2010 and May 1, 2011) and results of past surveys; NMFS believes few, if any, Steller sea lions will be present during Project implementation. Therefore, NMFS believes the exposure of individual Steller sea lions to Project activities is extremely low.

ESA CONCLUSION

NMFS concurs with the Corps' determination that the proposed action may affect, but is not likely to adversely affect the federally threatened Steller sea lion. This concludes ESA consultation in accordance with 50 CFR 402.14(b)(1) for the proposed Project. Further consultation may be required if: (1) new information reveals effects of the action may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) current Project plans change in a manner that causes an effect to the listed species that was not previously considered; or (3) a new species is listed or critical habitat designated that may be affected by the identified action.

MMPA COMMENTS

The proposed action may result in effects to the following non ESA-listed marine mammal species: Pacific harbor seal (*Phoca vitulina richardii*), California sea lion (*Zalophus californianus*), and gray whale (*Eschrichtius robustus*). Whales, seals, and sea lions are protected under the MMPA. Under the MMPA, with the exception for military readiness, it is illegal to "take" a marine mammal without prior authorization from NMFS. "Take" is defined as harassing, hunting, capturing, or killing, or attempting to harass, hunt, capture, or kill any marine mammal. "Harassment" is defined as any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal in the wild, or has the potential to disturb a marine mammal in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

Cher-Ae Heights Indian Community of Trinidad Rancheria submitted an application for an Incidental Harassment Authorization (IHA) on November 3, 2009. Any proposed mitigation or monitoring detailed in the IHA application would also benefit the federally listed Steller sea lion. NMFS is in the process of reviewing the IHA application at this time.

Thank you for consulting with NMFS on the proposed project. Please contact Monica DeAngelis at (562) 980-3232, or via e-mail at Monica.DeAngelis@noaa.gov if you have any questions concerning this consultation.

Sincerely,

For

Rodney R. McInnis
Regional Administrator

cc: David Ammerman, Corps
Jacque Hostler, Trinidad Rancheria
Vicki Frey, CDFG
Robert Merrill, California Coastal Commission
Copy to File: ARN 151422SWR2007AR00093

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802- 4213

OCT 27 2009

In response refer to:
2008/00878

Lieutenant Colonel Laurence M. Farrell
Commander, San Francisco District
U.S. Army Corps of Engineers
1455 Market Street
San Francisco, California 94103-1398

Dear Colonel Farrell:

On July 13, 2009, NOAA's National Marine Fisheries Service (NMFS) received the U.S. Army Corps of Engineers (Corps) July 9, 2009, letter and Biological Assessment (BA), requesting initiation of informal consultation on the issuance of a permit (File Number 400318) to the Cher-Ae Heights Indian Community of the Trinidad Rancheria (Trinidad Rancheria), pursuant to section 7(a) (2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*), and its implementing regulations (50 CFR 402). The permit would allow implementation of the Trinidad Rancheria Pier Reconstruction Project (Project). The Project will replace an existing wooden pier and pilings with a pier comprised of a pre-cast concrete deck and concrete pilings. The Project is located in Trinidad Bay in the City of Trinidad, California, Humboldt County

The Corps also requested consultation on Essential Fish Habitat (EFH), pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267, 16 U.S.C. 1801 *et. seq.*) and its implementing regulations [50 CFR 600.920(a)]. The Corps determined that the Project would adversely affect EFH for species managed under the Pacific Coast Salmon, Pacific Coast Groundfish, and Coastal Pelagics Fishery Management Plans.

This letter constitutes informal consultation for the following federally threatened species: (1) Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch;* June 28, 2005, 70 FR 37160); (2) California Coastal (CC) Chinook salmon (*O. tshawytscha*, June 28, 2005, 70 FR 37160); (3) Northern California (NC) Steelhead (*O. mykiss*; January 5, 2006, 71 FR 834). In addition, this letter completes EFH consultation, and serves as consultation under the authority of and in accordance with provisions of the Fish and Wildlife Coordination Act of 1934 (FWCA). A separate letter will complete NMFS' consultation on Federally threatened Steller sea lion (*Eumetopias jubatus*, November 26, 1990, 55 FR 49204), and address requirements of Project effects relative to the Marine Mammal Protection Act of 1972.

PROPOSED ACTION

Trinidad Bay, a commercial port located between Humboldt Bay and Crescent City, contains numerous vessel moorings which include permanent commercial fishing vessel anchors as well 100 moorings that are placed for recreational vessel owners. The Trinidad Rancheria pier, provides services for: (1) commercial fisherman, (2) recreational boaters, kayakers, and whale-watching cruises; and (3) education and research by housing the Humboldt State University (HSU) Telonicher Marine Laboratory saltwater intake pipe and the California Center for Integrated Technology (CICORE) water quality data sonde. The Project area is comprised of the 0.31 acre pier over marine habitats and a staging area (the gravel parking lot located west of the pier) covering 0.53 acres of upland area.

The purpose of the Project is to demolish the existing wooden structure, construct a new pier and upgrade pier utilities (water, sewer, electricity, telephone). The new pier will be (1) constructed within the existing pier footprint; (2) 540 ft long, and (3) vary in width from 24 ft at the shore to 26 ft at the pier end. Prior to demolition, all utilities (water, electrical, power and phone lines) and structures (ladders hoists, sheds, benches) will be removed.

A total of 205 wooden piles (12-inch diameter) will be removed using a vibratory hammer, and 115 cast-in-steel-shell (CISS) concrete piles (18-inch diameter) installed using a vibratory hammer. Installation of the CISS piles will require (1) removal of 100 yds^3 of sediment by augering, (2) dewatering of the shells, and (3) pouring of concrete to fill the shells. Five CISS concrete piles will be separated at 5-foot intervals along each 25-foot long concrete bents. A total of 22 bents separated 25 feet apart shall be used. The decking of the new pier (approximately 13,500 ft^2) will be constructed of 20-foot-long concrete sections. Lighting will be embedded in the decking and railing of the pier to minimize light pollution from the pier. The pier decking will be sloped to the west in order to direct water runoff from the pier to the stormwater collection pipe, and conveyed by gravity to a new upland manhole and storm chamber containing treatment media. The new saltwater intake pumps for HSU will be screened in accordance with NMFS standards for such intakes.

The staging area will be used to area to store construction equipment and materials. Sediment removed from CISS pile installation (approximately 10 to 100 yds^3) will be stockpiled in containers at the staging area until transported to an approved upland disposal site. Seawater removed from the piles will be discharged through percolation within a temporary pit excavated at the staging area. The edge of the staging area will be at least 50 ft from the beach to the west in order to avoid impacts to the beach. All applicable temporary construction best management practices (BMPs) for construction activities, staging area and site access will be implemented in accordance with California Stormwater Quality Association (CASQA) Construction Handbook (http://www.cabmphandbooks.com/Construction.asp) including: NS-4 Material Over Water, NS-5 Demolition adjacent to Water , WM-3 Stockpile Management; WM-4 Spill Prevention Control; NS-9 Vehicle Equipment and Fueling; WM-10 Liquid Waste Management. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and approved by the North Coast Regional Water Quality Control Board. A detailed project description is provided in the BA, and is summarized below.

Project Timing and Sequencing
The Project is expected to be completed within nine months, commencing on August 1, 2010, and terminate on May 1, 2011. Pile removal and installation will require approximately six months (August through January), and deck and utilities reconstruction will be completed in the remaining three months (February through April). Construction activities will occur five days per week between 7 a.m. and 7 p.m. Should severe weather conditions result in delays in the construction schedule, construction may occur seven days per week as needed to ensure completion by May 1, 2011.

Removal of the existing piles and installation of new piles will occur will occur successively, beginning from the north end (shore) to south end (water terminus) of the existing pier. Each day, one wooden pile will be removed, one new steel shell installed, and a concrete seal poured, with a total of six to eight hours required for the process. Each week, one row of five concrete piles and concrete bents will be constructed. Following the installation of two successive pile bents at 25 ft intervals, a new precast concrete deck section will be installed.

Pier Decking and Piling Removal
The pier decking will be removed prior to piling removal. Piles will be unseated from the sediment by and slowly lifting up on the vibratory hammer with the aid of a crane. Once unseated, the crane will continue to raise the hammer and pull the pile from the sediment. When the bottom of the pile reaches the mudline, the vibratory hammer will be disengaged. A choker cable connected to the crane will be attached to the pile, and the pile will be lifted from the water and placed upland. Each such extraction will require approximately 40 minutes of vibratory hammer operation.

Waters shall be protected from incidental discharge of debris by providing a protective cover directly under the pier and above the water to capture any incidental loss of demolition or construction debris. A floating oil containment boom surrounding the work area will be deployed during removal of the pressure treated decking and creosote-treated timber pile removal to collect any floating debris. Oil-absorbent materials will be deployed if a visible sheen is observed. The boom will remain in place until all oily material and floating debris have been collected. Debris and used oil-absorbent materials will be disposed at an approved upland disposal site.

Removed piles shall be temporarily stored at the upland staging areas until demolition activities are completed (approximately 6 months). Following the cessation of demolition activities, the creosote treated piles will be transported by the Contractor to Anderson Landfill in Shasta County. This landfill is approved to accept construction demolition, wood wastes, and non-hazardous/non-designated sediment. The pressure-treated decking and railing will also be stored at the staging area until demolition is complete, and will be retained by the Trinidad Rancheria for potential future use.

CISS Pile Installation
Steel casings will be vibrated to a depth of approximately 2.5 ft above the top elevation of the

proposed pile (25 to 35 ft below the mud line), and an auger drill will be used to excavate the sediment and rock from the steel shell. The sediment and cuttings excavated shall be temporarily stockpiled in 50-gallon drums (or another authorized sealed waterproof container) at the staging area until all excavations are complete and then transferred for upland disposal at the Anderson Landfill or another approved upland sediment disposal site.

Concrete will be poured using a tremie to seal the area below the shell. A tremie, a steel pipe long enough to pass through the water to the required depth of placement, will be used to deliver concrete to seal the bottom 3 ft. of the hole below the bottom of the steel shell and above the ground. After the concrete seal has been poured, the water will be pumped out of the steel shells. In the unlikely event of leaking of concrete during tremie seal pouring, the following measures will be taken: (1) construction activities will cease; (2) the Regional Water Quality Control Board will be notified; (3) the cause of leaking of concrete will be determined and remedied; and (4) spill containment and clean-up measures implemented.

Following poring of the concrete seal, pumping of water from steel casings will be required to maintain a dewatered work area. The pH of the water in each casing will be tested one day following pouring of the seal to ensure that the pH of the water did not change from the ambient pH. The water shall then be pumped into 50-gallon drums and transported to the staging area for discharge through percolation to eliminate solids. If the pH of the water changes from ambient pH, then the water will be hauled to the Eureka Wastewater Treatment Plant for treatment prior to discharge. A volume of approximately 450 gallons will be dewatered from the steel casing for each pile installation. Following dewatering, steel rebar cage installed prior to pouring the remaining concrete to fill the shell.

EFFECTS OF THE PROPOSED ACTION

Juvenile SONCC coho salmon, CC Chinook salmon, and NC steelhead may migrate and rear within Trinidad Bay, primarily from April through June. During migration from the ocean to spawning tributaries, adult SONCC coho salmon could be present from November through January, CC Chinook from September through November; and NC steelhead adults from August through October. Since 1989, only four CC Chinook salmon (1 juvenile, 3 adults) have been collected during annual beach seine sampling in September and December in the vicinity of the Trinidad Rancheria pier, and no SONCC coho salmon or NC steelhead have been collected.

The substrate of the intertidal and subtidal habitats under and adjacent to the Trinidad pier includes bedrock benches, boulders, concrete slabs, and sand. The wooden pier pilings serve as attachment sites primarily (50 to 75 percent cover) for red algae (*Polyneura lastissima*) and secondarily (25 percent cover) kelps (*Alaria marginata, N. luetkeana, Pterogophora californica, and Laminaria* spp.). The attached algae and kelps provide habitat for prey species as well as cover for EFH species (*e.g.*, juvenile rockfish).
Implementation of the Project could result in the following: (1) underwater sound generated from pile removal and pile placement; (2) diminished water quality due to debris from demolition; increased turbidity from sediment during piling removal and installation; uncured concrete, minor fuel and oil spills, and surface erosion; and; (3) water quality beneficial effects.

NMFS believes will the following operational measures reduce any impacts to SONCC coho salmon, CC Chinook salmon, and NC steelhead to insignificant or negligible levels: (1) underwater construction activities (pile removal and installation, concrete pumping) will occur between August 1 and January 31, between 7 a.m. and 7 p.m.; (2) a vibratory hammer will carefully remove and install piles; (3) debris collection devices above, and on the surface of, the water will be employed to collect any material generated during removal of the wooden deck and pilings; (4) all activities in the staging area will incorporate erosion control and sediment detention devices (*e.g.*, silt fences, straw bales, or equivalent similar structure that meet sediment and water control requirements) to reduce the discharge of materials into the nearshore waters of Trinidad Bay; (5) any fueling of equipment will occur in the staging area or offsite, and equipment will be maintained to ensure that there is no leakage of fuels, lubricants or other similar material; and (6) an emergency spill clean up plan, response training, and clean up material will be on site. In addition, because suspension of sediment, and associated turbidity, during pile removal and installation will be (1) brief due to the physical characteristics of the site (sand size or coarser sediment, high energy wave and tidal environment); and (2) limited to the estimated 40 minutes of vibratory removal, and 30 minutes of vibratory placement of the steel casing, each day, NMFS believes the effects of turbidity associated with the Project to be insignificant.

Based on the timing of the Project (August 1, 2010 and May 1, 2011) and results of past sampling efforts; NMFS believes few, if any, juvenile or adult salmonids will be present during Project implementation. Therefore, NMFS believes the exposure of individual SONCC coho salmon, CC Chinook salmon, or NC steelhead to the Project is unlikely, and effects to individuals are discountable.

The Project is expected to result in beneficial effects to water quality because the replacement of creosote treated piles with CISS concrete piles will eliminate a source of polycyclic aromatic hydrocarbons, phenols and cresols from the existing treated wood piles. The proposed pier has full stormwater collection, treatment and detention, with no stormwater to any surface water body. The HSU seawater intake will have screens with mesh size consistent with NMFS specifications: round openings - maximum 3/32-inch diameter; square openings-maximum 3/32-inch diagonal, and slotted openings-maximum 1/16-inch width (http://swr.nmfs.noaa.gov/hcd/WaterDrafting-02.PDF).

ESA CONCLUSION

Based on our review of the documents you have provided, NMFS concurs with the Corps determination that the proposed Project is not likely to adversely affect Federally threatened SONCC coho salmon; CC Chinook salmon, or NC steelhead. This concludes ESA consultation in accordance with 50 CFR 402.14(b)(1) for the proposed Project. Further consultation may be required if: (1) new information reveals effects of the action may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) current Project plans change in a manner that causes an effect to the listed species that was not previously considered; or (3) a new species is listed or critical habitat designated that may be affected by the identified action.

EFH CONSULTATION

NMFS determined that the Project would adversely affect EFH for species managed under the Pacific Coast Salmon, Pacific Coast Groundfish, and Coastal Pelagics Fishery Management Plans. Habitat (attachment surface and associated community as described earlier) will be lost during removal of wooden pilings; however, NMFS expects recolonization of the new pilings within a year. NMFS believes the Project has been designed to minimize and reduce the magnitude of potential effects during Project implementation. Therefore, NMFS provides no additional conservation recommendations. In addition, NMFS expects EFH will improve in the vicinity of the pier due to the following: (1) removal and replacement of creosote-treated wooden piles with CISS concrete pilings; (2). a stormwater collection and treatment system where all stormwater will be collected and routed by gravity feed to an upland treatment cell that will provide detention, settling, and active filtering prior to complete infiltration; (3) reduced artificial lighting effects; and (4) the HSU marine lab water intake associated with the pier will be fitted with NMFS approved screens, minimizing the risk of entrainment of small prey fish species.

FWCA CONSULTATION

The purpose of the FWCA is to ensure that wildlife conservation receives equal consideration, and is coordinated with other aspects of water resources development (16 U.S.C. 661). The FWCA establishes a consultation requirement for Federal departments and agencies that undertake any action that proposes to modify any stream or other body of water for any purpose, including navigation and drainage [16 U.S.C. 662(a)]. Consistent with this consultation requirement, NMFS may provide recommendations and comments to Federal action agencies for the purpose of conserving fish and wildlife resources. NMFS has no recommendations to make beyond the methods for avoiding impact already incorporated itno the Project design.

Please contact Ms. Diane Ashton at (707) 825-5185, or via e-mail at diane.ashton@noaa.gov if you have any questions concerning these consultations.

Sincerely,

Rodney R. McInnis
Regional Administrator

cc: David Ammerman, Corps
Jacque Hostler, Trinidad Rancheria
Vicki Frey CDFG
Robert Merrill, California Coastal Commission
Copy to File: ARN 151422SWR2007AR00093

California Regional Water Quality Control Board
North Coast Region
Bob Anderson, Chairman

www.waterboards.ca.gov/northcoast
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403
Phone: (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135

Linda S. Adams
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

February 27, 2008

In the Matter of

Water Quality Certification

for the

TRINIDAD RANCHERIA – TRINIDAD PIER RECONSTRUCTION PROJECT
WDID NO. 1B07170WNHU

APPLICANT:	Trinidad Rancheria
RECEIVING WATER:	Pacific Ocean
HYDROLOGIC UNIT:	Big Lagoon Hydrologic Area No. 108.10
COUNTY:	Humboldt
FILE NAME:	Trinidad Rancheria – Trinidad Pier Reconstruction Project

BY THE EXECUTIVE OFFICER:

1. On November 30, 2007, the Trinidad Rancheria (Applicant) filed an application for water quality certification (certification) under section 401 of the Clean Water Act (33 U.S.C. § 1341) with the California Regional Water Quality Control Board, North Coast Region (Regional Water Board) for activities associated with the Trinidad Pier Reconstruction Project in Trinidad. The Regional Water Board provided public notice of the application pursuant to title 23, California Code of Regulations, section 3858 on January 22, 2008, and posted information describing the project on the Regional Water Board's website. We did not receive any public comments on this project.

2. The Trinidad Pier is the northernmost oceanfront pier in California. The pier was built in 1946 and it has been used for commercial and recreational purposes over the past 50 years. Trinidad's economy is based on fishing and tourism and the pier is a primary facility that supports these activities. Trinidad pier and harbor currently serve a fleet of commercial fishermen. The pier also provides educational opportunities by accommodating the Humboldt State University Telonicher Marine Lab's saltwater intake pipe, and the California Center of Integrated Technology's (CICORE) water quality monitoring device.

3. The safety of the pier is difficult to maintain due to excessive deterioration of the creosote-treated piles and the pressure treated decking. Only minor maintenance

activities have been conducted on the pier since it was built. This project involves replacement of the entire pier structure in the same location. The primary purpose of the project is to correct the structural deficiencies of the pier and improve the pier's utilities for the benefit of the public and fishermen.

4. The existing pier and improvements are to be removed and replaced with approximately 13,500 square feet of pre-cast concrete decking, 115 cast-in-steel-shell concrete piles, 53 plastic/fiberglass fender piles, four hoists, standard lights, guardrail, and dock utility pipes including water, power, and phone. Removal of the existing pier and construction of the new pier will occur simultaneously. Reconstruction activities will begin at the south end and will progress in sections moving towards the land. All structures and utilities will be removed from the section of pier deck being reconstructed.

5. The existing piles in the active section will be removed by vibratory extraction. Each pile will be unseated from the sediment by slowly pulling up on the pile with a crane while a vibratory hammer is vibrating the pile. Broken or damaged piles that are not successfully removed by vibration will be cut off below the mud line. Extracted piles and other structures removed from the pier will be hauled to the staging area for temporary storage. A maximum of fifteen treated piles will be stockpiled at the staging area before they are transferred to an approved upland disposal site.

6. Following the removal of the existing pier piles, steel shell casings will be vibrated to a depth of approximately 2.5 feet above the final tip elevation. The steel shells are coated with a polymer to protect the piles from deteriorating in the saltwater environment. The half-inch thick steel shells shall extend from above the water surface to below the upper layer of sediment, which consists of sand, and into the harder sediment, which consists mostly of weathered shale and sandstone. An auger will be used to remove sediment from inside the steel shells and the shells will be left in place to support the integrity of the augured hole. Concrete is poured underwater using a tremmie to seal the augured area below the steel shell. Steel cages will be lowered into the shells prior to pouring concrete to fill the holes and form the piles. Pre-cast concrete bent caps will be installed across the top of each row of piles. Pre-cast concrete sections will be placed on the bent caps to create the decking. A layer of concrete will be poured over the pre-cast sections so that the deck surface will be sloped to the runoff collection piping.

7. A storm water runoff collection, treatment, and disposal system will be incorporated into the new pier design. Storm water runoff from the pier will be collected and piped to a treatment and disposal system that will be located below ground in a paved upland area. The treatment system is a passive siphon-actuated, flow-through, storm water filtration system consisting of a structure that houses rechargeable, media-filled cartridges. The system works by passing storm water through media filled cartridges that trap particulates and adsorb pollutants such as suspended solids, dissolved metals, nutrients, and hydrocarbons. Treated storm water runoff will flow into a pre-manufactured subsurface chamber designed to retain and percolate the treated storm water into the subsurface.

8. Installation of 115 eighteen-inch diameter pier support piles and 53 ten-inch diameter fender piles will permanently impact approximately 233 square feet of the ocean floor. Removal of 205 existing ten-inch diameter piles will eliminate approximately 162 square feet of the existing pier footprint on the ocean floor. The project will increase the footprint of the pier on the ocean floor by approximately 71

square feet. Removal and installation of piles will result in minor temporary impacts to the sediment surrounding each pile.

9. Compensatory mitigation is not required. Noncompensatory mitigation includes the use of Best Management Practices (BMPs) for use of concrete and operation of heavy equipment over the ocean. A floating oil containment boom will be installed around the work area during creosote-treated pile removal to contain floating debris and any oil sheens. Oil-absorbent materials will be used if any sheen is observed. The project is expected to take nine months to complete.

10. The applicant has applied for a Coastal Development Permit from the California Coastal Commission. A Lake or Streambed Alteration Agreement from the California Department of Fish & Game is not required for this project.

11. The Applicant has applied to the United States Army Corps of Engineers to perform the project under Nationwide Permit Number 3, pursuant to Clean Water Act, section 404.

12. The City of Trinidad has prepared a mitigated negative declaration (SCH No. 2007092006) for the project in order to comply with CEQA. The Regional Water Board has considered the environmental document and any proposed changes incorporated into the project or required as a condition of approval to avoid significant effects to the environment. The environmental document indicates that noise levels generated underwater by construction activities could adversely affect mammals and fish. Noise impacts will be minimized by vibrating the piles into place instead of using a pile driving hammer. Noise impacts will also be monitored to confirm that noise levels are not above thresholds specified by the National Marine Fisheries Service. The environmental document also indicates potential adverse impacts associated with discharges of storm water, petroleum products, concrete, and sediment augured from the pier casings into the waters of the Area of Special Biological Significance. Installation of an upland storm water treatment and disposal system and implementation of a demolition plan and BMPs are expected to reduce potential impacts from storm water, sediment, petroleum and concrete discharges to less-than-significant levels. Mitigation measures in the mitigated negative declaration are incorporated into this Water Quality Certification.

Receiving Water:	Pacific Ocean in the Big Lagoon Hydrologic Area No. 108.10
Filled or Excavated Area:	Area Temporarily Impacted: none Area Permanently Impacted: 71 square feet of additional footprint on the ocean floor (162 square feet of existing pier footprint to be removed and replaced with 233 square feet of new pier footprint)
Total Linear Impacts:	Length Temporarily Impacted: none Length Permanently Impacted: none
Dredge Volume:	None
Latitude/Longitude:	41.05954 N/124.14484 W

Accordingly, based on its independent review of the record, the Regional Water Board certifies that the Trinidad Pier Reconstruction Project (WDID No. 1B07170WNHU), as described in the application, will comply with sections 301, 302, 303, 306 and 307 of the Clean Water Act, and with applicable provisions of state law, provided that the Applicant complies with the following terms and conditions:

1. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and title 23, California Code of Regulations, section 3867.

2. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to title 23, California Code of Regulations, section 3855, subdivision (b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. This certification is conditioned upon total payment of any fee required under title 23, California Code of Regulations, section 2200, and owed by the Applicant.

4. The Regional Water Board shall be notified in writing at least five working days (working days are Monday – Friday) prior to the commencement of ground disturbing activities, with details regarding the construction schedule, in order to allow staff to be present onsite during construction, and to answer any public inquiries that may arise regarding the project.

5. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete washings, oil or petroleum products, or other organic or earthen material from any construction or associated activity of whatever nature, other than that authorized by this Order, shall be allowed to enter into or be placed where it may be washed by rainfall into waters of the State. When operations are completed, any excess material or debris shall be removed from the work area.

6. BMPs for erosion, sediment and turbidity control shall be implemented and in place at commencement of, during and after any ground clearing activities or any other project activities that could result in erosion or sediment discharges to surface water.

7. All activities and BMPs shall be implemented according to the submitted application and the conditions in this certification.

8. A copy of this Order and the application documents submitted by the Applicant for this certification shall be provided to all contractors and subcontractors conducting the work, and shall be in their possession at the work site.

9. If, at any time, an unauthorized discharge to surface water (including wetlands, rivers or streams) occurs, or any water quality problem arises, the associated project activities shall cease immediately until adequate BMPs are implemented. The

Regional Water Board shall be notified promptly and in no case more than 24 hours after the unauthorized discharge or water quality problem arises.

10. Prior to implementing any change to the project that may have a significant or material effect on the findings, conclusions, or conditions of this Order, the Applicant shall obtain the written approval of the Regional Water Board Executive Officer.

11. All project work shall be conducted as described in this Order and in the application submitted by the Applicant. If the Regional Water Board is not notified of a significant alteration to the project, it will be considered a violation of this Order, and the Applicant may be subject to Regional Water Board enforcement actions.

12. The Regional Water Board may add to or modify the conditions of this Order, as appropriate, to implement any new or revised water quality standards and implementation plans adopted and approved pursuant to the Porter-Cologne Water Quality Control Act or Section 303 of the Clean Water Act.

13. The Applicant shall provide Regional Water Board staff access to the project site to document compliance with this certification.

14. In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under applicable State or federal law. For the purposes of section 401(d) of the Clean Water Act, the applicability of any State law authorizing remedies, penalties, process or sanctions constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this certification. In response to a suspected violation of any condition of this certification, the Regional Water Board may require the holder of any federal permit or license subject to this certification to furnish, under penalty of perjury, any technical or monitoring reports the Regional Water Board deems appropriate, provided that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In response to any violation of the conditions of this certification, the Regional Water Board may add to or modify the conditions of this certification as appropriate to ensure compliance.

15. In the event of any change in control of ownership of land presently owned or controlled by the Applicant, the Applicant shall notify the successor-in-interest of the existence of this Order by letter and shall forward a copy of the letter to the Regional Water Board at the above address.

    To discharge dredged or fill material under this Order, the successor-in-interest must send to the Regional Water Board Executive Officer a written request for transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, and the address and telephone number of the person(s) responsible for contact with the Regional Water Board. The request must

also describe any changes to the project proposed by the successor-in-interest or confirm that the successor-in-interest intends to implement the project as described in this Order.

16. Except as may be modified by any preceding conditions, all certification actions are contingent on: a) the discharge being limited to and all proposed mitigation being completed in strict compliance with the Applicant's project description, and b) compliance with all applicable requirements of the Water Quality Control Plan for the North Coast Region (Basin Plan).

17. The authorization of this certification for any dredge and fill activities expires on February 27, 2013. Conditions and monitoring requirements outlined in this certification are not subject to the expiration date outlined above, and remain in full effect and are enforceable.

If you have any questions or comments please call Dean Prat at (707) 576-2801.

Robert R. Klamt
Interim Executive Officer

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Original to: Ms. Jacque Hostler, Cher-Ae Heights Indian Community of the Trinidad Rancheria, P.O. Box 630, Trinidad, CA 95570

Copies to: U.S. Army Corps of Engineers, District Engineer, P.O. Box 4863, Eureka, CA 95502
Ms. Jane Hicks, U.S. Army Corps of Engineers, Regulatory Functions, 1455 Market Street, San Francisco, CA 94103-1398
Mr. Jason Berrey, Pacific Affiliates, Inc., 990 W. Waterfront Drive, Eureka, CA 95501