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Staff:	M. Kraemer-A
Staff Report:	3/28/13
Hearing Date:	4/10/13

STAFF REPORT: REGULAR CALENDAR

Application No.:	**1-11-024**
Applicant:	**Humboldt County Public Works Department**
Location:	Waddington Road, Post Mile 1.69, over a historical channel of the Salt River, approximately two miles south of Fernbridge, Humboldt County (APNs 106-031-14 and 106-051-10).
Project Description:	(1) Replace the existing 121-foot-long, 19-ft-wide, 5-piered concrete girder bridge constructed in 1946 with a new 103-ft-long, 37.5-ft-wide, 7-span reinforced concrete box culvert; and (2) improve roadway approach areas on each side of the crossing by adding paved shoulders and guardrails.
Staff Recommendation:	Approval with conditions.

SUMMARY OF STAFF RECOMMENDATION

The Humboldt County Public Works Department proposes to replace an existing seismically deficient, functionally obsolete concrete girder bridge constructed in 1946 and in need of repair. The existing bridge, on Waddington Road approximately three miles east of Ferndale, spans a historical segment of the Salt River that is no longer connected to the river's active channel, which is located several miles downstream. The existing bridge, set on five concrete piers,

crosses a low-lying grassy area (the historic river channel) that collects stormwater runoff from adjacent and upstream agricultural lands. The watercourse area contains no defined channel or riparian vegetation. Land adjacent to, as well as beneath, the existing bridge is used for cattle grazing and other agricultural uses. The County proposes to replace the existing bridge with a new concrete reinforced seven-bay box culvert. The new box culvert would be counter-sunk below ground surface, and the box culvert bottoms would be backfilled with at least 18 inches of native soil to restore the area to agricultural use. The new culvert bays would be tall enough (10 feet) for livestock to continue to use the crossing structure as an underpass corridor for accessing pastures on both sides of the road. Due to the extensive and ongoing cattle use at all times of the year, the area immediately adjacent to and beneath the existing bridge is partially devoid of vegetation. The County proposes to revegetate agricultural areas disturbed by construction with fast-growing agricultural grasses suitable for grazing purposes. The County would also improve the roadway approaches to the bridge on both ends by adding paved shoulders and guardrails. There currently are no shoulders or guardrails along this stretch of road.

The major issue raised by this application is the project's consistency with the Commission's wetland dredge and fill policies. Staff believes that the proposed project is for an allowable use (incidental public service purpose), there is no feasible less environmentally damaging alternative, as conditioned feasible mitigation measures will be provided to minimize adverse environmental effects, and the biological productivity and functional capacity of the habitat will be maintained and enhanced. The County is proposing on-site mitigation to mitigate for the proposed project's permanent fill impacts to approximately 1,500 square feet of wetlands. Staff recommends **Special Condition 2** to require adherence to various water quality protection measures and best management practices (BMPs). **Special Condition 3** is recommended to ensure that the project is implemented in full compliance with the terms and conditions imposed by the permit. **Special Condition 4** would ensure that impacts to agricultural wetlands are successfully mitigated through the development and implementation of a revised final wetland mitigation and monitoring plan. **Special Condition 5** would protect bird nesting habitat on the existing bridge by ensuring that the project does not result in impacts to active nest ESHA. Finally **Special Condition 6** would protect any archaeological resources and human remains that may inadvertently be discovered during construction.

Commission staff recommends **approval** of CDP application 1-11-024, as conditioned.

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APPENDICES

EXHIBITS

I. MOTION AND RESOLUTION

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve coastal development permit 1-11-024 pursuant to the staff recommendation.

Staff recommends a **YES** vote on the foregoing motion. 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:

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

This permit is granted subject to the following standard conditions:

1. **Notice of Receipt and Acknowledgment**: 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 or 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.

III. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. **Scope of Authorization.** The development authorized under this permit comprises that described in the narrative and preliminary plans depicting "*Project Plans for Construction of Salt River Bridge Replacement, Waddington Road [C3G025] at P.M. 1.69, Project No. BRLOZB 5904 [094], Contract No. 594011*," dated 3/25/13, attached as **Exhibit 5**, including the demolition of the existing bridge, the construction of the new multi-bay box culvert and associated roadway improvements, and all related onsite mitigation measures, as further modified by the Special Conditions herein attached. The approved development shall substantially conform to the approved plans. Any proposed deviations from, or substitutions and additions to, the approved development shall require an amendment to this coastal development permit, unless the Executive Director determines no amendment is legally required.

2. **Construction Responsibilities and Water Quality Protection Measures**. The permittee shall adhere to the following water quality protection measures and best management practices (BMPs), including, but not limited to, the following:
   a. No more than seven days prior to bridge demolition, a survey for nesting birds in and adjacent to the project area shall be conducted by a qualified biologist consistent with Special Condition 5, unless the demolition will occur outside of the avian breeding/nesting season (February 1 through August 31). If any active nesting habitat is identified, construction work shall be delayed until a subsequent bird survey is conducted by a qualified biologist to confirm that the young have fledged consistent with Special Condition 5;
   b. Prior to the commencement of construction, the work zone accessible to construction equipment and vehicles shall be delineated, limiting the potential area affected by construction, and workers shall be educated about the limitations on construction. All vehicles and equipment shall be restricted to pre-established work areas and established or designated access routes;
   c. All construction activities shall be limited to the dryer season period of June 1 through November 30.
   d. If rainfall is forecast during the time construction activities are being performed, any exposed soil areas shall be promptly mulched or covered with plastic sheeting and secured with sand bagging or other appropriate materials before the onset of precipitation;
   e. Fuels, lubricants, and solvents shall not be allowed to enter the coastal waters or wetlands, and all equipment used during construction shall be free of leaks at all times;

f. No maintenance or fueling activities shall occur within any coastal wetland or within the historic Salt River channel;
g. All stockpiles of construction debris, waste materials, excavated soils, and other materials and debris associated with or generated by the authorized work shall be contained with berms or other sediment and runoff control devices;
h. During construction, all trash shall be properly contained, removed from the work site, and disposed of on a regular basis to avoid contamination of habitat and surrounding agricultural land during construction activities. Following construction, all trash shall be removed from work area and disposed of properly;
i. Cleaning of equipment with soap, solvents, or steam shall not occur on the project site unless resulting wastes are fully contained and disposed of;
j. Hazardous materials management equipment shall be available immediately on-hand at the project site during construction, and a registered first-response, professional hazardous materials clean-up/remediation service shall be locally available on call;
k. An on-site spill prevention and control response program, consisting of BMPs for the storage of clean-up materials, training, designation of responsible individuals, and reporting protocols to the appropriate public and emergency services agencies in the event of a spill, shall be implemented at the project site to capture and clean-up any accidental releases of oil, grease, fuels, lubricants, or other hazardous materials;
l. Any and all construction and demolition debris and excavated spoils resulting from construction/remediation activities shall be removed from the work site on a regular basis and disposed of at appropriate licensed facilities;
m. If a temporary erosion control product (such as mulch control netting, erosion control blanket, or mat) is used to stabilize soils until vegetation is established, only products manufactured from 100% biodegradable (not photodegradable) materials shall be used. If temporary erosion control products that have a netting component are used, the netting shall be loose-weave natural-fiber netting. Products with plastic netting, including but not limited to polypropylene, nylon, polyethylene, and polyester shall not be used. If fiber rolls (wattles) are used for temporary sediment control, the netting component of these products shall be made of loose-weave natural-fiber (not plastic) netting; and
n. Upon completion of construction activities and prior to the onset of the rainy season, all bare soil areas shall be seeded with a fast-growing mix of native, regionally appropriate grass species as proposed and adequately mulched with weed-free rice straw.

3. **Permit Compliance**. The County shall ensure that the relevant bidding documents and eventual contracts include: (i) sufficient and accurate provisions for the County to ensure the obligation of the winning bidder to comply with all of the conditions of CDP 1-11-024 and to construct the project in accordance with the proposed and approved project description; and (ii) the specific requirement that the contractor and any employees, subcontractors, agents, or other representatives of the contractor or contractors who are responsible for constructing any portion of the project, shall undertake all related activities in full compliance with the project approved pursuant to CDP 1-11-024, including all terms and conditions imposed by the Commission in approving the permit.

4. **Revised Wetland Mitigation and Monitoring Plan**

   a. **Prior to the issuance of the coastal development permit**, the applicant shall submit, for the review and written approval of the Executive Director, a revised Wetland Mitigation and Monitoring Plan, prepared by a qualified biologist, that substantially conforms to the proposal included in the Project Description document dated May 4, 2012 and map/plan titled "*Wetland Areas of Impact and Mitigation*" dated 3/25/13 (**Exhibit 6**) prepared by the Humboldt County Public Works Department, except the plan shall be revised as follows.

      (i) The plan shall include performance standards and success criteria for achieving a minimum of 3,000 square feet of new wetland habitat on site, as proposed, to compensate for the proposed 1,437 square feet of permanent fill impacts to existing wetland habitat at the project site.

      (ii) The plan shall include provisions for monitoring average percent vegetation cover during the summer months and average percent vegetation cover during the winter months within the approved on-site wetland mitigation area.

      (iii) The plan should include provisions for ensuring that temporary impacts to an estimated 8,876 square feet of wetlands in the project area are restored to pre-project conditions; and

      (iv) The plan shall include provisions for submittal of annual monitoring reports to the Executive Director by February 1 of each monitoring year for a minimum three-year monitoring period. The first annual monitoring report shall be submitted by February 1 of the first full year following completion of construction activities (e.g., if construction activities are completed by October 15, 2013, the first monitoring report would be due by February 1, 2015). The annual monitoring reports shall include a narrative description of site conditions, vegetative cover, and other relevant details of the mitigation site observed during the monitoring events as well as photos of the temporary impact areas and the on-site mitigation area. The final monitoring report shall include a wetland delineation of the on-site mitigation area demonstrating whether or not the restoration of a minimum of 3,000 square feet of wetland habitat has been successful.

   b. If the final report indicates that the mitigation project has been unsuccessful, in part, or in whole, based on the approved goals and objectives set forth in CDP application 1-11-024 as presented in the proposed project description dated May 4, 2012 and as modified by the special conditions of this permit, the applicant shall submit a revised or supplemental mitigation plan to compensate for those portions of the original plan which did not meet the approved goals and objectives. The revised mitigation plan shall be processed as an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

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

5. Protection of Bird Nesting Habitat

a. **Prior to the issuance of the coastal development permit**, the applicant shall submit, for the review and written approval of the Executive Director, a Bird Nesting Habitat Protection Plan, prepared by a qualified biologist, for protecting swallow nesting habitat and other bird nesting habitat on and adjacent to the existing bridge from construction impacts. The plan shall include, at a minimum, the following:

(i) A description of any proposed preventative measures for preventing swallows and other migratory birds from nesting on or adjacent to the existing bridge if bridge demolition and construction activities are planned to occur during the migratory bird nesting season (February 15-August 31). The description should include provisions for ensuring that nest preventative measures are in place prior to February 15, if demolition/construction activities are planned to occur during the migratory bird nesting season;

(ii) Provision for ensuring that no more than seven days prior to bridge demolition, a survey for nesting birds in and adjacent to the project area shall be conducted by a qualified biologist, unless the demolition will occur outside of the avian breeding/nesting season (February 1 through August 31). If any active nesting habitat is identified, construction work shall be delayed until a subsequent bird survey is conducted by a qualified biologist to confirm that the young have fledged;

(iii) Provisions for removal of unoccupied old nests and unoccupied partial nests from the bridge and adjacent structures prior to the start of and during the nesting season. Nest materials from unoccupied old and partial nests shall be removed on a regular basis, at a frequency (no less than weekly or more frequently if needed) sufficient to prevent nests from being completed and eggs from being laid.

(iv) Provisions that require that for any area on or adjacent to the bridge that does become occupied by an active nest, a subsequent bird survey shall be conducted by a qualified biologist to confirm that the young have fledged prior to commencement of construction.

(v) Provisions for submittal of preconstruction documentation to the Executive Director of compliance with the approved Bird Nesting Habitat Protection Plan.

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

6. **Protection of Archaeological Resources.** If an area of cultural deposits or human remains is discovered during the course of the project, all construction shall cease and shall not re-commence until a qualified cultural resource specialist analyzes the significance of the find and prepares a supplementary archaeological plan for the review and approval of the Executive Director, and either: (a) 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, or (b) the Executive Director reviews the Supplementary Archaeological Plan, determines that the changes proposed therein are not *de minimis*, and

the permittee has thereafter obtained an amendment to coastal development permit 1-11-024 approved by the Commission.

IV. FINDINGS AND DECLARATIONS

The Commission hereby finds and declares as follows:

A. BACKGROUND AND PROJECT DESCRIPTION

The Humboldt County Public Works Department proposes to replace an existing seismically deficient, functionally obsolete concrete girder bridge constructed in 1946 and in need of repair. Some of the concrete girders are cracked and at risk of failing. The existing bridge, on Waddington Road approximately three miles east of Ferndale, spans a historical segment of the Salt River that is no longer connected to the river's active channel, which is located several miles downstream (**Exhibits 1-3**). The existing bridge, set on five concrete piers, crosses a low-lying grassy area (the historic river channel) that collects stormwater runoff from adjacent and upstream agricultural lands (**Exhibit 4**). The watercourse area contains no defined channel or riparian vegetation. Water depths beneath the bridge range from up to four feet during the winter rainy months to completely dry during the summer months. Land adjacent to, as well as beneath, the existing bridge is used for cattle grazing and other agricultural uses. The total length of the existing bridge is 121 feet and its width is ~19 feet. It is essentially a single-lane bridge with no shoulders. The paved roadway approaching each end of the bridge is 22 feet wide, with one 11-foot-wide travel lane in each direction and no shoulders.

The County proposes to replace the existing bridge with a new concrete reinforced seven-bay box culvert (**Exhibit 5**). Each bay would measure 14 feet long for a total replacement structure length of 103 feet. In addition, 20-foot-long concrete wing walls would flank the abutments at each end of the proposed new structure. The new box culvert would be counter-sunk below ground surface, and the box culvert bottoms would be backfilled with at least 18 inches of native soil to restore the area to agricultural use. The new culvert bays would be tall enough (10 feet) for livestock to continue to use the crossing structure as an underpass corridor for accessing pastures on both sides of the road. Due to the extensive and ongoing cattle use at all times of the year, the area immediately adjacent to and beneath the existing bridge is mostly devoid of vegetation. The County proposes to revegetate agricultural areas disturbed by construction with fast-growing agricultural grasses suitable for grazing purposes.

Demolition of the existing bridge would be accomplished by using a bulldozer, an excavator with a jackhammer attachment, and possibly a crane to move large pieces. Standing water is usually only present under the bridge during the winter and spring. If necessary, standing water would be pumped from under the bridge and dispersed at an upland location. Once all the large pieces of the existing bridge are removed, including pilings and abutments, the area under the bridge would be excavated 4- to 6-feet deep for installation of engineered backfill, the box culverts, and cutoff walls. Any small pieces of concrete that remained on the surface following bridge demolition would be removed with excavation of the surface layer of soil. All bridge demolition debris would be removed from the project area and transported to an appropriate disposal facility.

Once the foundation and reinforced concrete cutoff walls are installed, a crane would lift and place each of the seven precast concrete box culverts. Once all the box culverts are installed and secured, work would begin on the structural backfill and retaining wall structures.

The bridge replacement structure is proposed to have a total paved roadway width of 37.5 feet (**Exhibits 5 and 8**). The proposed larger width of the new structure would accommodate two 11-foot-wide travel lanes (to match the existing road width), plus a 6-foot-wide paved shoulder and 2-foot-wide parapet (to support railing structures) adjacent to each travel lane. The County's proposed bridge width of 11-ft travel lanes and 6-ft shoulders and approach width of 11-ft travel lanes and 4-ft shoulders provide the minimum widths acceptable for current public safety standards along this particular stretch of roadway. The County would use the California ST-30 railing type as barriers along the length of each side of the new structure (for a total railing length of 136 feet). The ST-30 railing is a fabricated metal railing system consisting of two rows of horizontal tubular steel rails connected to vertical steel posts. The maximum railing height would be less than three feet above the concrete curb. The maximum railing width would be 1'8". The maximum post spacing would be 10 feet, and the distance between horizontal rails would be approximately nine inches. Railing plans are included as **Exhibit 7**.

The County would also improve the roadway approaches to the bridge on both ends by adding paved shoulders and thrie-beam metal guardrails. There currently are no shoulders or guardrails along this stretch of road. For approximately 200 feet north and south of the bridge, 3-foot-wide paved shoulders flanked by 1-ft-wide unpaved shoulders would be added resulting in 4-foot-wide new shoulders on each roadway approach.

Finally, the County is proposing on-site mitigation to mitigate for the proposed project's permanent impacts on wetlands (**Exhibit 6**). The project as proposed would permanently impact (fill) approximately 1,437 square feet (0.03 ac.) of wetlands from the proposed box culvert wall fill and wing wall fill and the proposed widening of the roadway in bridge approach areas. The box culvert walls and concrete wing wall areas would permanently fill approximately 450 square feet of wetlands, and the proposed road widening would permanently fill approximately 950 square feet of wetlands. The wetlands to be impacted have been in managed agricultural use for the past approximately 100 years, subject to cattle grazing, tilling, and planting for agricultural forage and other agricultural crops, and have limited vegetation cover due to extensive cattle use most of the year. The County proposes to mitigate the project's wetland fill impacts by creating new wetlands in two on-site locations on the west side of the road immediately north and south of the bridge. The County proposes to excavate the outer portions of the upland road prism and embankment fill material, which are currently unsuitable for agricultural use, down to the elevation of the surrounding wetlands. The County would mulch and reseed the areas with an agricultural pasture mix appropriate for cattle grazing and commonly used in the region. The proposed mitigation would result in approximately 3,000 square feet of new wetlands (2:1 wetland mitigation ratio) as well as a net gain of 1,595 square feet of agricultural land beyond what's currently available for agricultural use. Thus, the project as proposed would have no significant adverse impacts on agriculture and in fact would increase the amount of land available for agricultural use in the area.

B. ENVIRONMENTAL SETTING

Waddington Road is an approximately 2-mile-long rural County road located approximately two miles south of Fernbridge, 2.5 miles west of the City of Fortuna, and three miles east of the City of Ferndale. The road is functionally classified as a "rural minor collector road," meaning that it serves travel of primarily intra-county rather than statewide importance, predominant travel distances are generally short, and it collects traffic mostly from local roads to serve "less important" (relative to "major" collector roads) intra-county travel and smaller communities. The speed limit along this road is 45 miles per hour. The road is surrounded entirely by agricultural lands and is located about seven miles east (inland) of the ocean. Thus, there are no public views to the ocean or scenic coastal areas from the public roadway.

The project area includes a historical segment of the Salt River that is no longer connected to the river's active channel, which is located several miles downstream. The Salt River is a tributary to the Eel River Estuary located approximately five miles south of Humboldt Bay. The Salt River historically extended approximately 10 miles in length from its confluence with the Eel River (located approximately one mile inland from the mouth of the Eel River) to several miles upstream from the subject site. Smith, Reas, Francis, Williams, and Coffee Creeks (ordered from west to east, originating in the Wildcat Hills south of Ferndale) are the primary tributaries to the Salt River, all of which are located downstream from the project area. Historically, the Salt River was largely influenced by tidal action and was the principal slough tributary to the Eel River Estuary.

In the 1880's, according to the Salt River Watershed Assessment (Downie & Lucey 2005),

> *"…Levees and tidegates were installed along and across waterways in order to convert tidelands into agricultural land. The actions of widespread tideland reclamation across the Eel River Delta reduced the tidal prism of the Eel River Estuary, which contributed to the reduced the size of the Salt River. Also, several of the creek tributaries to the Salt River were channelized in attempt to reduce the risks of flooding and to accommodate property boundaries."*

The severely aggraded (filled in with sediment) condition of the channel that characterizes the Salt River today has largely resulted from historical (and ongoing) land reclamation activities, past levee and tide gate construction in the area, and uncontrollable and (to a lesser extent) controllable sediment loads related to landslides, bank erosion, earth flows, timber harvesting practices, and road-related sources in the Wildcat Hills. Periodic flooding from the Eel River (e.g., in 1964) also has deposited large amounts of sediment, filling the historic channels that helped to drain the basin.

Significantly, the eastern portion of the Salt River, including the project site, has been diverted from the main river channel due to sediment sills and natural debris blockage. As a result, the historic headwaters of the river upstream from the project site no longer flow into the Salt River. This infilling of the mainstem channel has essentially split the Salt River Basin into two separate watersheds, with flows from the project area and Williams and Coffee Creeks flowing north into "Old River" via Perry Slough rather than westerly towards the Eel River Estuary and mouth of the Eel. In sum, the Salt River Basin today is only half its historic size, overwhelmingly denuded

of riparian vegetation (due to ongoing long-standing agricultural practices), and severely impaired with respect to hydraulic conveyance.

According to an 1888 observation cited in the Final Environmental Impact Report (FEIR) prepared for the Salt River Ecosystem Restoration Project (which the Commission approved in 2011 under CDP 1-10-032), pre-settlement vegetation in the Eel River Delta (including the Waddington Road area) consisted of "*forests of pine, spruce and here and there redwood, with alder growing near the water courses…looking east from the ocean, the forest formed an almost unbroken line cross the low land*." Extensive salt marsh and mudflat habitat also were documented, as were "fern prairies" in upland areas around Ferndale and Waddington. Today, the primary land cover type throughout the Eel River Delta, including the project area, is agricultural grassland consisting primarily of various nonnative pasture grasses such as perennial ryegrass, Kentucky bluegrass, creeping bentgrass, common velvet grass, common oat grass, and reed canary grass (in wet areas). A suite of common nonnative flowering herbs also are interspersed throughout the agricultural grasslands including clovers, creeping buttercup, wild radish, hairy cat's-ear, common dandelion, wild fennel, poison hemlock, bindweed, dock, English plantain, and various others. Due to the extensive and ongoing cattle use at all times of the year, the area immediately adjacent to and beneath the existing bridge is partially devoid of vegetation.

Wildlife species that frequent the agricultural grasslands and "ruderal" areas (dominated mostly by nonnative invasive species) include various rodents (e.g., California vole, Pacific shrew, coast mole, mice, rats, etc.), other mammals (e.g., striped skunks, raccoons, opossums, feral cats, and coyotes), passerine birds (e.g., different species of swallows, sparrows, blackbirds, and others), raptors (e.g., white-tailed kite, northern harrier, peregrine falcon, red-tailed hawk, western burrowing owl, and others), herons and egrets, and a diversity of waterfowl (when pastures are inundated during periods of substantial precipitation).

In addition to serving as agricultural land for livestock grazing, hay production, and other agricultural uses, it is important to note that the agricultural grasslands in the area also function as seasonal wetlands. This dual function is recognized in the County's certified LCP, which does not apply to the project site but areas adjacent to the subject site. The LCP designates much of the agricultural land in the region, including the land adjacent to the project site, as "transitional agricultural wetlands" with a "T" combining zone overlay. The stated purpose of the overlay designation is "*to permit agricultural use as a principal permitted use while providing that development in transitional agricultural lands is conducted in such a manner as to maintain long-term wetland habitat values and minimize short-term habitat degradation within these environmentally sensitive habitat areas*" (Humboldt County certified Coastal Zoning Regulations Section 313-35.1.1). The zoning regulations specify various limitations on diking, dredging, filling, and land divisions in transitional agricultural lands and require certain mitigations to be employed for all new development in these areas.

C. STANDARD OF REVIEW

The proposed project is located in the Commission's retained jurisdiction. Humboldt County has a certified local coastal program (LCP), but the site is within an area shown on State Lands Commission maps over which the state retains a public trust interest. Therefore, the standard of

review that the Commission must apply to the project is the Chapter 3 policies of the Coastal Act.

D. OTHER AGENCY APPROVALS

California Department of Fish and Wildlife
The Department issued a Streambed Alteration Agreement (Notification No. 1600-2011-0166-R1) for the proposed project on September 21, 2012, and an amendment to the Agreement on September 27, 2012.

North Coast Regional Water Quality Control Board
The Board issued a Water Quality Certification for the proposed project on August 21, 2012 (WDID No. 1B11145NHU).

U. S. Army Corps of Engineers
The Corps determined, in a letter to the applicant dated January 15, 2013, that the project qualifies for authorization under Department of the Army Nationwide Permit (NWP) 3 (Maintenance) and NWP 14 (Linear Transportation). The Corps' approval is valid for two years from the date of the letter.

E. DREDGING AND FILLING IN COASTAL WETLANDS AND WATERS

Section 30230 of the Coastal Act states:

> *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.*

Section 30233(a) of the Coastal Act states, in applicable part (emphasis added):

> *(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…*
>
> …

The County proposes to replace the existing 121-ft-long, 19-ft-wide bridge with a new concrete reinforced seven-bay box culvert (103 feet long by 37.5 feet wide). The proposed project would involve grading/dredging and filling in agricultural wetlands. Although the project includes the placement of fill in wetland areas, the project would result in a net increase of 1,595 square feet of wetlands. The above policies set forth a number of different limitations on what development projects may be allowed in coastal wetlands and waters. For analysis purposes, the limitations can be grouped into four general categories or tests:

1. The purpose of the filling, diking, or dredging must be for one of the seven uses allowed under Section 30233;
2. The project must have no feasible less environmentally damaging alternative;
3. Feasible mitigation measures must be provided to minimize adverse environmental effects; and
4. The biological productivity and functional capacity of the habitat shall be maintained and enhanced, where feasible.

Each category is discussed separately below.

1. The proposed dredging and filling is for a use allowable within coastal wetlands

The first test under Section 30233 for such a project is whether the filling/dredging is for one of the allowable uses under Section 30233(a). The relevant category of use listed under Section 30233(a) that relates to the proposed bridge replacement is subcategory (4), stated as follows:

> *(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.*

Thus, the Commission must determine whether the fill associated with the proposed project is for a use allowable under Section 30233(a)(4), i.e., that it is for a *public* purpose, and in addition, that it is for an *incidental* public purpose.

The Commission has in many past actions determined that the fill for certain road safety improvement projects that did not increase vehicular capacity was considered to be for an "incidental public service" pursuant to the requirements of Coastal Act Section 30233(a)(4). In reaching such conclusion, the Commission has typically determined that a bridge replacement is a public safety project – and thus is undertaken for a public purpose – and further, that the project is incidental to "something else as primary." That is, the project is a public safety project incidental to the primary transportation service provided overall by the existing County road. This finding is supported in part on the basis that the subject bridge project is not part of new route or roadway expansion and will not increase vehicular capacity. The County's proposed bridge width of 11-ft travel lanes and 6-ft shoulders and approach width of 11-ft travel lanes and 4-ft shoulders provide the minimum widths acceptable for current public safety standards along this particular stretch of roadway. Indeed, the proposed project is necessary because the existing bridge is structurally unsound, seismically deficient, substandard with respect to roadway width, and overdue for needed public safety repairs. As such, the proposed project – the replacement of the existing bridged crossing of the Salt River on Waddington Road – is for an incidental public purpose within the meaning of Section 30233(a)(4).

2. <u>There is no less environmentally damaging feasible alternative</u>

The second test of Section 30233(a) is whether there are feasible less environmentally damaging alternatives to the proposed project. Coastal Act Section 30108 defines "feasible" as follows:

> *'Feasible' means capable of being accomplished in a successful manner within a reasonable time, taking into account economic, environmental, social, and technological factors.*

The Coastal Act requires, and widely accepted principles of sound environmental planning – including those principles incorporated into the California Environmental Quality Act (CEQA) additionally dictate – that adverse impacts on the environment be avoided if possible as a first priority when considering a proposed project. Where a searching analysis determines that significant adverse impacts on the environment posed by the proposed project cannot be feasibly avoided through the selection of a different alternative, the Coastal Act, CEQA, and environmental planning principles further require the further consideration of alternatives that would reduce the unavoidable significant adverse impacts on the environment posed by the subject project. Only after determining that a proposed project's adverse impacts on the environment cannot be feasibly avoided or further reduced does the consideration of mitigation for significant adverse impacts arise, as discussed below. Therefore, the Commission must undertake a hierarchal alternatives analysis that would: a) avoid significant adverse impacts on

the environment, and b) reduce significant adverse impacts. If the Commission cannot, through such analysis, conclude that the proposed project is one for which "there is no feasible less environmentally damaging alternative," then the Commission must deny the proposed application for the subject CDP and the further review required under Coastal Act Section 30233 is terminated. If, however, the Commission analyzes the alternatives to the project and determines that there is no feasible less environmentally damaging alternative, then the Commission's review of the subject project proceeds through the remaining tests of Section 30233 and the other applicable policies and provisions of the Coastal Act. Thus, the second test of Coastal Act Section 30233 – the alternatives analysis – requires that the Commission examine all feasible alternatives to the proposed project that would avoid or reduce the project's significant adverse impacts on coastal resources, as set forth below.

(a) Impacts associated with the proposed project

The applicant proposes to replace the existing bridge with a new 7-bay box culvert. The most significant impacts, and the impacts of most interest for the purposes of the second test under Section 30233(a), involve the project's potential impacts to coastal wetlands. Virtually all of the project area, except for upland road prism fill material associated with the existing roadway embankment, is coastal wetland habitat used for agricultural purposes. The U.S. Army Corps of Engineers completed a jurisdictional wetland determination of the area in 2002 (which was reconfirmed by the Corps in November of 2012) and determined the entire historical channel of the Salt River in the project area (up to the topographic elevation line of 26 feet) to be jurisdictional wetlands or "other waters" under the Corps' definition and Clean Water Act Section 404 regulatory program. Areas delineated as Corps wetlands also would constitute coastal wetlands under the Coastal Act and the Commission's regulations. The County conservatively delineated all other surrounding agricultural areas used for grazing and other farm uses, except for the road prism fill material associated with the existing roadway embankment, to be coastal wetlands. In addition, the entirety of the lands within and surrounding the project area are planned and zoned for agricultural uses and are actively used for cattle grazing and the growing of agricultural crops. Cattle currently use the area underneath the existing bridge as a corridor for accessing pastures on both sides of the bridge, which are owned by the same landowner.

The project as proposed will potentially cause temporary impacts to 8,876 square feet (0.20 ac.) of wetlands and will permanently impact 1,437 square feet (0.03 ac.) of wetlands. Temporary impacts will result from construction activities associated with the removal of the existing bridge and the installation of the new box culvert structure, equipment staging, and temporary stockpiling of supplies and materials. Permanent impacts will result from the proposed box culvert wall and wing wall fill areas and the proposed widening of the roadway in bridge approach areas. The box culvert wall areas and wing wall areas will displace approximately 450 square feet of wetlands, while the existing bridge piers to be removed will result in an approximately 150-square-foot gain in wetland area. The County proposes to counter-sink the bottom of the box culvert bays approximately two feet below finished grade and to backfill native soils on the buried culvert bottoms. The new culvert bays will be tall enough (10 feet) for livestock to continue to use the crossing structure as an underpass corridor for accessing pastures on both sides of the road. Due to the extensive and ongoing cattle use at all times of the year, the area immediately adjacent to and beneath the existing bridge is partially devoid of vegetation.

The County proposes to revegetate agricultural areas disturbed by construction with fast-growing agricultural grasses suitable for grazing purposes. As discussed above and in more detail below, the County proposes to mitigate the project's approximately 1,450 square feet of wetland fill impacts by creating approximately 3,000 square feet of new wetlands on-site from existing road prism and embankment fill areas, for a proposed mitigation ratio of slightly more than 2:1 and a net gain of 1,595 square feet of new agricultural land from land that currently is unsuitable for agricultural use. Thus, the project as proposed would have no significant adverse impacts on agriculture, and in fact would increase the amount of land in the area available for agricultural use.

(b) Evaluation of potential alternatives

The Commission must now consider whether there are feasible alternatives to the proposed project that would avoid or reduce the project's adverse impacts on coastal resources. The following potential alternatives to the proposed project have been identified, evaluated for potential to avoid or reduce the project's adverse impacts on coastal resources, and tested for feasibility by the County:

i. **No Project**: The "no project" alternative would retain the existing bridge, which, as explained above, would not provide the seismic remediation deemed necessary by the County to ensure public safety. The existing bridge is 67 years old, unstable, outdated, and structurally deficient according to the County. Therefore, although the "no project" alternative would avoid most of the significant adverse impacts to coastal resources that are posed by the proposed project, this apparent benefit would disappear if the bridge ultimately fails. Such failure could result in the need for emergency replacement of the bridge, and the subject construction would potentially need to take place within sensitive wetland habitat without the detailed advanced planning and mitigation that would otherwise occur through the customary regular planning and permitting process. As the existing seismically deficient bridge is located in one of the most seismically active areas in the world, there is a significant chance that the bridge will collapse at some point in the future if not retrofitted or replaced. Further, the County determined that the "no project" alternative was unacceptable, since the existing bridge is so deficient as to pose a risk to the traveling public. Therefore this alternative is not a feasible less environmentally damaging alternative to the proposed project as conditioned.

ii. **Retrofit the existing bridge**: The County analyzed the possibility of retrofitting the bridge in order to be eligible for the Caltrans bridge replacement program that is in part funding the proposed project. The County determined that a retrofit of the existing bridge is not eligible for funding under the Federal Highway Administration program that is funding the project because the bridge is considered structurally deficient as well as functionally obsolete (a single-lane bridge with a certain Average Daily Traffic count and speed limit [45 mph]). In order to resist seismic forces, the existing bridge footings, which currently have a total footprint of 152 square feet within the bed of the historic Salt River channel, would need to be widened and set on new piles. In addition, the existing concrete sack abutments would have to be replaced with concrete wing walls and the bridge girders tied to the abutments and piers. An alternative design would be to tie all the existing piers together with concrete grade beams to form, in essence, a box culvert.

In either case, the necessary new piles and wing walls or concrete beams would result in permanent wetland fill impacts. Moreover, the approach roads would need to be widened, resulting in additional wetland fill impacts, because either the existing pier lengths would have to be increased to meet geometric requirements or, if possible, the bridge deck would need to be raised to meet current standards. In sum, the permanent fill impacts to coastal wetlands from the retrofit alternative would exceed (by approximately 150 square feet) the 1,437 square feet of permanent fill impacts associated with the proposed project. In addition, the County determined the retrofit alternative to be cost prohibitive since it wouldn't be eligible for FHWA funding as mentioned above. Therefore, this alternative is not a feasible less environmentally damaging alternative to the proposed project as conditioned.

iii. **Replacement of the existing bridge with a new bridge**: Replacement of the existing bridge with a new bridge would mean that the new bridge would have to meet current standards and construction requirements. The Caltrans Highway Design Manual and Caltrans Bridge Specification Guidelines require that bridges be sufficiently sized to pass a 100-year storm event such that all structural components are a minimum of one foot above the water surface. Roadways that utilize box culverts less than a certain size such as proposed or other forms of culverts at stream crossings are not subject to this requirement and are instead designed to allow flood waters to flow over the top of the roadway. This requirement for bridges to be elevated above flood waters would result in the need for the new bridge and its roadway approach to be elevated approximately 10 feet above existing conditions. To accomplish the necessary elevation change at an acceptable grade (e.g., 2%), 450 linear feet of the approach road on each side of the bridge would need to be raised and the road footing increased by 36 feet (at a 2:1 slope). Increasing the road footing would result in approximately 4,400 cubic yards of additional fill above the fill amount needed for the proposed box culvert project (which is approximately 1,100 cubic yards). The vast majority of the extra fill material would need to be placed in surrounding agricultural wetlands, resulting in substantially greater significant wetland impacts than those associated with the proposed project. In addition, the County has submitted cost estimates for the new bridge alternative versus the proposed box culvert alternative showing that a new replacement bridge would cost twice as much (projected cost: ~2.5 million dollars) as the proposed project (projected cost: ~1.3 million dollars). Therefore, this alternative is not a feasible less environmentally damaging alternative to the proposed project as conditioned.

iv. **Replacement of the bridge with a box culvert that has longer-span bays than proposed**: The County analyzed other culvert designs to evaluate whether other potentially feasible designs would reduce project impacts. One potential design would be to use a box culvert with longer-spanned bays than the proposed 7-bay box culvert where each bay has a width of 14 feet. To reduce the number of vertical box culvert walls that would need to be placed in wetlands, box culverts with bay lengths (the dimension along the roadway) of at least 20 feet would be required. Under the proposed project, the bay footings will result in 118 square feet of permanent wetland fill impacts. The use of longer bays, which potentially would result in the placement of fewer footings in coastal wetlands, would still result in a project with overall wetland impacts equivalent to the

replacement bridge scenario described above (i.e., the need to elevate the bridge and surrounding roadway approaches at least 10 feet, resulting in four times the amount of wetland fill as under the proposed project). This result occurs because a "bridge" is defined in the Caltrans Highway Design Manual (Section 62.2(2)) as follows:

> "*Structures that span more than 20 feet, measured along the centerline of the road between undercopings of abutments, and multiple span structures, including culverts, where the total measurements of the individual spans are in excess of 20 feet,…Culverts that fit the definition of a bridge will be designed and maintained by the Division of Engineering Services – Structures Design and assigned a bridge number*."

Commercially available multi-bay box culverts with longer-span bays than the 14-foot-length proposed have span lengths of 20 feet or greater and would be classified as bridges. Thus, the structure would have to be elevated to ensure the roadway would be above flood elevation. Therefore, the Commission finds that the alternative of replacing the existing bridge with a box culvert design with longer-span bays than proposed would require raising the bridge and roadway approaches resulting in a significantly greater amount of wetland fill and is not a feasible less environmentally damaging alternative to the proposed project as conditioned.

v. **Replacement of the bridge with a bottomless arch culvert**: Another culvert design that the County analyzed is the use of a bottomless arch culvert. The County determined that the bottomless arch culvert design would have equivalent wetland fill impacts to the proposed project. This type of culvert has lower hydraulic capacity than the proposed multi-bay box culvert. A higher arch, at a significantly greater construction cost, would be required to increase the hydraulic capacity to an equivalent level as the proposed multi-bay box culvert design. The increased construction cost would be related primarily to the need to construct concrete footings under each of the arches. As there is no solid rock base upon which to support the arches at the subject site, large moment-resisting spread footing foundations would be required. Because the arch would need to be high enough to gain sufficient hydraulic capacity, approach roads would have to be widened into adjoining wetland areas for a longer stretch than under the proposed project. Moreover, in the long term, arch culvert footings may be subject to scour and undermining, often requiring significant rip-rap armoring. The armoring, in turn, decreases hydraulic capacity and increases wetland fill impacts. Therefore, the Commission finds that the alternative of replacing the existing bridge with a bottomless arch culvert is not a feasible less environmentally damaging alternative to the proposed project as conditioned.

vi. **Replacement of the bridge with a narrower (perpendicular to the road) multi-bay box culvert than proposed**: A narrower structure would reduce the wetland fill impacts in the historic Salt River channel. Commission staff asked the applicant to justify the need for a 37.5-foot-wide (perpendicular to the road) replacement crossing structure when the existing bridge is only 19 feet wide, and Waddington Road is only 22 feet wide with no shoulders. The County is proposing two 11-foot-wide travel lanes on the crossing

structure itself, each lane abutted by a 6-foot-wide paved shoulder, with additional area (about 2 feet) for the proposed ST-30 barriers.

The County submitted an analysis (**Exhibit 8**) that refers to various design guideline documents, County traffic counts and speed ordinances, crash data history, and other information. The analysis explains that for County roads, the American Association of State Highway and Transportation Officials (AASHTO) standards, local standards, or matching the existing roadway apply, rather than the standards of the Caltrans Highway Design Manual. The AASHTO standards are based on Average Daily Traffic, design and/or posted speed, road classification, terrain, alignment, and other factors. Waddington Road is a 22-ft-wide "rural collector" road with a posted speed limit of 45 miles per hour. The road is traveled by and must be designed to accommodate standard vehicles, trucks, buses, recreational vehicles, logging, milk, and livestock trucks, and farm equipment such as tractors and oversized planting and harvesting equipment. Based on the various factors analyzed together, the AASHTO recommended minimum roadway width is 30 feet (11-ft travel lanes and 4-ft shoulders). In addition, for a design speed of 45 mph, a minimum offset of 6 feet is recommended between travel lanes and bridge barriers for safety purposes to provide adequate width for pedestrians, bicyclists, and oversized vehicle passage. The County's proposed bridge width of 11-ft travel lanes and 6-ft shoulders and approach-road width of 11-ft travel lanes and 4-ft shoulders provide the minimum widths acceptable for current public safety standards along this particular stretch of roadway.

Therefore, the Commission finds that the alternative of using a narrow crossing structure than proposed is not a feasible less environmentally damaging alternative to the proposed project as conditioned.

(c) Conclusion

Based on the above alternatives analysis, the Commission concludes that there are no feasible less environmentally damaging alternatives to the proposed project as conditioned.

3. <u>Mitigation measures to protect wetlands and water quality</u>

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

The project site is within the coastal floodplain of the Eel River surrounded by agricultural land that has been in continuous agricultural use at least since construction of the existing bridge in 1946 and probably many decades prior (see 1948 air photo, **Exhibit 3**). The bridge spans a historic segment of the Salt River, which is no longer connected to the main river channel (which is downstream of Williams Creek approximately two miles to the west). The low-lying area beneath the existing bridge contains no defined channel or riparian vegetation. Stormwater runoff from surrounding agricultural lands flows through the area and drains into "Old River" (which is no longer connected to the Eel River or mainstem Salt River) via Perry Slough approximately two miles to the west, on the eastern outskirts of Ferndale. Water depths beneath the bridge range from up to four feet during the winter rainy months to completely dry during the summer months. Land adjacent to, as well as beneath, the existing bridge is used for cattle

grazing and other agricultural uses. As virtually the entire landscape within and around the project area has been developed and used for agriculture continuously over the past 100 or so years, the greater project vicinity has been extensively manipulated such that natural vegetation and habitat types have become extirpated or fragmented.

Nevertheless, depending on the manner in which the proposed project is undertaken, as discussed above, the project may have adverse impacts on coastal resources, including wetlands and water quality. The potential impacts and their mitigations are discussed in the following sections:

(a) Mitigation measures to protect water quality. The project as proposed involves the use of heavy equipment in and around coastal wetlands and waters. The applicant has proposed various Best Management Practices (BMPs) to minimize water quality impacts including, but not limited to, (1) limiting construction to the dry summer months to minimize the release of fine sediment to surrounding wetlands, (2) conducting equipment staging and fueling in designated staging areas, (3) using silt fencing and other appropriate erosion control measures around on-site stockpiles, and (4) seeding and mulching (with weed-free straw) disturbed soils with a fast-growing mix of native grasses prior to the rainy season. The Commission attaches **Special Condition 2** to require the County to fully implement the proposed water quality protection measures and other BMPs commonly applied to construction projects in and around coastal waters as recommended by the Commission's water quality staff. In addition, the Commission attaches **Special Condition 3** to ensure that the contractor(s) who ultimately conducts the authorized work is fully informed of and able to comply with the terms and conditions of CDP 1-11-024.

(b) Mitigation measures to protect wetlands. As previously discussed, the project as proposed will permanently impact approximately 1,437 square feet (0.03 ac.) of wetlands from the proposed box culvert wall fill and wing wall fill and the proposed widening of the roadway in bridge approach areas. The box culvert walls and concrete wing wall areas will permanently fill approximately 450 square feet of wetlands, and the proposed road widening will permanently fill approximately 950 square feet of wetlands. The County proposes to mitigate the project's wetland fill impacts by creating new wetlands in two on-site locations on the west side of the road immediately north and south of the bridge. The proposed mitigation areas consist of upland road prism and embankment fill material that is currently unsuitable for agricultural use. The County will remove portions of the existing historic fill to lower the elevations of the land to match surrounding wetlands. The County will mulch and reseed the areas with an agricultural pasture mix appropriate for cattle grazing and commonly used in the region. The proposed mitigation will result in approximately 3,000 square feet of new wetlands for a proposed wetland mitigation ratio of 2:1. In addition, the proposed mitigation will realize a net gain of 1,595 square feet of agricultural land beyond what's currently available for agricultural use. Thus, the project as proposed would not result in an agricultural conversion, will have no significant adverse impacts on agriculture, and in fact will increase the amount of land available for agricultural use in the area.

The Commission finds that in this particular case, the proposed wetland mitigation ratio of 2:1 (wetlands restored to wetlands filled) is appropriate for multiple reasons. First, the wetlands to be impacted have been in managed agricultural use for the past approximately 100 years, subject to cattle grazing, tilling, and planting for agricultural forage and other agricultural crops. They have limited vegetation cover, due to extensive cattle use most of the year, including during the wet season, virtually no native vegetation, and overall poor habitat value due to chronic agricultural use. The applicant is proposing to mitigate the project impacts on wetlands on-site and in-kind, and because of the mitigation site's naturally silty-clay soils, relatively high annual rainfall, and topographic position in an alluvial floodplain, the mitigation wetlands are expected to achieve successful restoration and functionality within a relatively short time period (within two years). Thus, the length of time between the wetland impact and successful wetland restoration will be relatively insignificant.

The County has proposed to monitor the mitigation site on an annual basis, with at least one visit during the spring or summer months to document plant growth, for a minimum of two years post-construction. The County also proposes to prepare a final monitoring report to document the mitigation success. If plant growth fails to meet success criteria either naturally or through propagation efforts, the County proposes to assess whether or not conditions can be modified to improve plant growth and survival. The County proposes to prepare and implement a revised or supplemental revegetation and monitoring plan if needed and to continue annual monitoring until achieving mitigation success.

While the County's wetland mitigation and monitoring proposal is in general appropriate, it lacks certain details and specificity that will provide the Commission with the assurance that wetland impacts will be appropriated mitigated with feasible mitigation measures as proposed and as required by Section 30233(a). For example, the County's proposal contains no defined success criteria or provisions for submitting annual monitoring reports to the Executive Director, among other missing details. Thus, the Commission attaches **Special Condition 4** to require the County to prepare and submit, for the Executive Director's review and approval, a revised wetland mitigation and monitoring plan that includes include performance standards and success criteria for achieving a minimum of 3,000 square feet of new wetland habitat.

Conclusion

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, 30231, and 30233 of the Coastal Act.

4. Maintenance and enhancement of habitat values

The fourth general limitation set by Sections 30230, 30231, and 30233 is that any proposed dredging or filling project in coastal wetlands or waters must maintain and enhance the biological productivity and functional capacity of the habitat, where feasible.

As discussed in the section of this finding on mitigation, the conditions of the permit will ensure that the project will not have adverse impacts on any coastal resources. In fact, as discussed above, the project will result in a net increase of approximately 1,595 square feet of wetlands on site. By avoiding impacts to coastal resources and expanding wetlands, the Commission finds that the project will maintain and enhance the biological productivity and functional capacity of the habitat consistent with the requirements of Sections 30230, 30231, and 30233 of the Coastal Act.

Conclusion

In conclusion, the Commission finds that the proposed project, as conditioned, is an allowable use, there is no feasible less environmentally damaging alternative, adequate mitigation is required to minimize adverse environmental effects, and habitat values will be maintained and enhanced. Therefore, the Commission finds that the proposed development, as conditioned, is consistent with Sections 30230, 30231, and 30233 of the Coastal Act.

F. PROTECTION OF ENVIRONMENTALLY SENSITIVE HABITAT AREAS

Section 30240 of the Coastal Act states:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
>
> *(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.*

Section 30107.5 of the Coastal Act defines ESHA as follows (in applicable part):

> *…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."*

The existing bridge supports nesting habitat for different species of swallows and other migratory birds protected under the federal Migratory Bird Treaty Act and state Department of Fish and Wildlife (DFW) code. DFW staff observed evidence of old swallow nests on the underside of the existing bridge. While the bridge itself does not constitute environmentally sensitive habitat, if nesting swallows or other nesting birds were to be present on the bridge, the area with the active, occupied (with eggs and/or chicks) nest would constitute ESHA, and the habitat would need to be avoided until the end of the nesting activity (i.e., until the young birds have fledged).

The DFW amended Streambed Alteration Agreement for the project includes the following "Avoidance and Minimization Measure" (measure 2.3):

> *Permittee shall prevent swallows and other migratory birds from nesting on the existing bridge if construction activities on or adjacent to the structure will occur during the nesting season (February 15 – August 31). Previous nests and partial nests shall be removed from the bridge prior to the nesting season. Prevention*

> *measures shall be in place prior to February 15 and be inspected on a regular basis to maintain their effectiveness.*
>
> *In lieu of excluding swallows from nesting, Permittee may remove partially constructed and unoccupied nests from the work area prior to and during the nesting season. Nest materials shall be removed on a regular basis at a frequency sufficient to prevent nests from being completed and eggs from being laid. At no time shall occupied nests be destroyed as a result of project activities.*

The applicant has not proposed any specific measures or plan to prevent birds from nesting on the bridge prior to construction or to protect active nesting habitat on the bridge during construction. Thus, to ensure that the project does not disrupt ESHA values and that no use that is not dependent on the resource is allowed within the ESHA, the Commission attaches **Special Condition 5**. This condition requires the applicant to submit, prior to permit issuance for the Executive Director's review and approval, a Bird Nesting Habitat Protection Plan, that includes provisions for ensuring that no more than seven days prior to bridge demolition, a survey for nesting birds in and adjacent to the project area shall be conducted by a qualified biologist, unless the demolition will occur outside of the avian breeding/nesting season (February 1 through August 31). If any active nesting habitat is identified, construction work shall be delayed until a subsequent bird survey is conducted by a qualified biologist to confirm that the young have fledged. The plan also must include provisions that require that for any area on or adjacent to the bridge that does become occupied by an active nest, a subsequent bird survey shall be conducted by a qualified biologist to confirm that the young have fledged prior to commencement of construction.

Therefore, the Commission finds that the proposed project, as conditioned, will protect sensitive bird nesting habitat, and be compatible with the continuance of that habitat as required by Section 30240 of the Coastal Act.

G. ARCHAEOLOGICAL RESOURCES

Section 30244 of the Coastal Act states:

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

The project area is located within the traditional territory of the Wiyot division of the Wiyot Indian tribe. The tribe is understood to have been composed of three tribal divisions (Patawat, Wiki, and Wiyot), each associated with a water-related resource (the Mad River, Humboldt Bay, and the lower Eel River, respectively) and each speaking a common language (Selateluk).

A qualified archaeologist from Roscoe and Associates completed an archaeological and historical records review and field survey of the project site in February and March of 2011. The archaeological survey report, dated June 2011, notes that there are no records of any cultural, ethnogeographical, or historical resources or features within a half mile of the project site. The closest known Wiyot villages, kwigërgoyok and hokōnwoyok, located over one mile to the west,

are believed to have been either buried or completely washed away by the combination of flooding, aggradation, and changes in the river channel courses over the past 160 years. No known surface manifestations of these village sites have ever been identified, though it's possible that archaeological remnants may be buried due to the dynamic alluvial setting.

The archaeological survey report concludes that as the project area is not considered sensitive for Native American or historic-period cultural resources, it is unlikely that discoveries of archaeological materials will be encountered during project implementation. In addition, the report notes that the existing bridge to be replaced under the subject CDP application was previously evaluated in the Caltrans statewide historic bridge inventory and determined to be ineligible for listing in the National Register.

The report does not recommend any further archaeological studies. It does, however, offer the following recommendations to ensure that impacts to inadvertently discovered archaeological materials are avoided or reduced to less than significant levels:

> "*If cultural resources, such as chipped or ground stone, historic debris, building foundations, or bone are discovered during ground-disturbance activities, work shall be topped within 20 meters (66 feet) of the discovery*...[and]…*shall not resume until a professional archaeologist, who meets the Secretary of the Interior's Standards and Guidelines, has evaluated the materials and offered recommendations for further action*."

In addition, the report recommends the following in the event that human remains are discovered during project construction:

> *"…work will stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie adjacent to human remains…The Humboldt County coroner will be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of Native American origin, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the NAHC…The coroner will contact the NAHC. The descendants or most likely descendants of the deceased will be contacted, and work will not resume until they have made a recommendation to the landowner or the person responsible for the excavation work for means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98."*

To ensure that the archaeologist's recommended measures are implemented, the Commission attaches **Special Condition 6**. The condition requires that if an area of cultural deposits or human remains is discovered during the course of the project, all construction shall cease and shall not recommence until a qualified cultural resource specialist analyzes the significance of the find. Thereafter, the condition requires the permittee to submit a supplementary archaeological plan based on the specialist's analysis for the review and approval of the Executive Director. After review of the supplementary plan, the Executive Director would either

authorize recommencement of the project activities or require that the permittee obtain an amendment to coastal development permit 1-11-024, depending on the extent and significance of the discovery.

Therefore, the Commission finds that the proposed project, as conditioned, is consistent with Coastal Act Section 30244, as the development as conditioned will include reasonable mitigation measures to ensure that the development will not result in significant adverse impacts to archaeological resources.

H. FLOOD HAZARDS

Section 30253 of the Coastal Act states, in applicable part:

> *New development shall do all of the following:*
>
> *(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
>
> *(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*
>
> …

The project area is located within both the 100-year flood zone of the Eel River and the floodway as designated and mapped by the Federal Emergency Management Agency (FEMA). Humboldt County has a Flood Damage Prevention Ordinance (FDPO), which requires that new development within a floodway not result in a rise in flood height for the base flood event. The County adopted the FDPO to comply with flood protection requirements of the FEMA. The intent of the FPDO "no rise" provision is to preclude new development that would displace area and volume needed for conveying flood waters during major flood events that could otherwise spread the flooding to a wider area.

According to the Floodplain Evaluation Report Summary completed by County engineering staff, the 100-year flood elevation in this area is approximately 37.6 feet. The existing bridge is at an elevation of 29 feet (adjusted to 1929 NVDG) and was designed to be overtopped during flooding. Overtopping has occurred during smaller events and backwatering of the Eel. Similar to the existing bridge, the proposed new box culvert is designed to be overtopped in extreme Eel River flood events. In the event of a forecasted flood, the County has a flood contingency plan that details procedures and roles/responsibilities for flood monitoring, notification, and response. The Public Works Director has authority, as the county road commissioner, to close roads/bridges under emergency conditions for public safety purposes, whether or not there is an officially declared emergency. Road closure decisions are made directly by the Public Works Department, in coordination with staff from the local office of the National Weather Service and the regional Department of Water Resources, based on evaluating site conditions and hazard information. Thus, the project as proposed minimizes flood impacts as required by Section 30253.

The County developed a HEC-RAS model to study the floodplain impacts for multiple events, including the effects of a 100-year Eel River flood event. The County's analysis found that the proposed new crossing structure in the flood zone and floodway will not increase the water surface elevation during a 100-year storm based on subcritical (low velocity) flows, tailwatering impacts, and gently sloping terrain combined with wide-scale inundation of the floodplain from the Eel River. In other words, the project would not displace area or volume needed for conveying flood waters during major flood events.

Therefore, the Commission finds that the project as proposed will minimize risks to life and property in an area subject to high flood hazard and is consistent with Section 30253 of the Coastal Act.

I. VISUAL RESOURCES

Section 30251 of the Coastal Act states, in applicable part:

> *The scenic and visual qualities 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 quality in visually degraded areas…*

As described above, the project area is surrounded entirely by agricultural lands and is located about seven miles east (inland) of the ocean. Thus, there are no public views to the ocean or scenic coastal areas from the public roadway. Nonetheless, the project includes the use of the California ST-30 railing type for barrier purposes along the length of each side of the new structure (for a total railing length of 136 feet). The ST-30 railing is a fabricated metal railing system consisting of two rows of horizontal tubular steel rails connected to vertical steel posts (**Exhibit 7**). The Commission approved (under CDP 1-04-014 in 2004) the use of a similar railing (ST-20) on the Highway 101 crossing of the Van Duzen River because of its visual permeability and design, which maximizes open viewing area for those utilizing the bridge. In addition, the County recently used the ST-30 railing on another nearby bridge crossing over Williams Creek, just outside of the coastal zone approximately 2.5 miles west of the project site. Therefore, the project as proposed will provide for public views through the bridge barriers, will have no significant adverse impact on public views and is visually compatible with the character of surrounding areas.

The project site and surrounding area are relatively flat, except for the swale-like area that represents the historic Salt River channel. The project as proposed involves excavation and grading for the installation of engineered backfill, box culverts, and cutoff walls. However, the project does not proposed any significant alterations to natural land forms, and post-project elevations and gradients will substantially match existing conditions. Therefore, the project as proposed minimizes the alteration of natural land forms.

Therefore, the Commission finds that the proposed project will protect public views, minimize the alteration of natural land forms, and be visually compatible with the character of the surrounding areas, consistent with Section 30251 of the Coastal Act.

J. PUBLIC ACCESS

Section 30210 of the Coastal Act requires that maximum public access be provided consistent with public safety needs and the need to protect natural resource areas from overuse. Section 30212 requires that access from the nearest public roadway to the shoreline be provided in new development projects except where it is inconsistent with public safety, military security, or protection of fragile coastal resources, or adequate access exists nearby. Section 30211 requires that development not interfere with the public's right to access gained by use or legislative authorization. Section 30214 provides that the public access policies of the Coastal Act shall be implemented in a manner that takes into account the capacity of the site and the fragility of natural resources in the area. In applying Sections 30210, 30211, 30212, and 30214, the Commission must show that any denial of a permit application based on these policies 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 access.

The proposed project will have no significant adverse effects on public access. Waddington Road is located approximately seven miles east (inland) from the coast and three miles east of Ferndale. It is a rural, 22-foot-wide, lightly-travelled road with few houses surrounded by agricultural lands. Traffic along the road is primarily from local residents and farmers in the area. There are other roads to the west (Coffee Creek Road) and east (Pleasant Point Road/Lawson Lane) that run parallel to Waddington Road and lead to the same east-west connector roads (Grizzly Bluff Road to the south and Highway 211 to the north). Waddington Road between Pleasant Point Road and Grizzly Bluff Road is proposed to be closed to all non-construction traffic (due to the proposal to stage and stockpile construction equipment and materials on the roadway in an effort to minimize impacts to surrounding wetlands and agricultural lands) during the course of the construction period, which is expected to last for three to four months during the summer. A temporary detour will be used during this time to divert traffic away from Waddington Road and onto Pleasant Point Road/Lawson Lane, which runs parallel to Waddington Road about one-half mile to the east and intersects with the same east-west connector roads as Waddington Road north and south of the project area. In addition, the project as proposed will enhance public access in that the new bridge and surrounding roadway approaches will be wide enough to accommodate 6-ft-wide shoulders on each side, which will enhance public safety for vehicles, farm equipment and trucks, pedestrians, and bicyclists using this stretch of Waddington Road.

Therefore, the Commission finds that the project as proposed will not have any significant adverse effect on public access to the shoreline, and the project as proposed without new public access is consistent with the public access policies of Coastal Act cited above.

K. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The applicant served as the lead agency for the project for CEQA purposes. The applicant determined the project to qualify for exemption from CEQA review under Sections 15301 (Existing Facilities), 15302 (Replacement or Reconstruction), and 15304 (Minor Alterations to

Land). The Notice of Exemption (NOE) was provided to the County Clerk for a 30-day public posting period on April 1, 2011. There were no public comments on the NOE posting.

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 approval of a proposed development 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. As discussed above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. No public comments regarding potential significant adverse environmental effects of the project were received by the applicant as the lead agency during CEQA review of the project, nor were any public comments received by the Coastal Commission prior to preparation of the staff report. 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 to conform to CEQA.

APPENDIX A: SUBSTANTIVE FILE DOCUMENTS

- **Coastal Development Permit Application Materials**

Application file for Coastal Development Permit (CDP) Application No. 1-11-024, received 6/21/11.

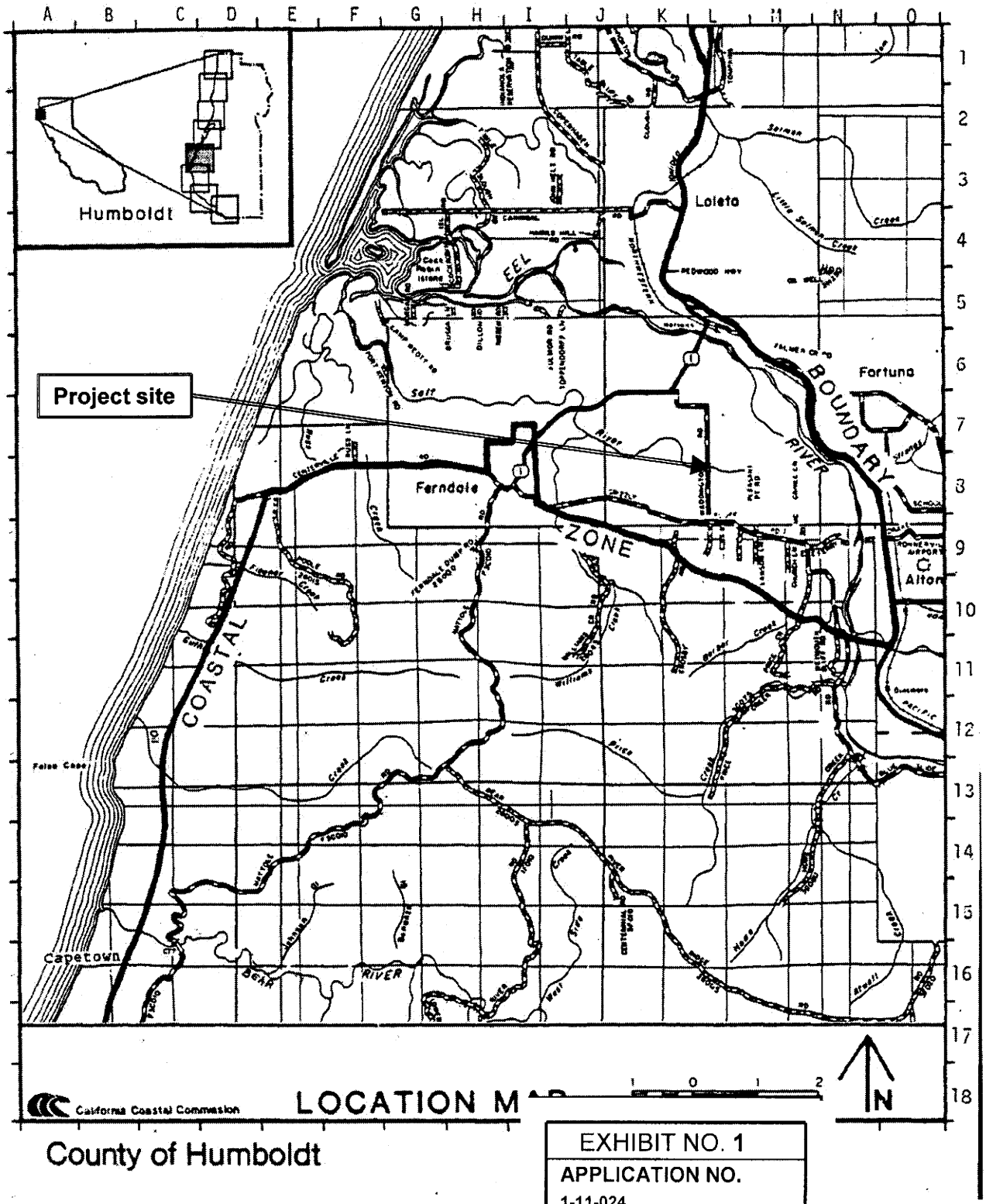
- **Published Reports**

CDP 1-04-014. Staff Report for CDP 1-04-014 (California Dept. of Transportation, District 1) for the replacement of the southbound Highway 101 bridge over the Van Duzen River

CDP 1-07-013. Adopted Findings for CDP 1-07-013 (California Dept. of Transportation, District 1), Mad River Bridges replacement project.

- **Miscellaneous**

County of Humboldt Local Coastal Program



County of Humboldt

EXHIBIT NO. 1

APPLICATION NO.

1-11-024

HUMBOLDT CO. PUBLIC WORKS DEPARTMENT

REGIONAL LOCATION MAPS (1 of 2)

Humboldt County

Waddington Road Bridge Seismic Retrofit

This map is intended for display purposes and should not be used for precise measurement or navigation.

Map compiled by Humboldt County Community Development Services (HCCDS), Oct. 2003.
Contact: clewis@co.humboldt.ca.us

2 of 2

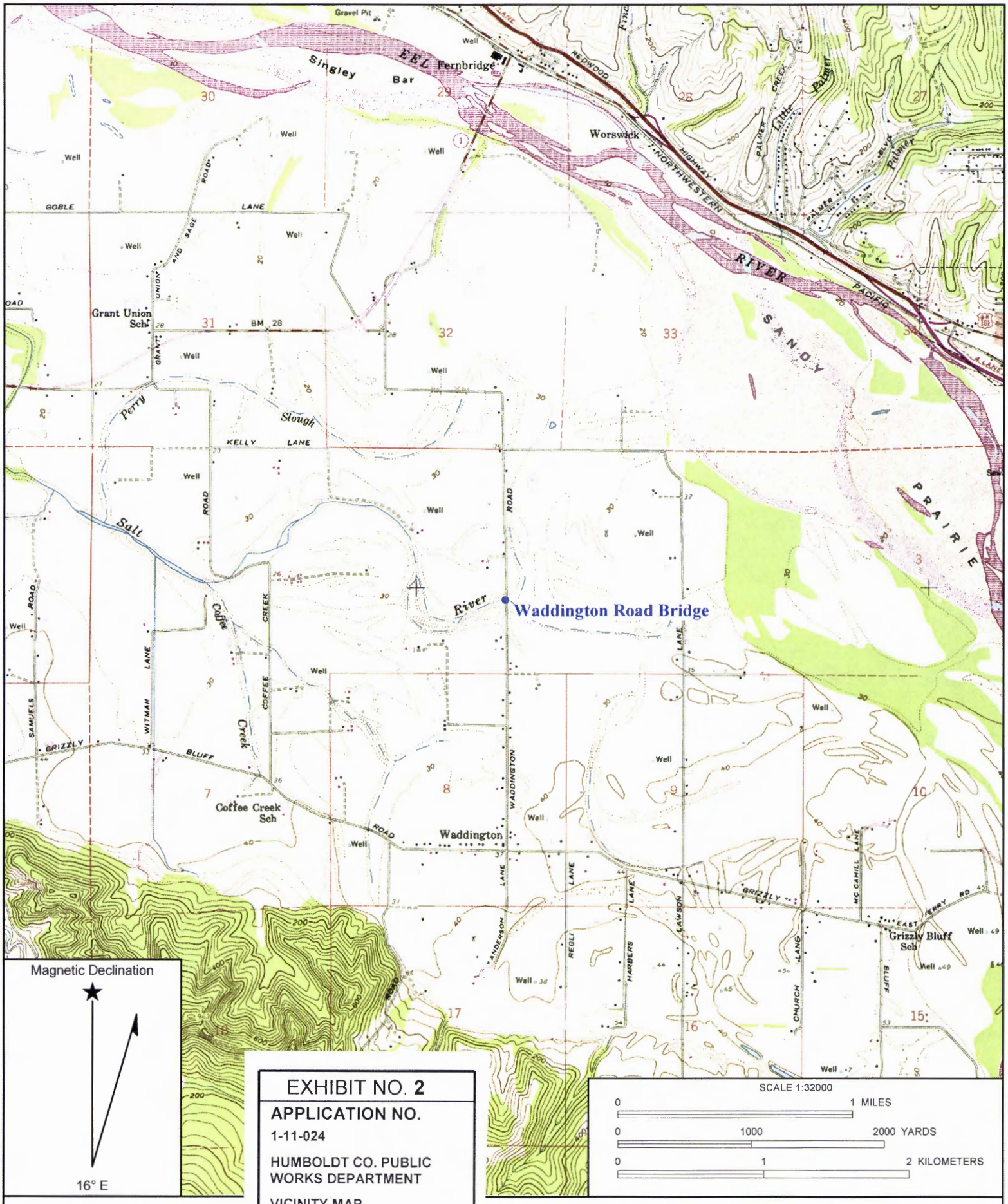


EXHIBIT NO. **2**

APPLICATION NO.

1-11-024

HUMBOLDT CO. PUBLIC WORKS DEPARTMENT

VICINITY MAP

Name: FORTUNA
Date: 12/13/2010
Scale: 1 inch equals 2667 feet

Location: 040° 34' 56.72" N 124° 12' 04.27" W NAD 27
Caption: Salt River/Waddington Road Bridge Seismic Retrofit

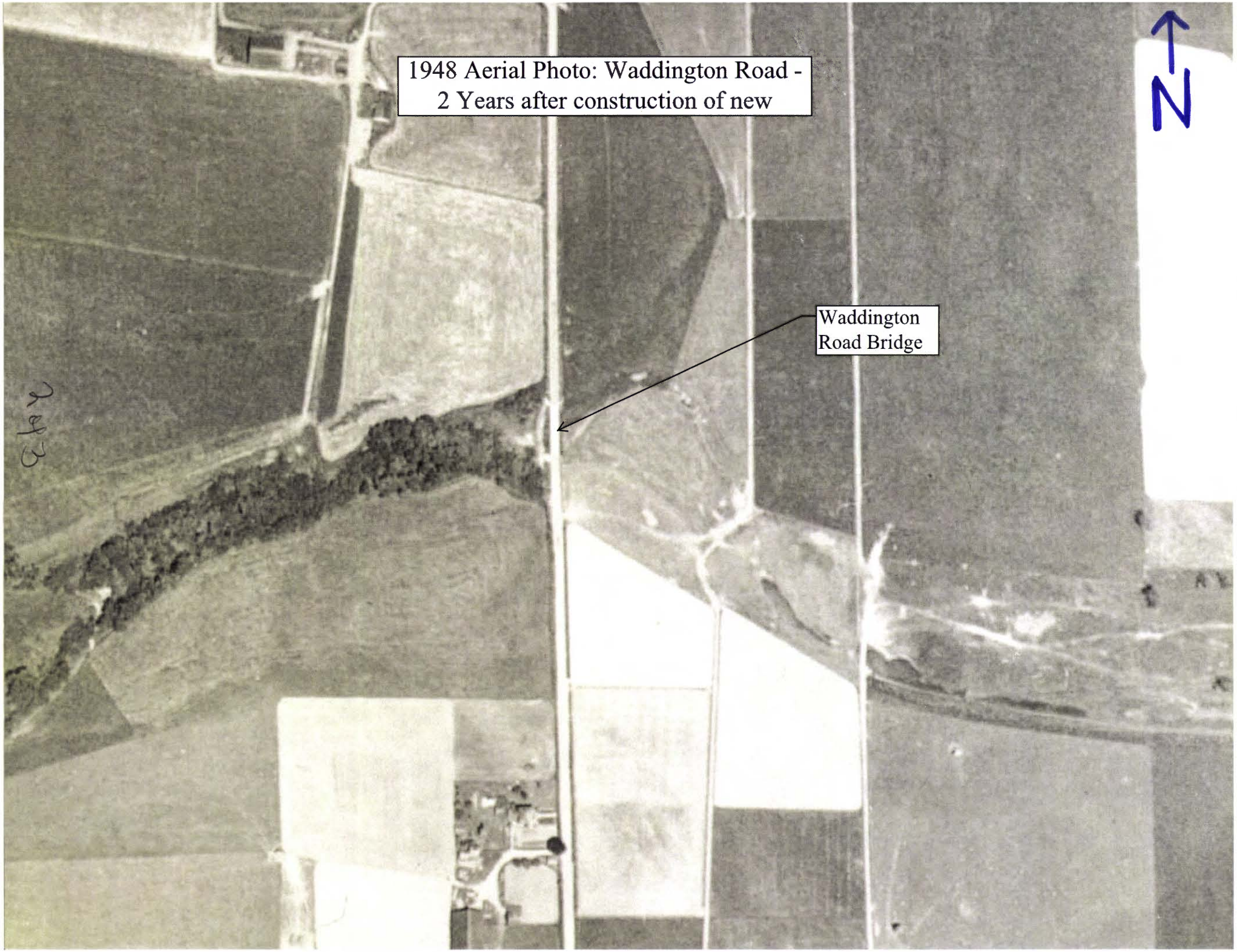
EXHIBIT NO. 3

APPLICATION NO.

1-11-024

HUMBOLDT CO. PUBLIC WORKS DEPARTMENT

AERIAL PHOTOS (1 of 3)


1948 Aerial Photo: Waddington Road -
2 Years after construction of new
Waddington
Road Bridge
N


N
Waddington Road Bridge
0
125
250
500
Feet

Downstream side of existing bridge, looking south

Photo taken 7-28-11

EXHIBIT NO. 4
APPLICATION NO.
1-11-024
HUMBOLDT CO. PUBLIC WORKS DEPARTMENT
SITE PHOTOS (1 of 3)

Upstream side of existing bridge, looking south

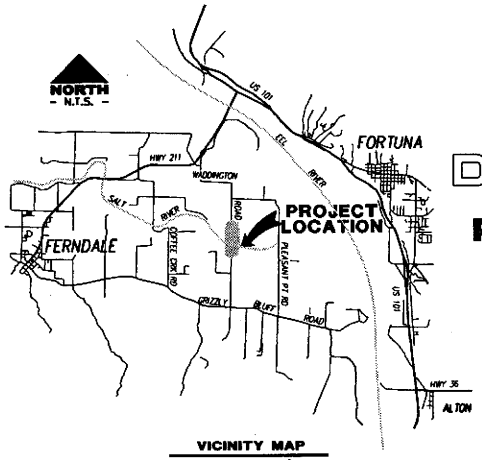
Photo taken 7-28-11

2492


Upstream side of existing bridge, looking north
Portion of proposed onsite wetland mitigation area
Photo taken 7-28-11

2 of 2

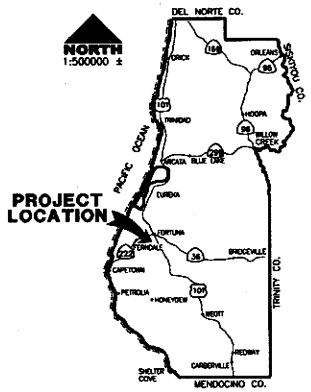
BAR IS ONE INCH ON ORIGINAL DRAWING	ROAD NAME: WADDINGTON ROAD		DESIGN SECTION ROBERT L. BURNETT	COUNTY OF HUMBOLDT DEPARTMENT OF PUBLIC WORKS	SHEET 1 OF 8
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	ROAD NO: C3G025	MILE POST: 1.69	DESIGNED BY: JAB	SALT RIVER BRIDGE REPLACEMENT ON WADDINGTON RD	
	PROJECT NO.: BRLOZB 5904 (094)	EA NO.: 01-924849	DRAWN BY: JAB		
	CONTRACT NO.: 594011		REVIEWED BY: LLH	COVER SHEET, SHEET INDEX AND DETAILS	
	DRAWING FILE NAME: L:\PROJECTS\594011\DWG\CDSH01.DWG		APPROVED BY: CJW		
	PLOT DATE: 3/25/2013				



VICINITY MAP
NOT TO SCALE

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

PROJECT PLANS FOR CONSTRUCTION OF
SALT RIVER BRIDGE REPLACEMENT
WADDINGTON ROAD (C3G025)
at P.M. 1.69
PROJECT NO. BRLOZB 5904 (094)
CONTRACT NO. 594011



LOCATION MAP
SCALE: 1:500000 ±

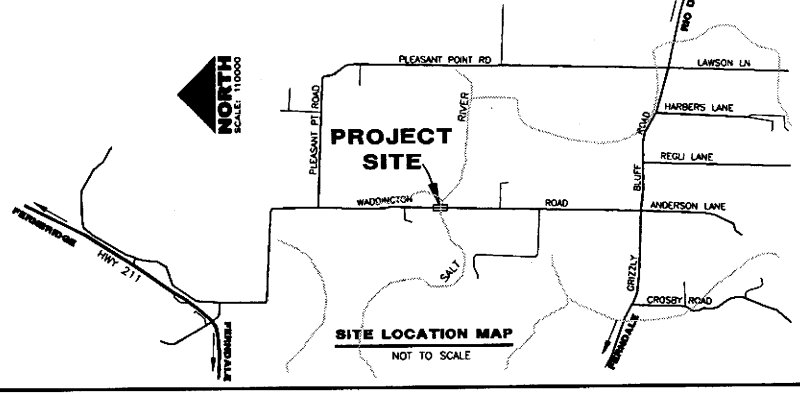
INDEX OF SHEETS

APPLICABLE STANDARD PLANS

REFERENCE TO CALTRANS STANDARD PLANS DATED 2010. SEE STANDARD PLANS LIST IN THE SPECIAL PROVISIONS.

NOTES

THE CONTRACTOR SHALL HAVE A CLASS 'A' LICENSE FOR THIS PROJECT.



SITE LOCATION MAP
NOT TO SCALE

RECOMMENDED

ROBERT L. BURNETT
RCE 36210, EXP. 6/30/2014 — DATE

REGISTERED PROFESSIONAL ENGINEER
ROBERT L. BURNETT
NO. 36210
EXP. 06/30/14
CIVIL
STATE OF CALIFORNIA

APPROVED

CHRISTOPHER J. WHITWORTH
RCE 51931, EXP. 6/30/2014 — DATE

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER J. WHITWORTH
NO. 51931
EXP. 06/30/14
CIVIL
STATE OF CALIFORNIA

ORIGINAL LOW BID PRICE	CONSTRUCTED BY	RESIDENT ENGINEER
	PROJECT COMPLETED / /	CONSTRUCTION COST $

EXHIBIT NO. 5
APPLICATION NO.
1-11-024
HUMBOLDT CO. PUBLIC WORKS DEPARTMENT
PROPOSED PROJECT PLANS
(1 of 8)

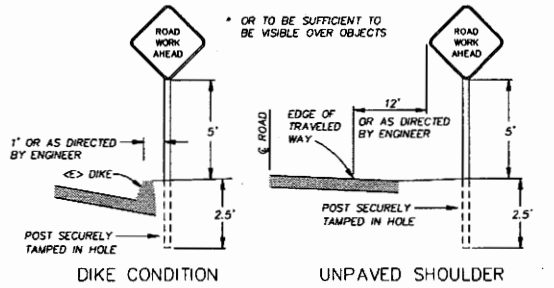
BAR IS ONE INCH ON ORIGINAL DRAWING	ROAD NAME: WADDINGTON ROAD		DESIGN SECTION ROBERT L. BURNETT	COUNTY OF HUMBOLDT DEPARTMENT OF PUBLIC WORKS	SHEET 2 OF 8
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	ROAD NO: C30025	MILE POST: 1.69	DESIGNED BY: JAB	SALT RIVER BRIDGE REPLACEMENT ON WADDINGTON RD	
	PROJECT NO.: BRLOZB 5904 (094)	EA NO.: 01-924849	DRAWN BY: JAB		
	CONTRACT NO.: 594011		REVIEWED BY: LLH	CONSTRUCTION AREA SIGNS, QUANTITIES, SURVEY CONTROL AND DETAILS	
	DRAWING FILE NAME: L:\PROJECTS\594011\DWG\CZSH02.DWG		APPROVED BY: CJW		
	PLOT DATE: 3/25/2013				

QUANTITIES

ITEM NO.	ITEM CODE	ITEM DESCRIPTION	UNIT	BID QUANTITY
1	120090	Construction Area Signs	EA	19
2	120100	Traffic Control System	LS	1
3	120120	Type III Barricades	EA	6
4	130100	Job Site Management	LS	1
5	130200	Prepare Water Pollution Control Program	LS	1
6	130680	Temporary Silt Fence	LF	400
7	130900	Temporary Concrete Washout Facility	EA	3
8	157550	Bridge Removal	LS	1
9	160102	Clearing and Grubbing (LS)	LS	1
10	190101	Roadway Excavation	CY	80
11	192001	F Structure Excavation	CY	1,280
12	193001	F Structure Backfill	CY	810
13	198050	Embankment	CY	1,105
14	210430	Hydroseed	SF	18,500
15	260203	Class 2 Aggregate Base (CY)	CY	575
16	390132	Hot Mix Asphalt (Type A)	TON	520
17	510090	F Structural Concrete, Box Culvert	CY	545
18	520107	F Bar Reinforcing Steel, Box Culvert	LBS	105,700
19	800002	Fence (Type BW, Wood Post)	LF	530
20	839541	Transition Railing (Type WB)	EA	4
21	839584	Alternative In-Line Terminal System	EA	4
22	839738	F California ST-30 Bridge Railing	LF	288
23	840656	Paint Traffic Stripe (2 coat)	LF	950
24	999990	Mobilization	LS	1

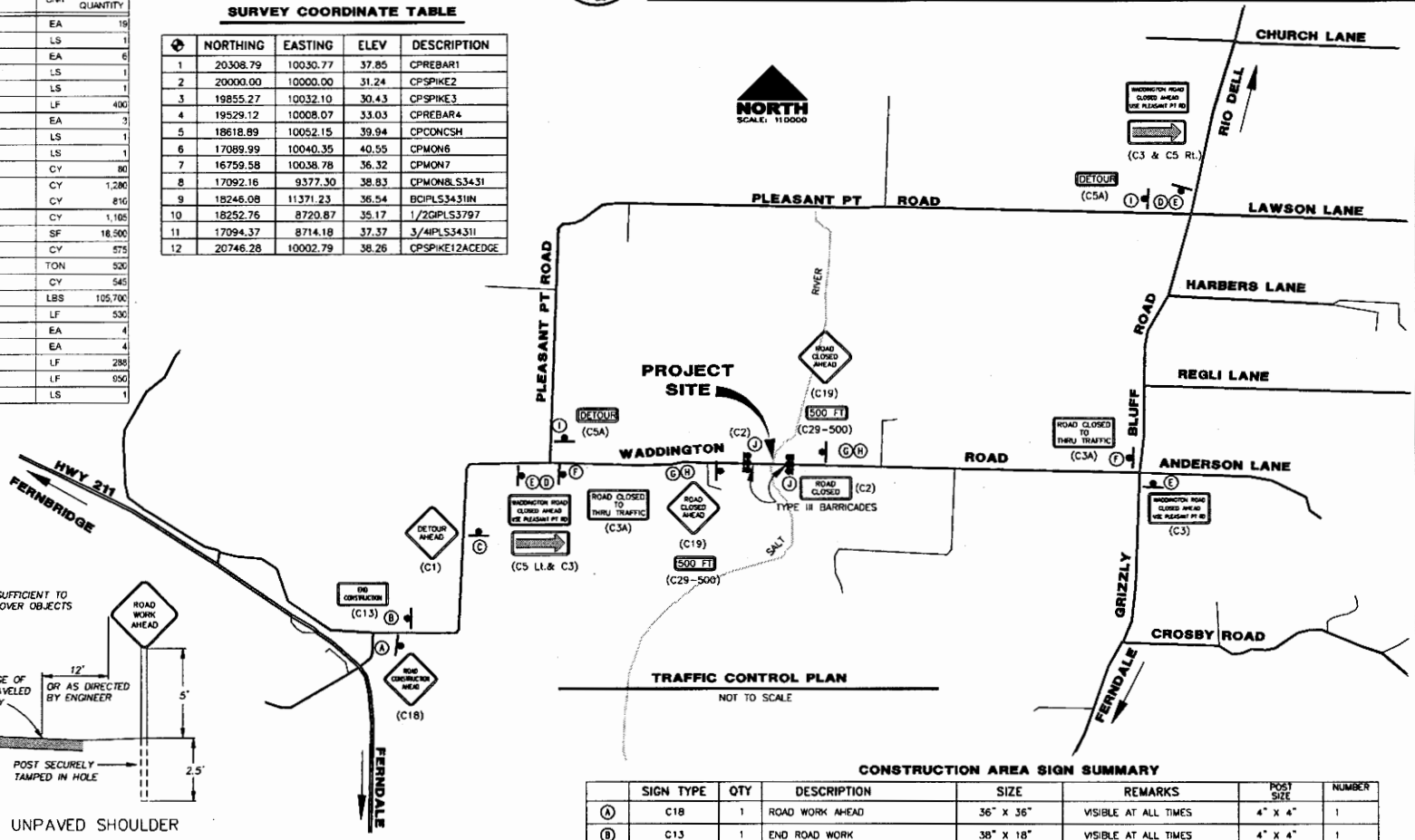
SURVEY COORDINATE TABLE

	NORTHING	EASTING	ELEV	DESCRIPTION
1	20308.79	10030.77	37.85	CPREBAR1
2	20000.00	10000.00	31.24	CPSPIKE2
3	19855.27	10032.10	30.43	CPSPIKE3
4	19529.12	10008.07	33.03	CPREBAR4
5	18618.89	10052.15	39.94	CPCONCSH
6	17089.99	10040.35	40.55	CPMON6
7	16759.58	10038.78	36.32	CPMON7
8	17092.16	9377.30	38.83	CPMON8LS3431
9	18246.08	11371.23	36.54	BCIPLS3431IN
10	18252.76	8720.87	35.17	1/2GIPLS3797
11	17094.37	8714.18	37.37	3/4IPLS3431I
12	20746.28	10002.79	38.26	CPSPIKE12ACEDGE



RURAL CONSTRUCTION AREA SIGN

– NOT TO SCALE –



TRAFFIC CONTROL PLAN

NOT TO SCALE

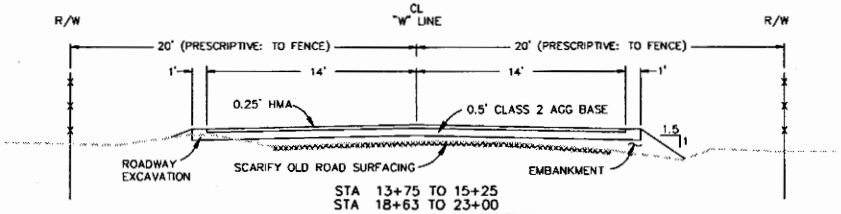
CONSTRUCTION AREA SIGN SUMMARY

	SIGN TYPE	QTY	DESCRIPTION	SIZE	REMARKS	POST SIZE	NUMBER
(A)	C18	1	ROAD WORK AHEAD	36" X 36"	VISIBLE AT ALL TIMES	4" X 4"	1
(B)	C13	1	END ROAD WORK	36" X 18"	VISIBLE AT ALL TIMES	4" X 4"	1
(C)	C1	2	DETOUR AHEAD	48" X 48"	VISIBLE AT ALL TIMES	4" X 4"	1
(D)	C5	2	ARROW RT/LT	48" X 18"	VISIBLE AT ALL TIMES	4" X 4"	1
(E)	C3	3	WADDINGTON ROAD CLOSED AHEAD USE PLEASANT PT RD	60" X 30"	VISIBLE AT ALL TIMES	4" X 4"	1
(F)	C3A	2	ROAD CLOSED TO THRU TRAFFIC	60" X 30"	VISIBLE AT ALL TIMES	4" X 4"	1
(G)	C19	2	ROAD CLOSED AHEAD	48" X48"	VISIBLE AT ALL TIMES	4" X 4"	1
(H)	C29-500	2	500-FT	42" X 18"	VISIBLE AT ALL TIMES	4" X 4"	1
(I)	C5A	2	DETOUR	24" X 10"	VISIBLE AT ALL TIMES	4" X 4"	1
(J)	C2	2	ROAD CLOSED	48" X 30"	VISIBLE AT ALL TIMES	NONE	0

NOTES

1) SIGNS SHALL BE PLACED AS SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
2) FINAL PLACEMENT OF SIGNS SHALL BE APPROVED BY RESIDENT ENGINEER.
3) ADDITIONAL PORTABLE SIGNS SHALL BE USED AS REQUIRED FOR OTHER ROADSIDE WORK.
4) SEE STANDARD PLAN T13 FOR TRAFFIC CONTROL SYSTEM.
5) IN ADDITION TO CONSTRUCTION AREA SIGNS AND WHEN DIRECTED BY THE RESIDENT ENGINEER, THE CONTRACTOR SHALL UTILIZE FLAGMEN AS NECESSARY TO DIRECT TRAFFIC.
6) DISTANCE TO W20-1 AND G20-2 MAY BE EXTENDED TO ENCOMPASS SITES WITHIN ONE MILE OF EACH OTHER.

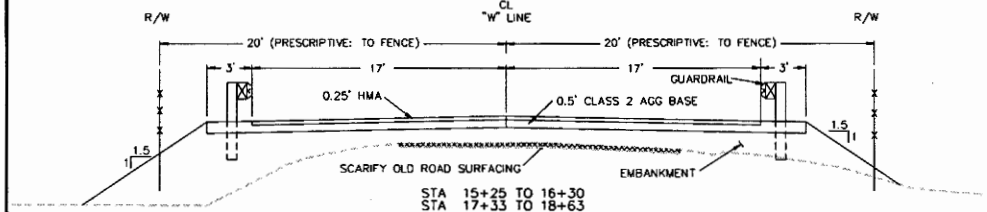
BAR IS ONE INCH ON ORIGINAL DRAWING	ROAD NAME: WADDINGTON ROAD		DESIGN SECTION ROBERT L. BURNETT	COUNTY OF HUMBOLDT DEPARTMENT OF PUBLIC WORKS	SHEET 3 OF 8
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	ROAD NO: C30025	MILE POST: 1.69	DESIGNED BY: JAB	SALT RIVER BRIDGE REPLACEMENT ON WADDINGTON RD	
	PROJECT NO.: BRLOZB 5804 (094)	EA NO.: 01-924849	DRAWN BY: JAB		
	CONTRACT NO.: 584011		REVIEWED BY: LLH	TYPICAL SECTIONS and DETAILS	
	DRAWING FILE NAME: L:\PROJECTS\584011\ENG\CDSHEETS.DWG		APPROVED BY: CJW		
	PLOT DATE: 3/25/2013				



STA 13+75 TO 15+25
STA 18+63 TO 23+00

TYPICAL ROADWAY SECTION

SCALE 1"=4'



STA 15+25 TO 16+30
STA 17+33 TO 18+63

TYPICAL ROADWAY SECTION

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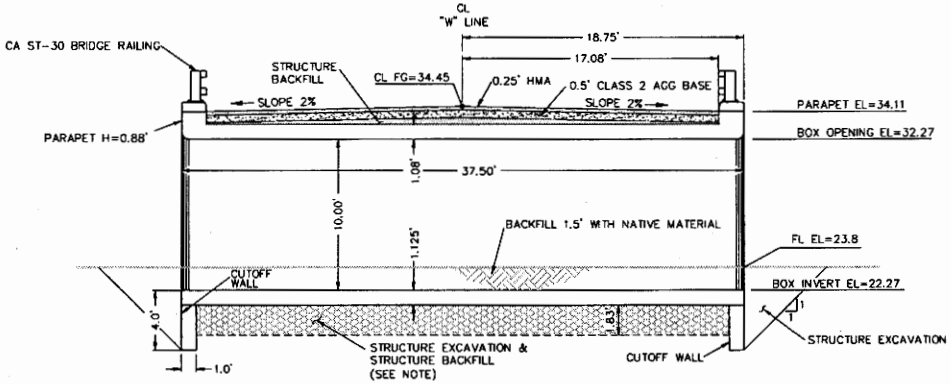
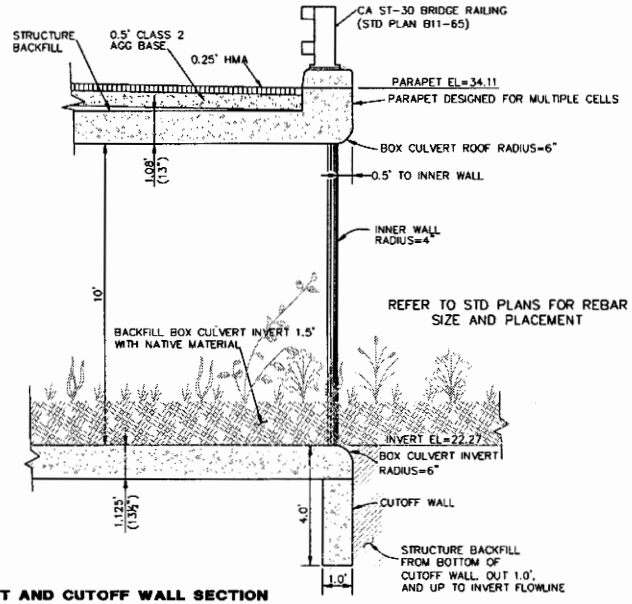


NOTE: EXCAVATE AND REPLACE WITH STRUCTURE BACKFILL TO DEPTH SHOWN OR AS DIRECTED BY FIELD ENGINEER. FOUNDATION SOILS SHALL MEET DESIGN BEARING PRESSURE REQUIREMENTS OF STD PLANS.

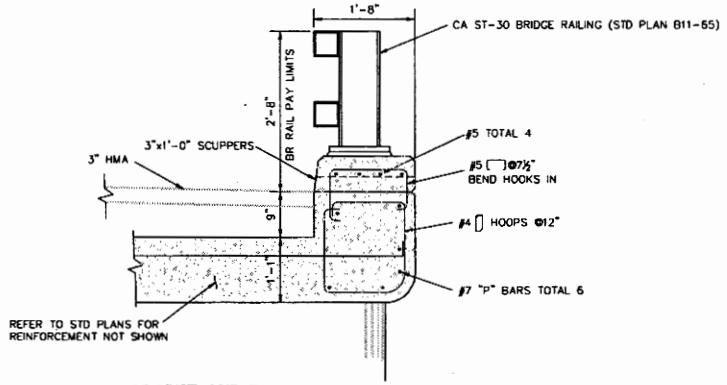
SECTION B-B
INLET/OUTLET ELEVATION VIEW

SCALE 1"=4'



INLET AND CUTOFF WALL SECTION

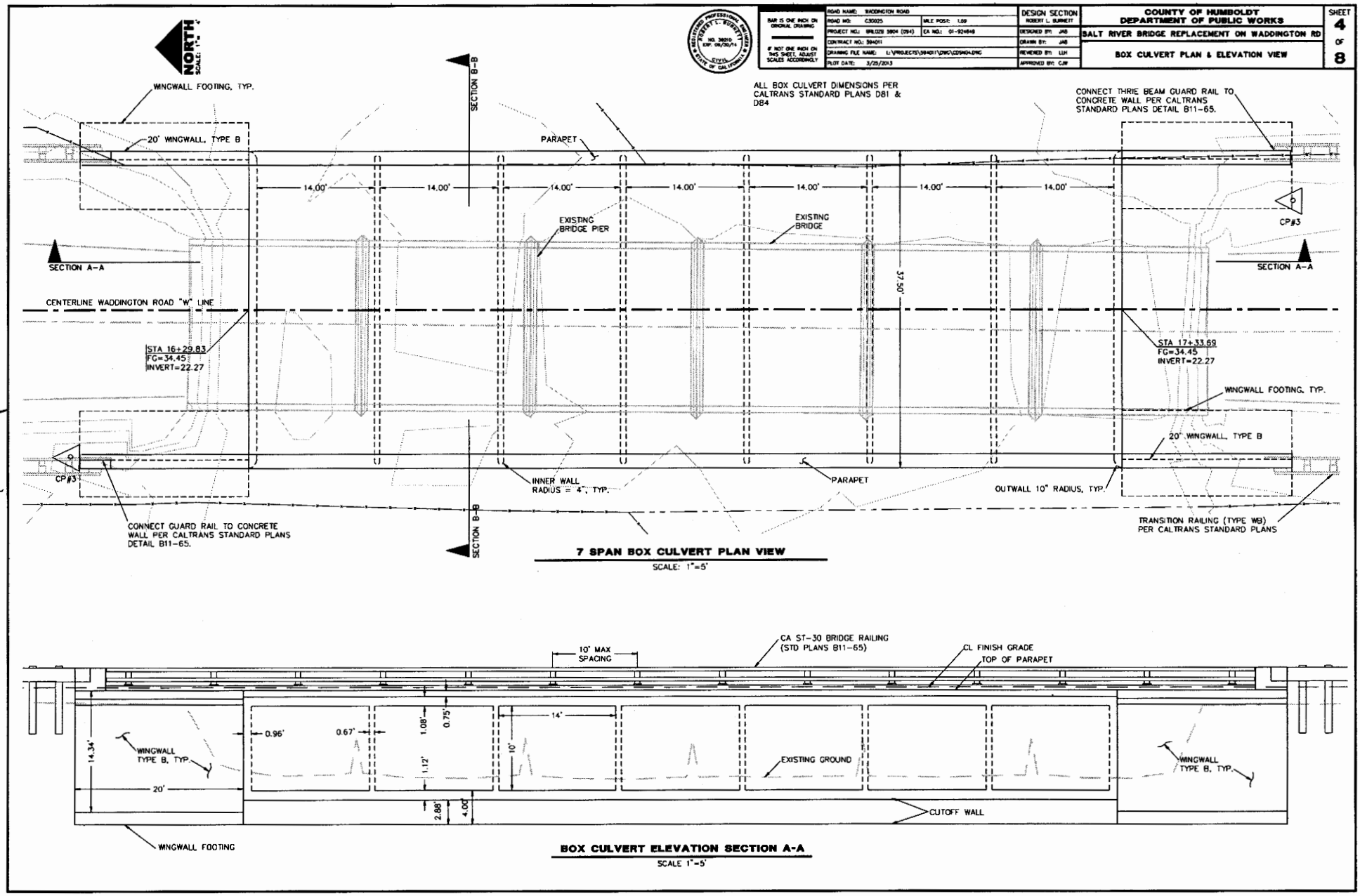
SCALE 1"=2'



PARAPET AND BRIDGE RAIL POST DETAIL

SCALE 1"=1'

3 of 8



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	PLOT DATE: 3/25/2013		APPROVED BY: CJW

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

SALT RIVER BRIDGE REPLACEMENT ON WADDINGTON RD

BOX CULVERT PLAN & ELEVATION VIEW

SHEET 4 OF 8

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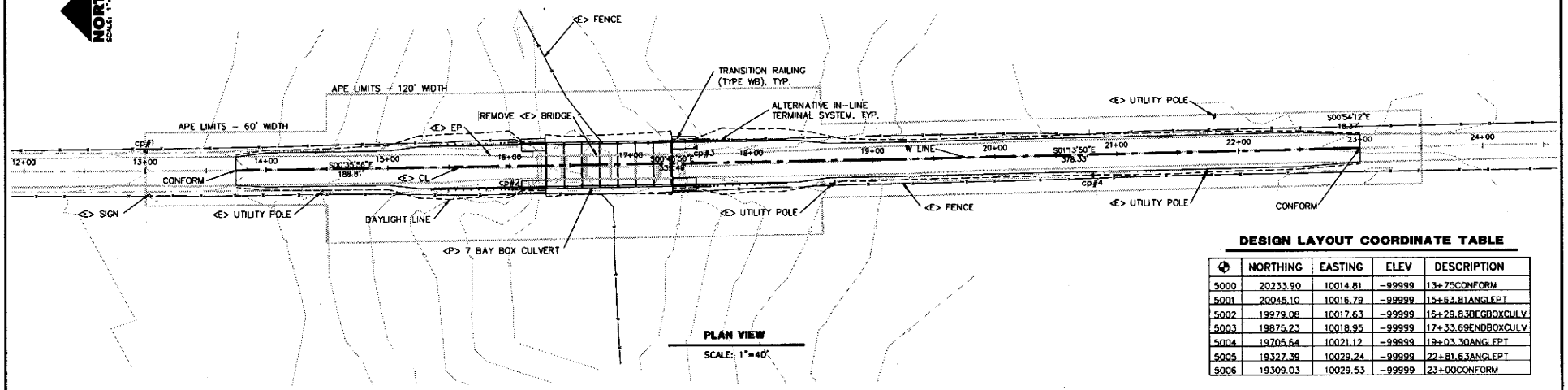
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	ROAD NAME: WADDINGTON ROAD		DESIGN SECTION ROBERT L. BURNETT	COUNTY OF HUMBOLDT DEPARTMENT OF PUBLIC WORKS	SHEET 5 OF 8
	ROAD NO: C3C025	MILE POST: 1.69	DESIGNED BY: JAB	SALT RIVER BRIDGE REPLACEMENT ON WADDINGTON RD	
	PROJECT NO: BRLO2B 5904 (094)	EA NO: 01-924849	DRAWN BY: JAB	PLAN AND PROFILE W LINE – WADDINGTON ROAD	
	CONTRACT NO: 59401		REVIEWED BY: LLH		
	DRAWING FILE NAME: L:\PROJECTS\59401\DWG\CDSH05.DWG		APPROVED BY: CJW		
	PLOT DATE: 3/25/2013				

NORTH
SCALE: 1"= 40'

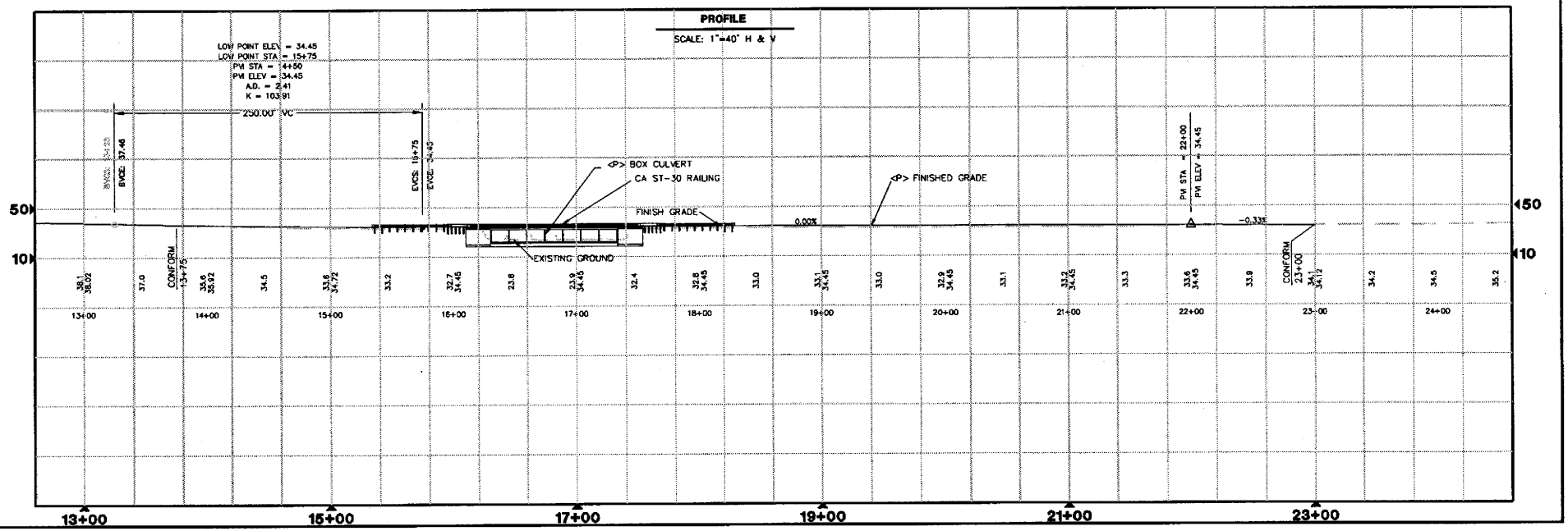


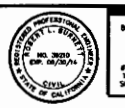
PLAN VIEW
SCALE: 1"=40'

DESIGN LAYOUT COORDINATE TABLE

	NORTHING	EASTING	ELEV	DESCRIPTION
5000	20233.90	10014.81	-99999	13+75CONFORM
5001	20045.10	10016.79	-99999	15+63.81ANGLEPT
5002	19979.08	10017.63	-99999	16+29.83BEGBOXCULV
5003	19875.23	10018.95	-99999	17+33.69ENDBOXCULV
5004	19705.64	10021.12	-99999	19+03.30ANGLEPT
5005	19327.39	10029.24	-99999	22+81.63ANGLEPT
5006	19309.03	10029.53	-99999	23+00CONFORM

PROFILE
SCALE: 1"=40' H & V





BAR IS ONE INCH ON ORIGINAL DRAWING	ROAD NAME: WADDINGTON ROAD	DESIGN SECTION ROBERT L. BURNETT	COUNTY OF HUMBOLDT DEPARTMENT OF PUBLIC WORKS
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	ROAD NO: C30025 MILE POST: 1.59	DESIGNED BY: JAB	SALT RIVER BRIDGE REPLACEMENT ON WADDINGTON RD
	PROJECT NO.: BRLO29 5904 (094) EA NO.: 01-924849	DRAWN BY: JAB	CROSS SECTIONS W LINE – STA 13+75 TO STA 17+33
	CONTRACT NO.: 59401	REVIEWED BY: LLH	SHEET 6 OF 8
	DRAWING FILE NAME: U:\PROJECTS\59401\DWG\CDSHO6.DWG	APPROVED BY: CJR	
	PLOT DATE: 3/25/2013		

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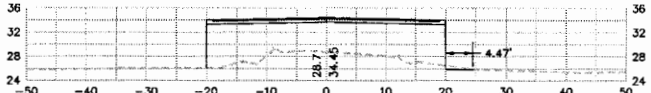

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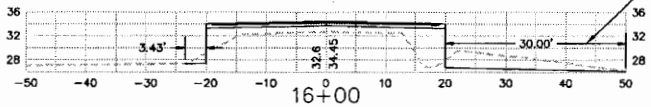
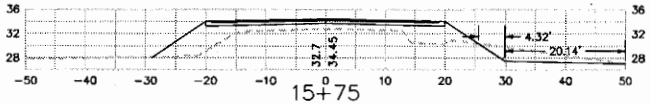


DIMENSION INDICATES WIDTH OF CREATED AGRICULTURAL WETLAND

16+00



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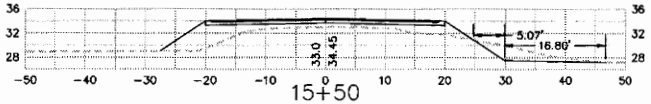

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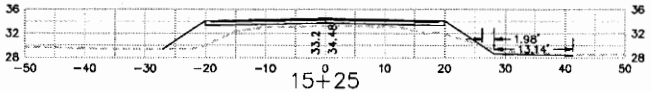

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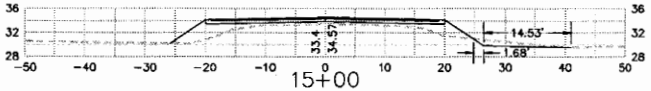

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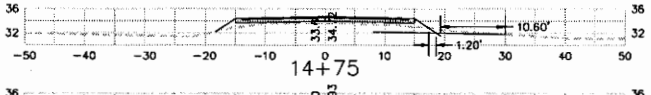

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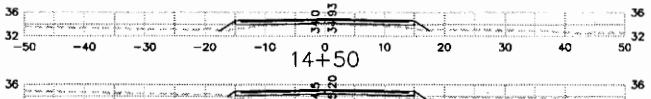

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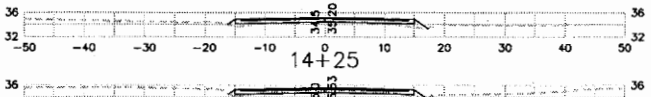

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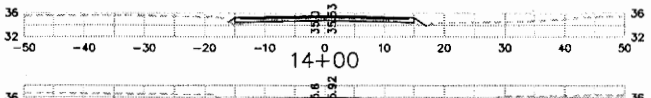

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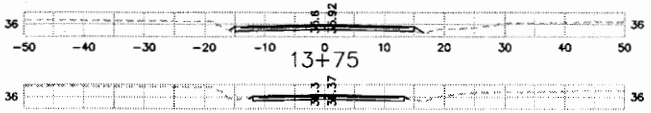
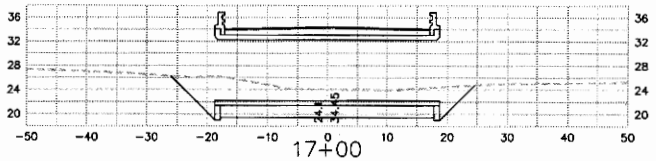


13+75

17+25



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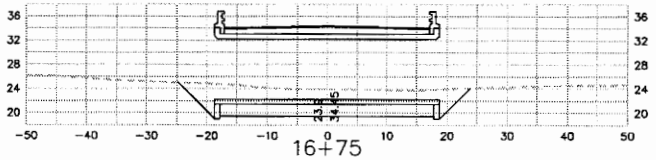

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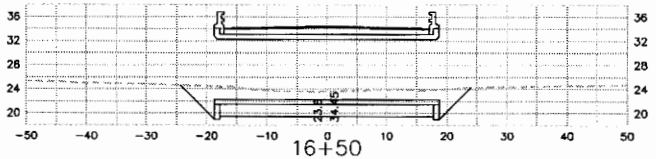

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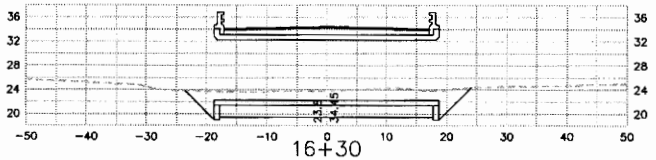

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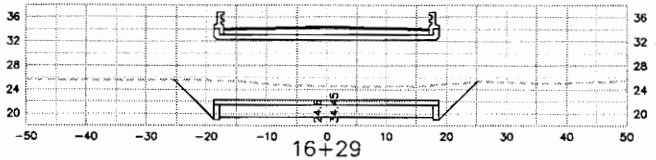

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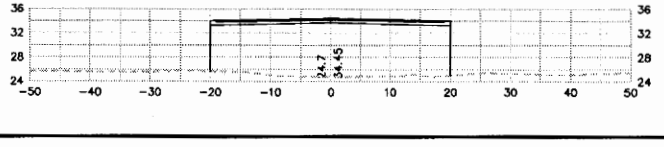
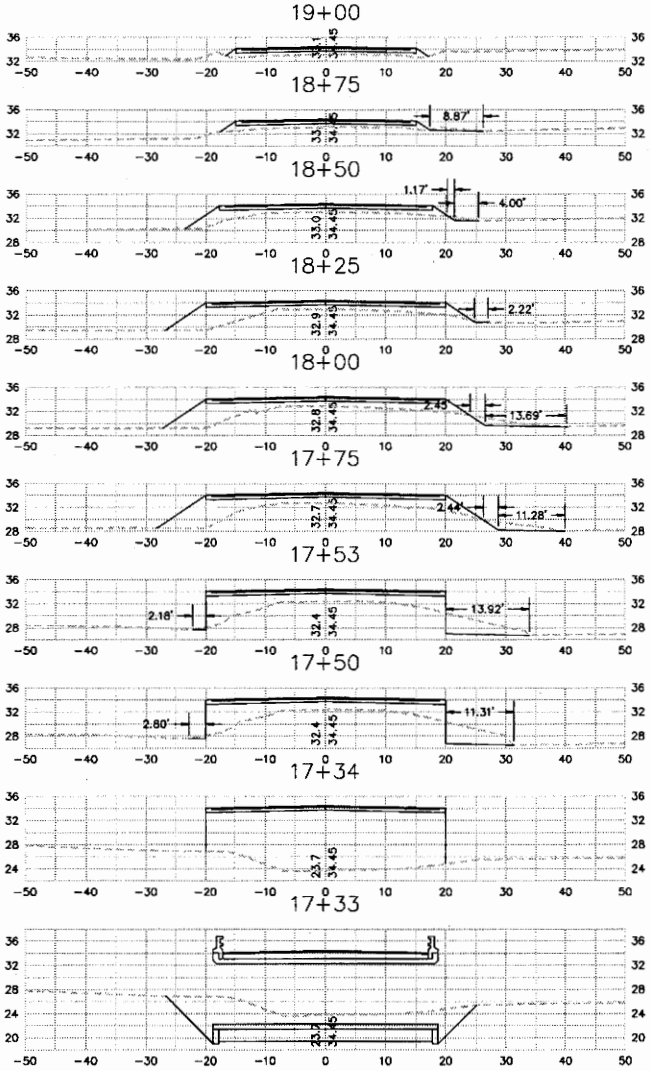
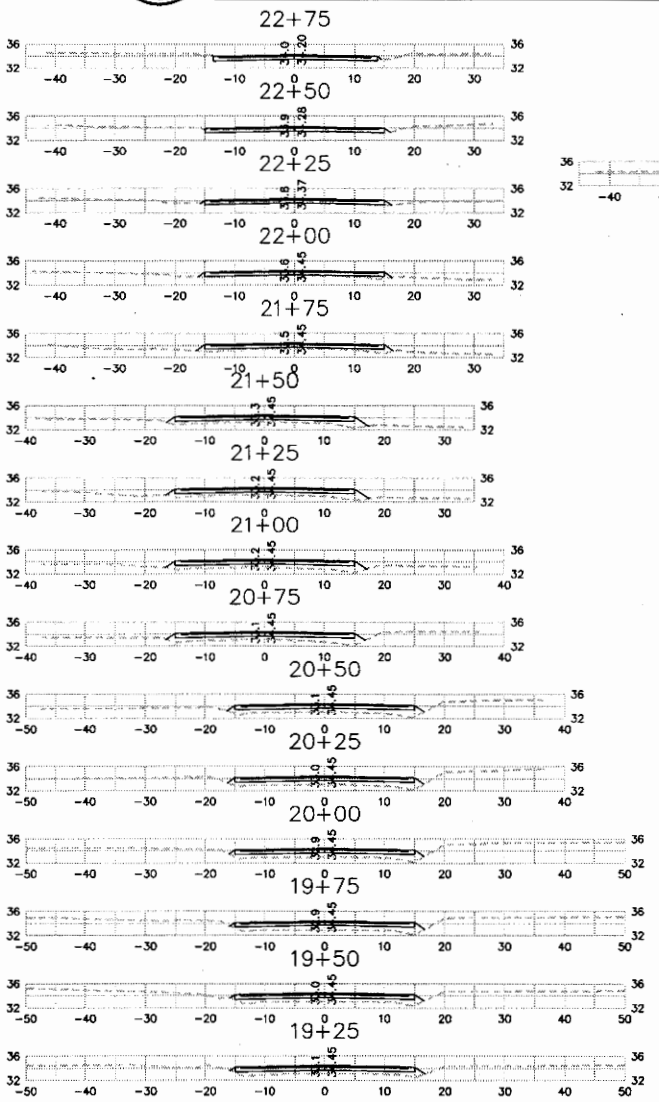
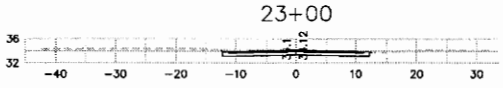


698

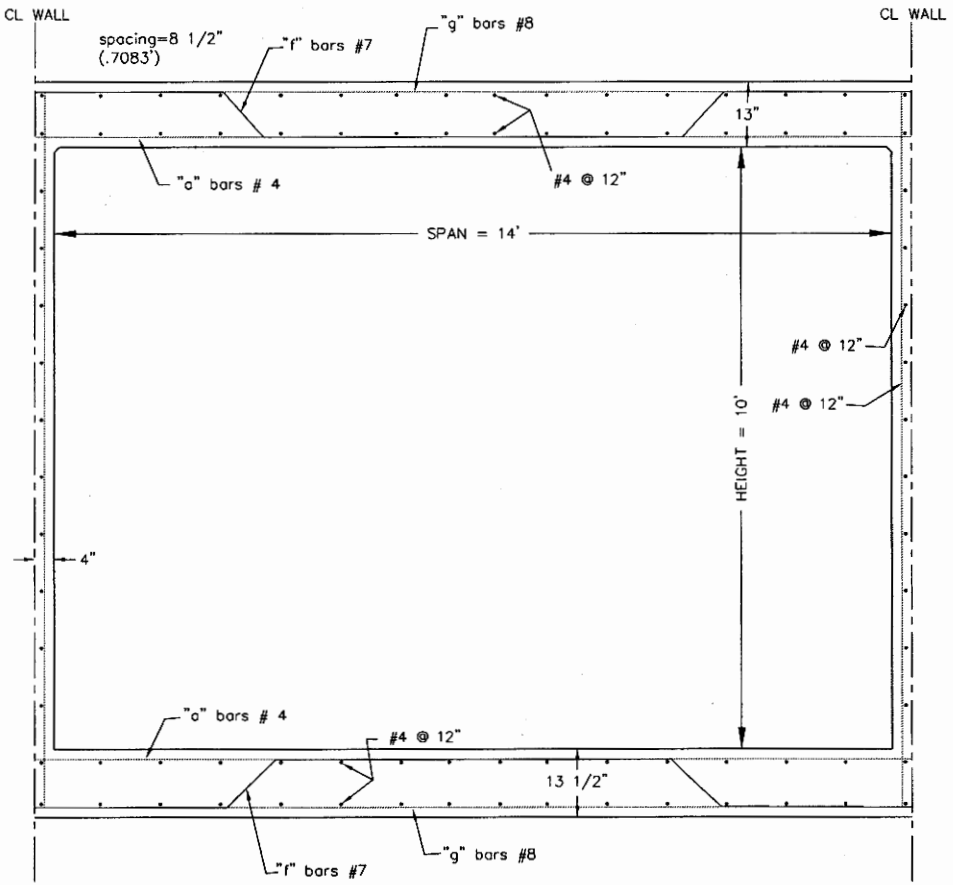
BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	ROAD NAME: WADDINGTON ROAD ROAD NO: C30025 MILE POST: 1.59 PROJECT NO.: BRLO2B 5904 (094) EA NO.: 01-924849 CONTRACT NO.: 594011 DRAWING FILE NAME: L:\PROJECTS\594011\DWG\C25SHO7.DWG PLOT DATE: 3/25/2013	DESIGN SECTION ROBERT L. BURNETT DESIGNED BY: JAB DRAWN BY: JAB REVIEWED BY: LLH APPROVED BY: CJB	COUNTY OF HUMBOLDT DEPARTMENT OF PUBLIC WORKS SALT RIVER BRIDGE REPLACEMENT ON WADDINGTON RD CROSS SECTIONS W LINE – STA 17+34 TO STA 23+00	SHEET 7 OF 8







BAR IS ONE INCH ON ORIGINAL DRAWING	ROAD NAME: WADDINGTON ROAD		DESIGN SECTION ROBERT L. BURNETT	COUNTY OF HUMBOLDT DEPARTMENT OF PUBLIC WORKS	SHEET 8 OF 8
	ROAD NO.: C30025	MILE POST: 1.89			
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	PROJECT NO.: BRLOZB 5904 (094)	EA NO.: 01-524849	DESIGNED BY: JAB	SALT RIVER BRIDGE REPLACEMENT ON WADDINGTON RD	
	CONTRACT NO.: 59401I		DRAWN BY: JAB		
	DRAWING FILE NAME: L:\PROJECTS\59401I\DWG\CDSH07.DNG		REVIEWED BY: LLH	TYPICAL INTERIOR BOX CULVERT BAY	
	PLOT DATE: 3/25/2013		APPROVED BY: CJW		

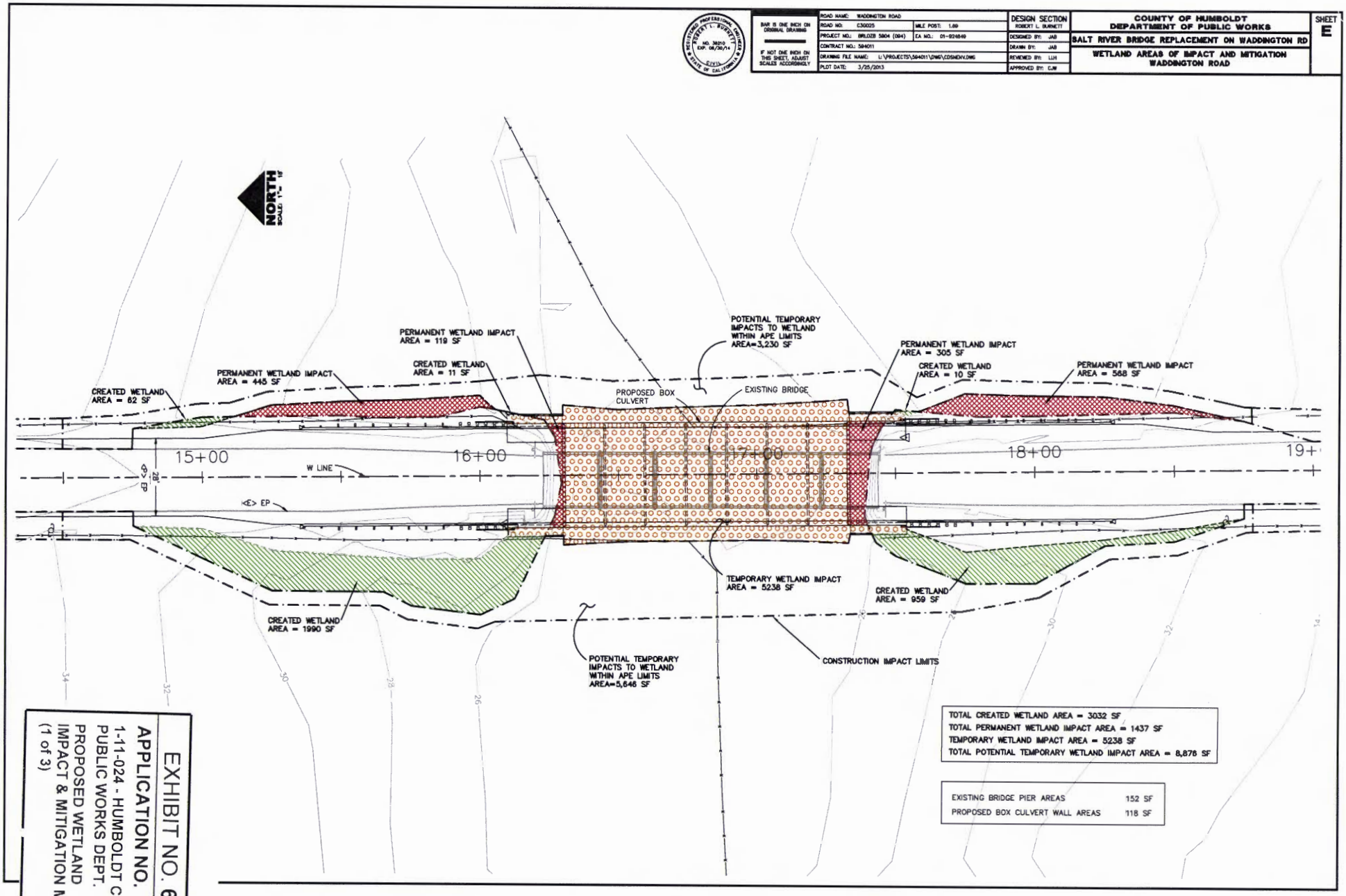


TYPICAL INTERIOR BAY BOX CULVERT

SCALE: 1"=1'

Longit #4 bars – 84 Ea @ 0.668=56.1 Lb/ft
wall vert #4@12 – 2 @ 11.9=23.8' @ 0.668=15.9 Lb/ft
Transverse: "g" bars – 2 @ 14.67=29.34 @ 2.670/0.7083 (spacing)=110.6 Lb/ft
"f" bars – 2 @ 15.33=30.66' @2.044/0.7083=88.5 Lb/ft
"a" bars – 2 @ 14.67=29.34' @ 0.668/.7083=27.7 Lb/ft.
Total = 298.8 Lb/ft per bay. 298.8 x 5 Central bays = 1494.0 Lb/ft Assume 3% Laps & etc =1494 x 1.03=1539 Lb/ft.

Add rebar per foot for std double box to account for the end bays=892 + 1539=2431 Lb/ft x 37.5' = 91,162.5 Lb



BAR IS ONE INCH ON ORIGINAL DRAWING

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

ROAD NAME:	WADDINGTON ROAD
ROAD NO:	C30025
MILE POST:	1.69
PROJECT NO.:	BRLOZB 5804 (084)
EA NO.:	01-924849
CONTRACT NO.:	584011
DRAWING FILE NAME:	L:\PROJECTS\584011\DWG\CDSHDWG.DWG
PLOT DATE:	3/25/2013

DESIGN SECTION	ROBERT L. BURNETT
DESIGNED BY:	JAB
DRAWN BY:	JAB
REVIEWED BY:	LLH
APPROVED BY:	CJW

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS

BALT RIVER BRIDGE REPLACEMENT ON WADDINGTON RD

WETLAND AREAS OF IMPACT AND MITIGATION WADDINGTON ROAD

SHEET **E**

EXHIBIT NO. 6

APPLICATION NO.

1-11-024 - HUMBOLDT CO. PUBLIC WORKS DEPT.

PROPOSED WETLAND IMPACT & MITIGATION MAPS (1 of 3)

PRELIMINARY
NOT FOR CONSTRUCTION

BAR IS ONE INCH ON ORIGINAL DRAWING	ROAD NAME: WADDINGTON ROAD		DESIGN SECTION ROBERT L. BURNETT
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	ROAD NO: C30025	MILE POST: 1.89	DESIGNED BY: JAB
	PROJECT NO.: BRLO29 5904 (032)	EA NO.: 01-278504	DRAWN BY: JAB
	CONTRACT NO.: 59401		REVIEWED BY: RLB
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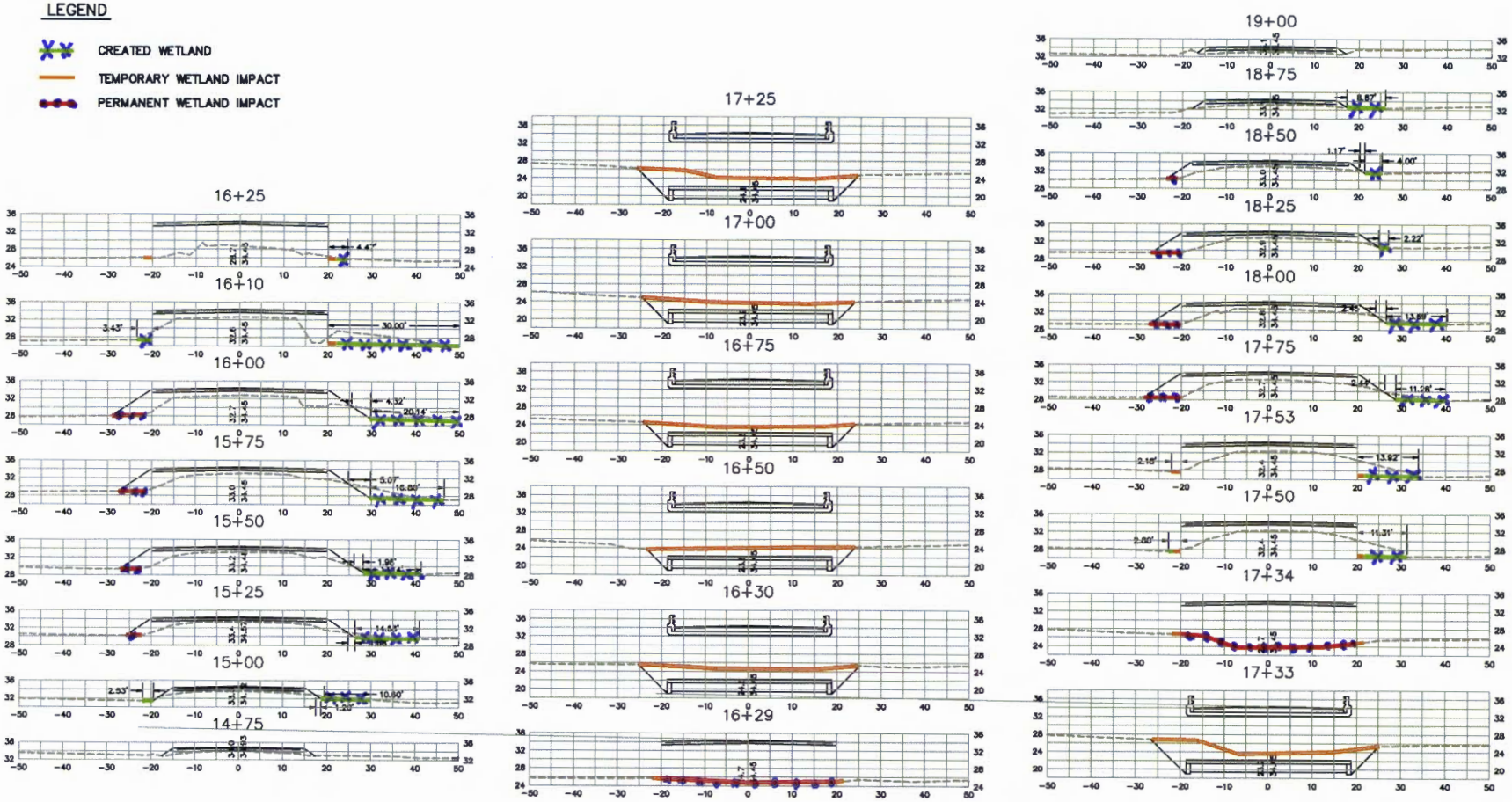
	PLOT DATE: 6/16/2011		

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS
SALT RIVER BOX CULVERT– WADDINGTON RD
WETLAND AREAS OF IMPACT AND MITIGATION SECTIONS WADDINGTON ROAD

SHEET E

LEGEND

- CREATED WETLAND
- TEMPORARY WETLAND IMPACT
- PERMANENT WETLAND IMPACT



PRELIMINARY
NOT FOR CONSTRUCTION

BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	ROAD NAME: WADDINGTON ROAD		DESIGN SECTION: ROBERT L. BURNETT
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	PLOT DATE: 8/16/2011		

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS
SALT RIVER BOX CULVERT– WADDINGTON RD
RIGHT OF WAY
W LINE – WADDINGTON ROAD

SHEET **R/W**

NORTH
SCALE: 1"= 10'

106–031–014
SCILACCI
1570 WADDINGTON
2010R15153

106–051–013
SHINN
1850 WADDINGTON
2007R26396

PARCEL 2
AREA=2150 SF

PARCEL 1
AREA=2685 SF

<E> FENCE & PL

<E> R/W

<P> R/W

<E> BRIDGE

DAYLIGHT LINE

CP3

TO FERNBRIDGE

15+00

<P> DESIGN CL

16+00

17+00

18+00

19+00

<E> CL

TO GRIZZLY BLUFF RD

<E> EP

CP2

<E> UTILITY POLE

DAYLIGHT LINE

<E> R/W

<P> 7 BAY BOX CULVERT

DAYLIGHT LINE

TCE
CREATED WETLAND
AREA=1690sf

PARCEL 3
AREA=885 SF

<E> FENCE & PL

TCE
CREATED WETLAND
AREA=618sf

PARCEL 4
AREA=1065 SF

106–051–010
GAMBONI
1990 WADDINGTON
2006R28836

106–031–014
SCILACCI
1570 WADDINGTON
2010R15153

Created Wetland Outside County ROW = 2,308 sq. ft.
Created Wetland Within County ROW = 724 sq. ft.

PARCEL #	APN	OWNER	R/W AREA
PARCEL 1	106–031–013	SHINN	R/W 2685 SF
PARCEL 2	106–031–014	SCILACCI	R/W 2150 SF
PARCEL 3	106–031–014	SCILACCI	R/W 885 SF
PARCEL 4	106–051–010	GAMBONI	R/W 1065 SF

WWW = WELDED WIRE WALL
R/W = RIGHT OF WAY
PL = PROPERTY LINE
TCE = TEMPORARY CONSTRUCTION AREA

3943

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS
1106 Second Street
Eureka, CA 95501
(707)445-7377

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COASTAL COMMISSION

Salt River Bridge – Waddington Road Bridge Railing

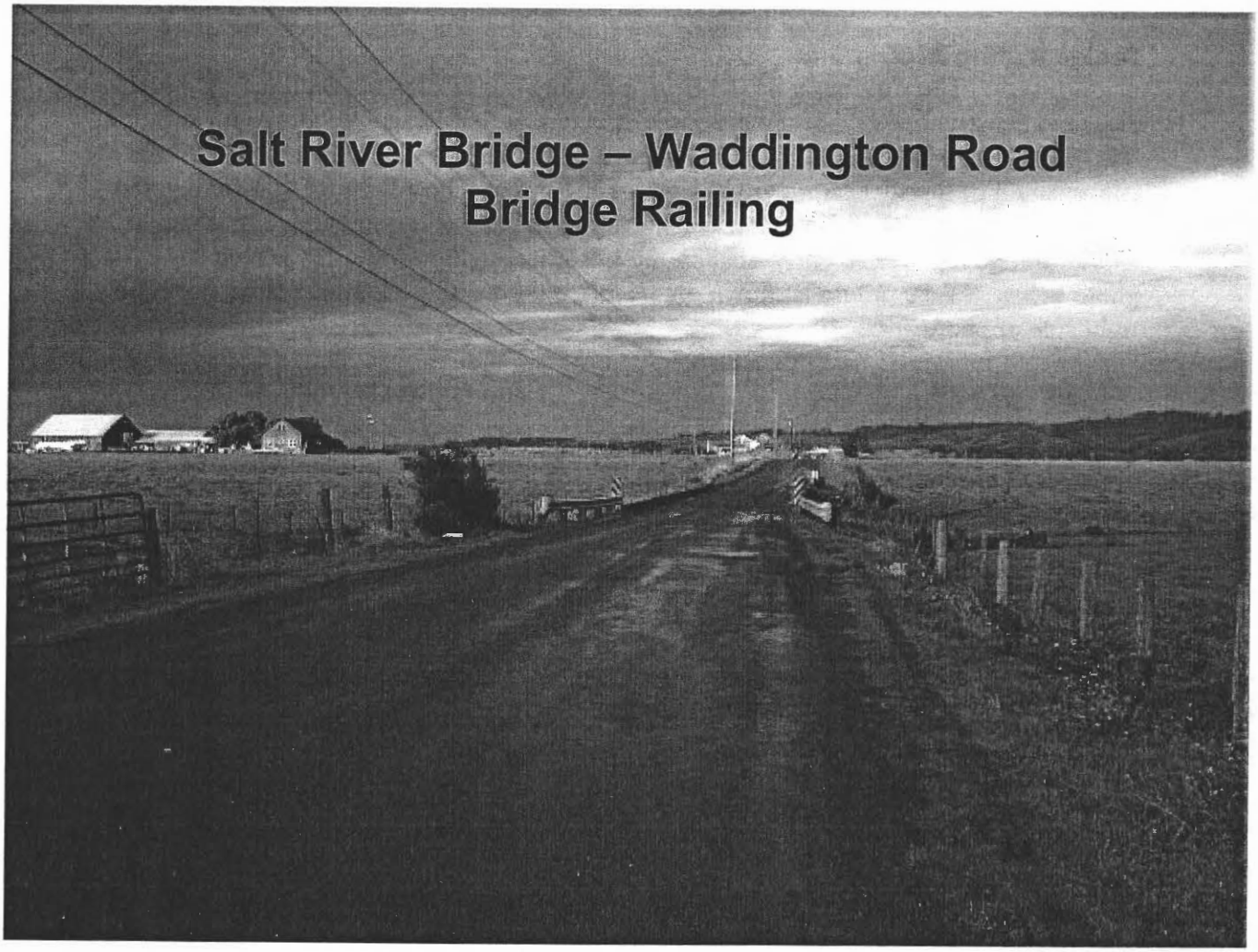


EXHIBIT NO. 7
APPLICATION NO.
1-11-024
HUMBOLDT CO. PUBLIC WORKS DEPARTMENT
PROPOSED BRIDGE RAILING (1 of 5)

Project Description:

The proposed project replaces the seismically susceptible and functionally obsolete Salt River Bridge with a structure meeting current standards. The project includes modifying the approaches to the new structure for improved sight distance, and widening Waddington Road by adding shoulders.

The current structure is a six-span 120-foot long reinforced concrete girder bridge. The bridge width of 18.7 feet is narrow by current standards (A minimum travelled width of 22 feet with additional width for shoulders is endorsed by the American Association of State Highway and Transportation - AASHTO Exhibit 6-7). The California Department of Transportation (Caltrans) inspects County of Humboldt bridges and identifies deficiencies needing correction. The bridge sufficiency rating has been lowered for this bridge because it is narrow and has been identified as susceptible to collapse in a likely seismic event.

The proposed replacement structure is a 103-foot long 7 bay concrete reinforced box culvert. Each bay measuring 10 feet tall x 14 foot span. The total structure width is 33.5 feet. The railing selected for the structure is California ST-30 Bridge Railing.

Bridge Railing Description:

The California ST-30 Bridge Railing is a fabricated metal railing system designed for structures. For the proposed structure at Salt River-Waddington Road, the ST-30 Bridge Railing will be installed beginning at the wingwalls and continue across the entire length of the structure-a total length of 136.5 feet. The ST-30 Bridge Railing was selected since it provides least impairment to public view of coastal/agricultural lands. A similar bridge rail was recently used on the US 101 crossing of the Van Duzen River - photo below, ST-10 railing is shown on the left, ST-10 with pedestrian railing is on the right side of photo.

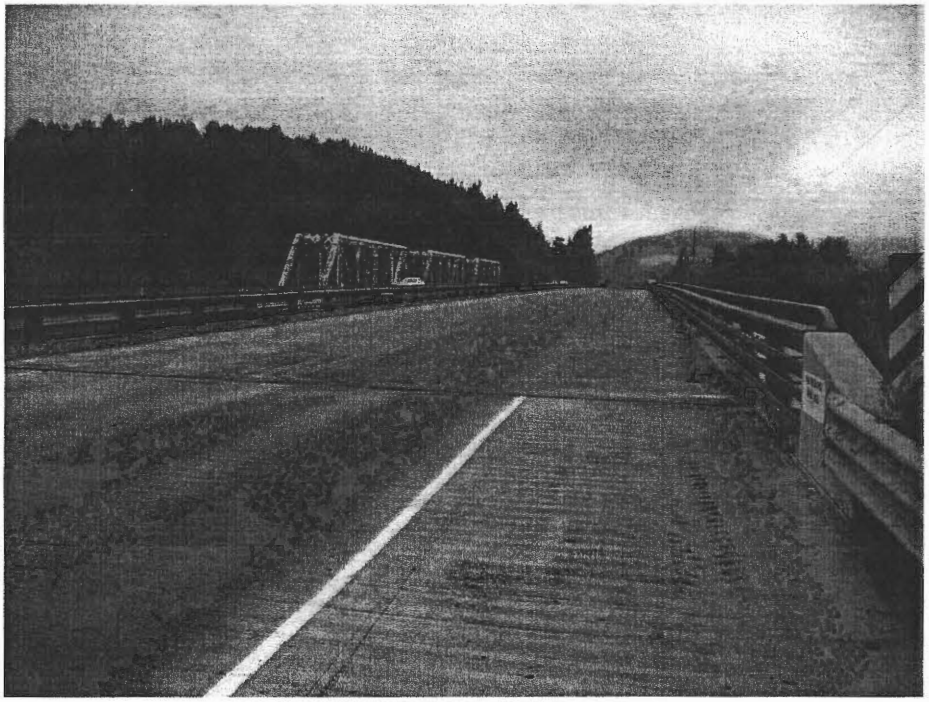
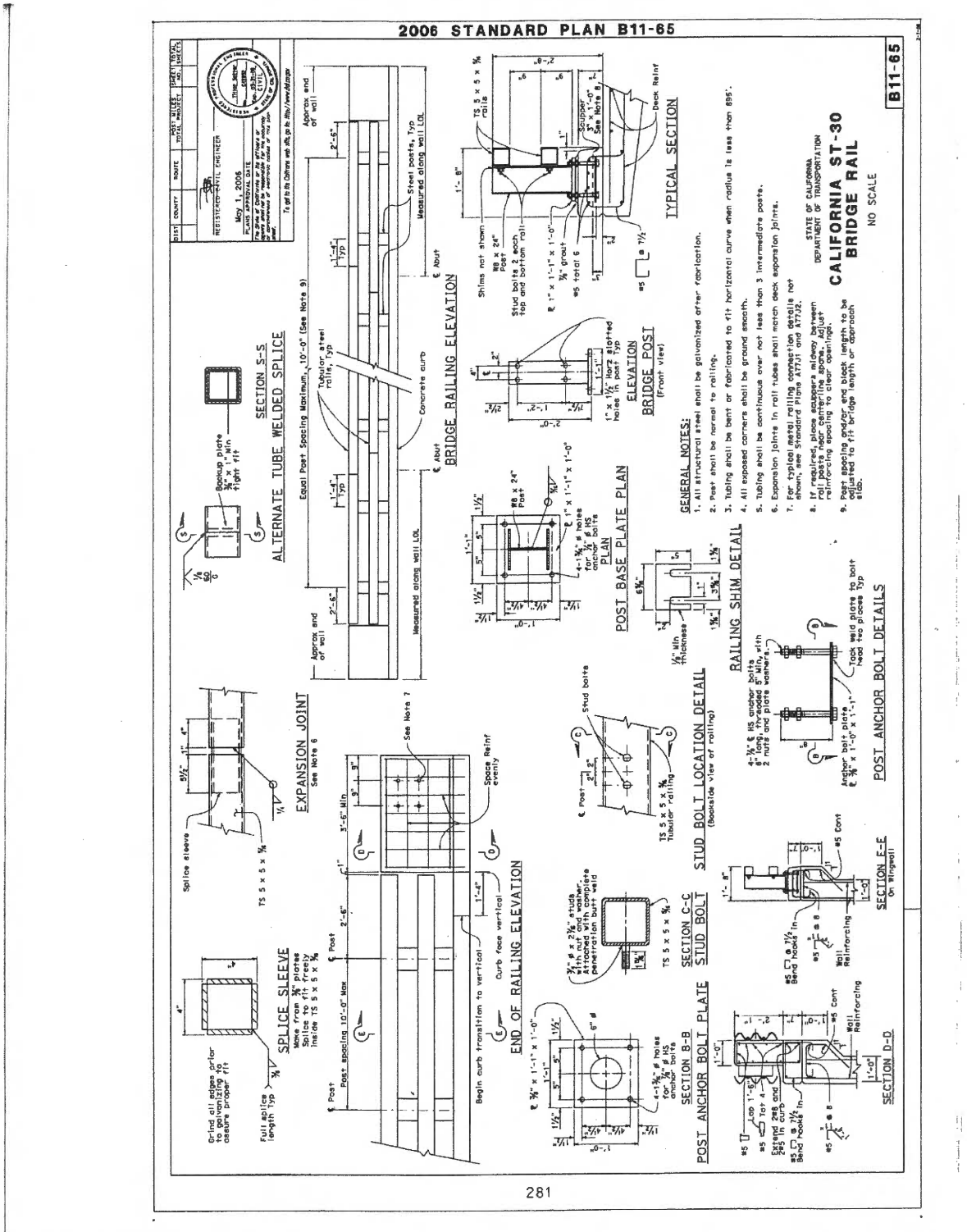
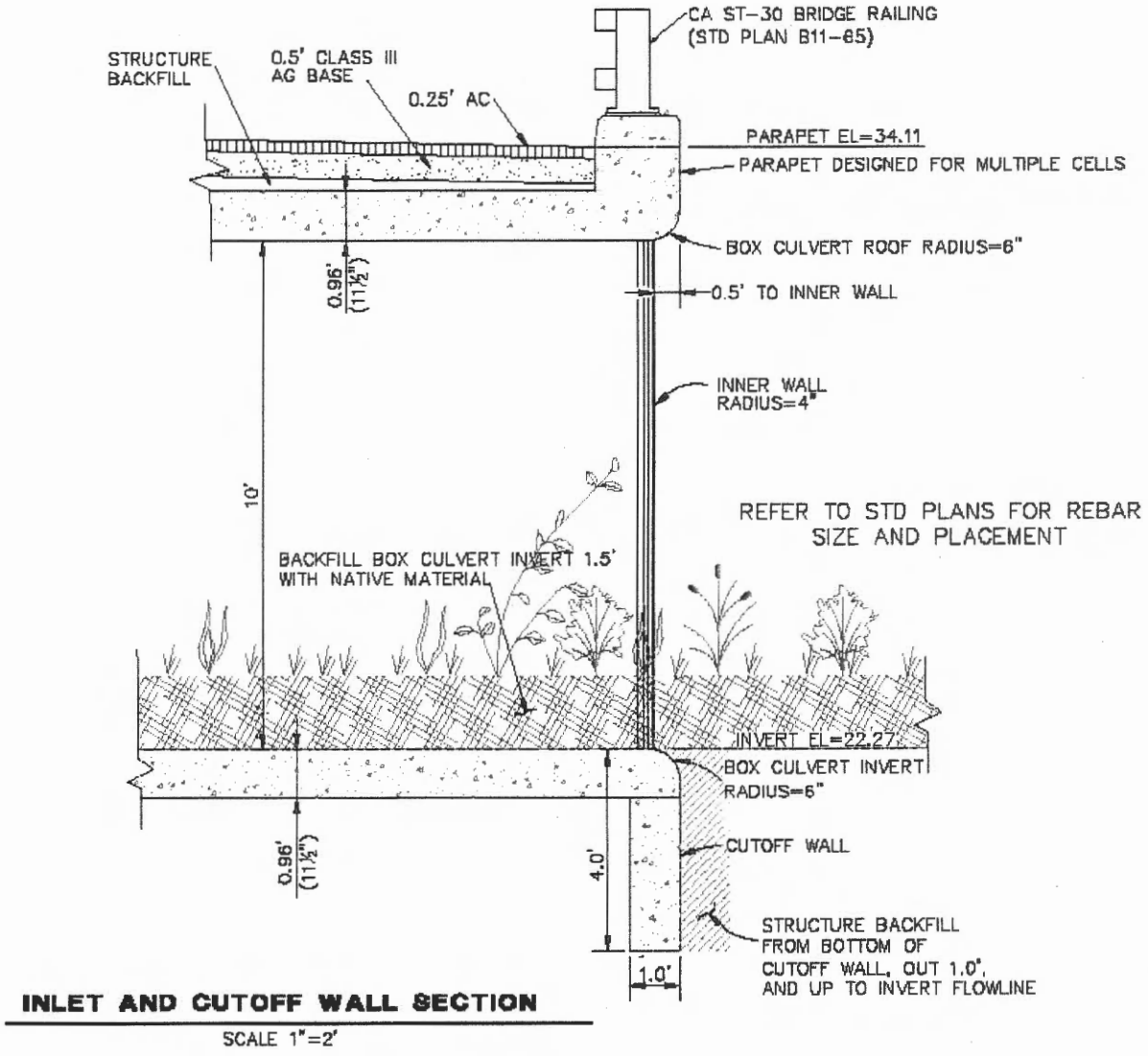


Photo: ST-10 Bridge Railing

ST-30 is the current design of the nearby Williams Creek Bridge, now under construction. A detailed drawing of the ST-30 railing is shown below. ST-30 is similar to the photo of ST-10 in the overall height (2'-9") and width (1'-8") of the railing. The individual metal members of ST-30 are smaller, making ST-30 the ideal choice for Waddington Road.

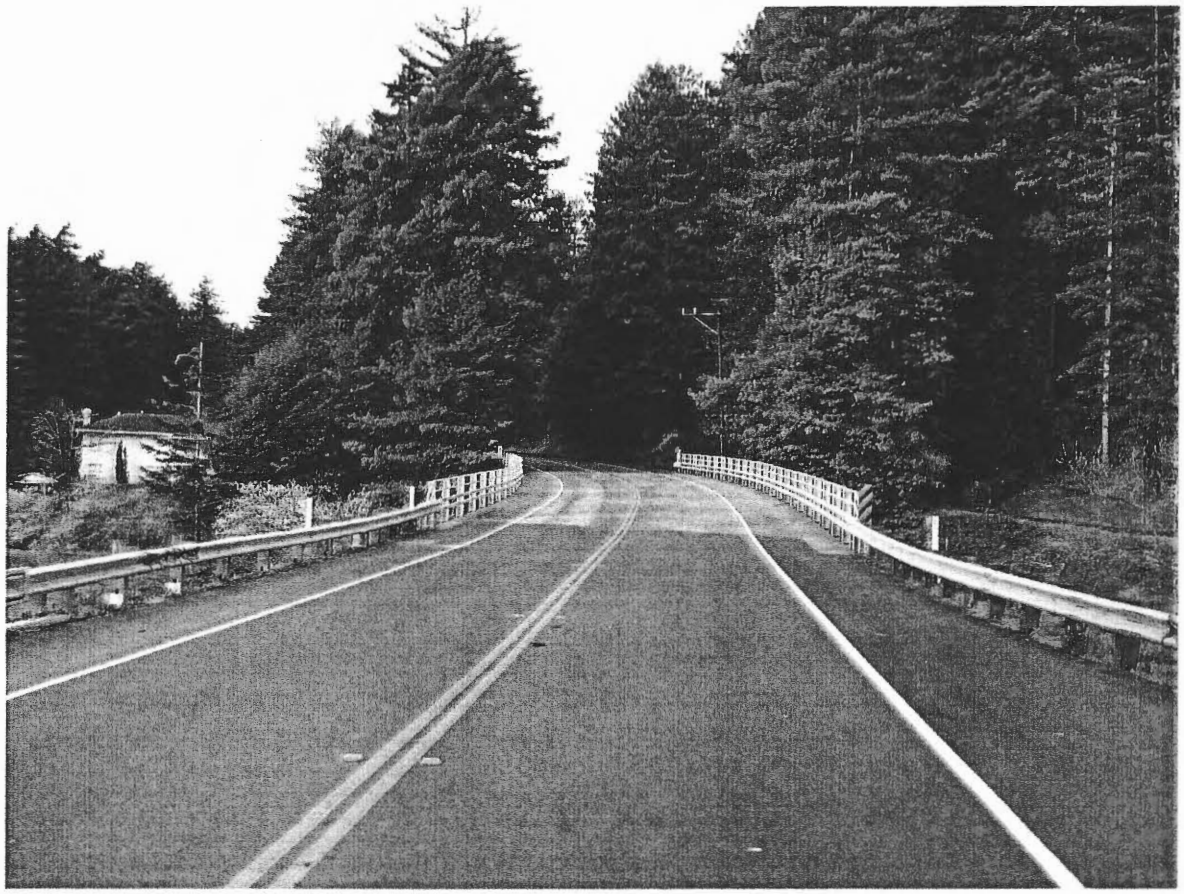


ST-30 Bridge Railing



Detail of Box Culvert with ST-30 Bridge Railing

The County of Humboldt has used Type 117 Bridge Railing on other structures, but it is no longer an accepted railing standard by Caltrans and it is incompatible with the current approach guardrail system. The thrie-beam transitions do not connect with type 117 bridge railing. Type 117 is better suited for designated bike and pedestrian routes-which is the case at Ryan Slough Bridge-see photo below. Note 1) the approach guard railing in the photo below is metal beam guard railing (a design exception was required); 2) bridge railing is taller to accommodate bikes.



Type 117 Bridge Railing on Ryan Slough Bridge

Conclusion:

ST-30 provides the necessary protection for vehicles and the occasional pedestrian and bicyclist. If pedestrian and bicyclist volumes increase, or if Waddington Road was designated as a coastal bike route then a taller railing height would be required.

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS
1106 Second Street
Eureka, CA 95501
(707)445-7377

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Salt River Bridge – Waddington Road
Width of Roadway

EXHIBIT NO. 8
APPLICATION NO.
1-11-024
HUMBOLDT CO. PUBLIC WORKS DEPARTMENT
EXCERPTS OF ROAD WIDTH ANALYSIS (1 of 20)

Purpose:

The purpose of this study is to justify the width of the proposed roadway, structure, and structure approaches at the Salt River Bridge – Waddington Road.

References:

- Caltrans Bridge Inspection Report (BIR) (Appendix 1)
- Highway Design Manual & Design Information Bulletin Number 79 (Appendix 2)
- AASHTO 2001, A Policy of Geometric Design of Highways and Streets, Chap 6, Exhibit 6-5 & Exhibit 6-6 (Appendix 3)
- County of Humboldt Traffic Counts, April 6&7, 2011 (Appendix 4)
- County of Humboldt Speed Ordinance (Appendix 5)
- County of Humboldt Crash Data History (Appendix 6)
- AASHTO 2001 Geometric Design of Very low-Volume Local Roads (Appendix 7)
- AASHTO 2011 Roadside Design Guide (Appendix 8)

Project Description:

The proposed project replaces the seismically deficient and functionally obsolete Salt River Bridge structure with a multiple bay box culvert. The project includes modifying the approaches to the new structure for improved sight distance, and widening Waddington Road.

The current bridge structure is a reinforced concrete girder and deck bridge. The bridge width of 18.7 feet is narrow when compared to current standards. (At minimum an existing bridge should have 22' roadway; AASHTO Exhibit 6-7). The bridge sufficiency rating is lowered because of the narrow bridge, and the bridge is listed as being structurally deficient according to the Caltrans BIR (See Appendix 1)

The proposed replacement structure is a 7 bay box culvert. Each bay measuring 10' tall x 14'span. The total structure width is 37.5' and length of 103.5'.

Roadway Width Discussion:

The County of Humboldt standards for roadways follow the Caltrans standards which are published in the Highway Design Manual (HDM; Appendix 2). Topic 308, *Cross Sections of Roads Under other Jurisdictions,* of the HDM, give the roadway and bridge standards for City and County Roads. The HDM also directs the design to follow the AASHTO Standards.

CALTRANS Highway Design Manual

The basic lane width for new construction shall be 12' (HDM, Index 301.1). The standard shoulder width for roads with ADT> 400 is 8' (HDM, Table 307.2). HDM Table 307.2 states that the minimum bridge width is 32 feet. These are Caltrans' general guidelines. For roads under other jurisdictions, such as county roads, the AASHTO standards, local standards, or matching the existing roadway apply.

The structure minimum width of 28' from curb to curb is mentioned in Topic 308 of HDM. The minimum overcrossing structure width has a couple of important footnotes: Index 208.1(2) and Index 307.3

Index 208.1(2)(c), mentions that the Topic 309 Horizontal clearances is to be considered in the design. Index 309.1(3)(c), states that "On…county roads the minimum horizontal clearance shall be the standard shoulder width…, except that a minimum

clearance of 4 feet shall be provided..." The 4' minimum horizontal clearance would include bridge rails and metal beam guard rails.

Index 307.3 refers to Design Information Bulletin Number 79 (DIB 79; Appendix 2). Although this is primarily for roadway rehabilitation projects these guidelines also apply to many various other types of projects. DIB 79, Section 3.3.3.6.1.1 Traveled Way, "All lane widths shall be 12 feet..." DIB 79 Section 3.3.3.6.1.2 Shoulders, shoulder width given in Table 2 is 2' paved minimum. DIB 79, Section 3.3.3.6.1.2.2 Bridges, The shoulder widths given in Table 2 is 4'minimum. Bridge replacements strategies shall meet new construction standards. DIB 79 also mentions that shoulders are important to accommodate pedestrians and bicycle traffic especially where there are not sidewalks. The minimum usable shoulder width for bicycles and pedestrians is 4'. Greater than the minimum shoulder widths need to be considered for truck, bus, and recreational vehicle usage when volumes are greater than 10%.

Summarizing the Highway Design Manual, the roadway minimum (not deferred to AASHTO) is 12' travel lanes and 8' shoulders.

AASHTO Standard

The AASHTO standard for Waddington Road, classified as a rural collector, is 22' roadway width and 5' shoulders. The shoulder width may be reduced as long as a minimum roadway width of 30' is maintained. (Exhibit 6-5. *Minimum Width of Traveled Way and Shoulders*, AASHTO – Appendix 3) Roadway widths are based on the ADT (Average Daily Traffic), design and/or posted speed, and the road classification.

The current ADT at the bridge is 890veh/day (Traffic Count from April 2011, Appendix 4). The 20 year projection of traffic counts are estimated at 1495veh/day (Caltrans BIR, 2011). The ADT of 1500 is a critical number in the AASHTO design tables for roadway width. The AASHTO design tables indicate that roadway and shoulder widths increase to handle the increased speed and volumes of traffic. The increased width enhances safety. It improves the site visibility, enlarges the clear recovery zone, and provides the necessary width for oversize vehicles.

The posted speed for Waddington Road is 45mph. This is confirmed by the County of Humboldt Ordinance 2171, 5/26/98 (Appendix 5). The 45mph speed limit is from mile post 0.00 to 2.77. The bridge is located at mile post 1.69. The minimum design width for 45mph is 22' of travel way (AASHTO, Exhibit 6-5)

The road classification of Waddington Road is rural collector. This designation means that the design must consider crash history, traffic volumes, terrain, and alignment.

Crash History: A summary of crash history is shown in Appendix 6. In the last 10 years, however, there has not been a reported crash at the proposed structure site. The data provided is for the entire length of Waddington Road. The reported crashes include any injury and property damage from 2004 to 2012. During this time, 17 crashes were reported, or a rate of 2.6 crashes per vehicle million miles-an average rate when compared to other similar roads in the vicinity (See chart Titled "comparison of Crash Rates of County Roads in Ferndale Area," Appendix 6). This data indicates that changing the road geometrics (i.e. lane & shoulder widths) is not a priority.

Traffic volume: Waddington Road connects local farmlands to larger transportation facilities (Highway 211, Grizzly Bluff Road). Farm equipment traffic on Waddington Road is estimated to be 5% of the ADT. Logging, milk, and livestock truck and trailers, oversize planting and harvest equipment, and tractors use Waddington Road to access local diaries, fertile farm lands, and foothill properties. The normal commuter traffic combined with the greater than normal commercial farm equipment traffic require special

consideration for a roadway that will serve their needs (AASHTO, Exhibit 1, *Guidelines for Total Roadway Width for New Construction of Very Low-Volume Local Roads in Rural Areas*; Appendix 7).

Terrain: Flat and rolling hills characterize the floodplain through which Waddington Road runs through. The farmland type terrain lends itself to high speed traffic. AASHTO recommends maintaining the design roadway minimum of 30' and 10' wide clear zone recovery area from edge of travel way. (AASHTO, Exhibit 6-5)

Alignment: At the bridge site the horizontal alignment is straight. The vertical alignment has restricted site visibility on the Northerly approach. The site visibility is remedied by raising the roadway. The current design raises the road 1.5' above the existing roadway. This satisfies the AASHTO site visibility requirement for crest vertical curves (Exhibit 6-2, AASHTO)

Summarizing the AASHTO Policy on Geometric Design of Highways and Streets, the approach road minimum width allowed by AASHTO road classification for Waddington Road is 30' roadway (11' travel lanes & 4' shoulders). The bridge minimum width allowed by AASHTO is 28' (11' travel lanes and 3' shoulders), (AASHTO, Exhibit 6-6; Appendix 3).

AASHTO Roadside Design Guide contains the design information necessary for guardrails and bridge barrier placement with respect to travel lanes. For a design speed of 45mph, the design guide recommends a 6' offset to the approach guardrail, bridge barrier, or other roadside barriers. If practical, roadside barriers should be placed beyond the recommended minimum offset. (See Appendix 8)

Conclusion:

Use of engineering judgment is recommended by both the HDM and AASHTO. Consideration and application of all the factors that affect the geometric design is important. Going by the absolute minimums given in design tables may satisfy the immediate need but fails to produce the desired product. The proposed structure must service the current and future traffic and accommodate the wide variety of users from truck traffic to pedestrians and cyclist. The impact on environment, such as the footprint on wetland/agricultural lands, is a critical issue that warrants the minimum structure width. The 28' wide structure is the absolute minimum, but it fails to provide a safe passage for the occasional pedestrian/bicyclist and large truck traffic. 28' wide structure does not meet the 6' minimum distance required by AASHTO for roadside barriers. A 34' wide structure consisting of 11' travel lanes and 6' shoulders satisfy both AASHTO publications. The 11' lane matches the existing lane width and meets the travel lane width standards of AASHTO (Appendix 3). The 6' shoulders provide the minimum width for clearance to bridge rails and guard rails(Appendix 8), and it provides adequate width for pedestrians and bicycles.

APPENDIX 1

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 04C0104
Facility Carried: WADDINGTON ROAD
Location : 1.1 MI N/O GRIZZLY BLUFF
City :
Inspection Date : 08/23/2011

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: SALT RIVER

CONSTRUCTION INFORMATION

Year Built : 1946
Year Widened: N/A
Length (m) : 37
Skew (degrees): 0
No. of Joints : 5
No. of Hinges : 0

Structure Description: Simple span reinforced concrete T-girder (5 ea) superstructure on RC solid piers and RC abutments. The foundation type at the abutments and piers is unknown.

Span Configuration : 6 @ 6.1 m (20') CL to CL

LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN
Inventory Rating: 16.5 metric tonnes Calculation Method: FIELD EVAL/ENG JUDGMENT
Operating Rating: 27.9 metric tonnes Calculation Method: FIELD EVAL/ENG JUDGMENT
Permit Rating : 00000
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: 0.23 m (9") cu, 5.67 m (18.6'), 0.23 m (9") cu
Total Width: 6.1 m Net Width: 5.7 m No. of Lanes: 2
Rail Description: None (concrete curb only) Rail Code : 0000
Min. Vertical Clearance: Unimpaired

DESCRIPTION UNDER STRUCTURE

Channel Description: Slightly graded channel with streambed consisting of gravel and silt. Sacked concrete riprap is placed on both embankments.

INSPECTION COMMENTARY

HISTORY

The structure was built by Humboldt County in 1946.

Numerous spalls and rock pockets were noted in the stems of the concrete T-girders during the 1988 investigation. The county cleaned and patched the spalls in 1992.

INSPECTION ACCESS

The deck, superstructure and substructure were visually inspected. The streambed was dry at the time of the inspection.

CONDITION OF STRUCTURE

Deck:

There is a large crack in the left curb at Abutment 7. There are several small spalls in

INSPECTION COMMENTARY

the left curb. Reinforcement has not been exposed.

Superstructure:

There are multiple spalls in the soffit measuring greater than 100 mm long by 300 mm wide.

Girders 1 and 5 in Span 1 have large (4 mm wide at Girder 1 and 1 mm wide at Girder 5) longitudinal cracks on the sides and bottom of the stems along most of their length. The cracks are 150 mm (6 in) from the bottom of the girder and appear to be previous patches.

Girder 1 in Span 2 has an incipient spall measuring 0.4 m in length near midspan with 5 areas of exposed longitudinal reinforcement. The steel reinforcement is corroded and has visible section loss.

Girder 1 in Span 3 has a spall measuring 0.6 m long for the full width of the girder near midspan with moderate to severe section loss of 3 reinforcing bars.

A portion of Girder 5 bearing on Pier 3 has several diagonal cracks up to 2 mm wide.

Girder 5 in Span 6 has a 1.2 meter long incipient spall. This appears to be a previous patch along the full width of the girder approximately 150 mm (6 in) from the bottom of the girder.

There is a soffit spall in Bay 2 measuring 300mm in diameter, 25mm deep with 3 exposed rebar. The rebar has moderate section loss.

The majority of spalls in Girders 1 and 5 are mostly due to water cascading through the scuppers. Completion of the recommended migitation should address this condition.

Substructure:

A full substructure inspection was performed. No signs of scour were observed.

There is a spall in the face of Pier 5, Span 4 under Girder 1 measuring 0.4 m by 50 mm deep.

ELEMENT INSPECTION RATINGS

Elem No.	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4	St. 5
13	Concrete Deck - Unprotected w/ AC Overlay	2	211	sq.m.	211	0	0	0	0
110	Reinforced Conc Open Girder/Beam	2	180	m.	163	15	1	1	
210	Reinforced Conc Pier Wall	4	30	m.	29	1	0	0	
215	Reinforced Conc Abutment	3	12	m.	12	0	0	0	0
256	Slope Protection	2	2	ea.	2	0	0	0	0
304	Open Expansion Joint	2	30	m.	30	0	0	0	0
359	Soffit of Concrete Deck or Slab	2	1	ea.	0	1	0	0	0

WORK RECOMMENDATIONS

RecDate: 08/23/2011
Action : Deck-Misc.
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

The majority of the spalls in this structure are due to water cascading through the scuppers and saturating the concrete elements beneath. Redirect the roadway runoff to avoid further

WORK RECOMMENDATIONS

deterioration.

RecDate: 08/23/2011 Action : Super-Misc. Work By: LOCAL AGENCY Status : PROPOSED	EstCost: StrTarget: 2 YEARS DistTarget: EA:		Repair the bearing area of Girder 5 at Pier 3.
RecDate: 09/23/2009 Action : Super-Misc. Work By: LOCAL AGENCY Status : PROPOSED	EstCost: StrTarget: 3 YEARS DistTarget: EA:		Patch all reported spalls in concrete girders. Inject all cracks in concrete girders with epoxy. Clean and paint all exposed steel reinforcement with zinc rich primer.
RecDate: 04/16/2003 Action : Bridge-Misc Work By: LOCAL AGENCY Status : PROPOSED	EstCost: StrTarget: 2 YEARS DistTarget: EA:		Repair the cracked left curb at Abutment 7. It is recommended that the crack be injected with epoxy to prevent water intrusion.

Inspected By : Jim Drago

Summer A. Silveira (Registered Civil Engineer)

REGISTERED PROFESSIONAL ENGINEER
SUMMER A SILVEIRA
No. 66913
Exp. 9/30/12
CIVIL
STATE OF CALIFORNIA

STRUCTURE INVENTORY AND APPRAISAL REPORT

********** IDENTIFICATION **********

(1)	STATE NAME- CALIFORNIA	069
(8)	STRUCTURE NUMBER	04C0104
(5)	INVENTORY ROUTE(ON/UNDER)- ON	140000000
(2)	HIGHWAY AGENCY DISTRICT	01
(3)	COUNTY CODE 023 (4) PLACE CODE	00000
(6)	FEATURE INTERSECTED-	SALT RIVER
(7)	FACILITY CARRIED-	WADDINGTON ROAD
(9)	LOCATION-	1.1 MI N/O GRIZZLY BLUFF
(11)	MILEPOINT/KILOMETERPOINT	0
(12)	BASE HIGHWAY NETWORK- NOT ON NET	0
(13)	LRS INVENTORY ROUTE & SUBROUTE	
(16)	LATITUDE	40 DEG 34 MIN 58 SEC
(17)	LONGITUDE	124 DEG 12 MIN 07 SEC
(98)	BORDER BRIDGE STATE CODE % SHARE	%
(99)	BORDER BRIDGE STRUCTURE NUMBER	

******** STRUCTURE TYPE AND MATERIAL *********

(43)	STRUCTURE TYPE MAIN:MATERIAL-	CONCRETE
	TYPE- TEE BEAM	CODE 104
(44)	STRUCTURE TYPE APPR:MATERIAL-	OTHER/NA
	TYPE- OTHER/NA	CODE 000
(45)	NUMBER OF SPANS IN MAIN UNIT	6
(46)	NUMBER OF APPROACH SPANS	0
(107)	DECK STRUCTURE TYPE- CIP CONCRETE	CODE 1
(108)	WEARING SURFACE / PROTECTIVE SYSTEM:	
	A) TYPE OF WEARING SURFACE- BITUMINOUS	CODE 6
	B) TYPE OF MEMBRANE- NONE	CODE 0
	C) TYPE OF DECK PROTECTION- NONE	CODE 0

********** AGE AND SERVICE **********

(27)	YEAR BUILT	1946
(106)	YEAR RECONSTRUCTED	0000
(42)	TYPE OF SERVICE: ON- HIGHWAY	1
	UNDER- WATERWAY	5
(28)	LANES:ON STRUCTURE 02 UNDER STRUCTURE	00
(29)	AVERAGE DAILY TRAFFIC	890
(30)	YEAR OF ADT 2011 (109) TRUCK ADT	4 %
(19)	BYPASS, DETOUR LENGTH	2 KM

********** GEOMETRIC DATA **********

(48)	LENGTH OF MAXIMUM SPAN	6.1 M
(49)	STRUCTURE LENGTH	37.0 M
(50)	CURB OR SIDEWALK: LEFT 0.2 M	RIGHT 0.2 M
(51)	BRIDGE ROADWAY WIDTH CURB TO CURB	5.7 M
(52)	DECK WIDTH OUT TO OUT	6.1 M
(32)	APPROACH ROADWAY WIDTH (W/SHOULDERS)	5.5 M
(33)	BRIDGE MEDIAN- NO MEDIAN	0
(34)	SKEW 0 DEG (35) STRUCTURE FLARED	NO
(10)	INVENTORY ROUTE MIN VERT CLEAR	99.99 M
(47)	INVENTORY ROUTE TOTAL HORIZ CLEAR	5.7 M
(53)	MIN VERT CLEAR OVER BRIDGE RDWY	99.99 M
(54)	MIN VERT UNDERCLEAR REF- NOT H/RR	0.00 M
(55)	MIN LAT UNDERCLEAR RT REF- NOT H/RR	0.0 M
(56)	MIN LAT UNDERCLEAR LT	0.0 M

********** NAVIGATION DATA **********

(38)	NAVIGATION CONTROL- NO CONTROL	CODE 0
(111)	PIER PROTECTION-	CODE
(39)	NAVIGATION VERTICAL CLEARANCE	0.0 M
(116)	VERT-LIFT BRIDGE NAV MIN VERT CLEAR	M
(40)	NAVIGATION HORIZONTAL CLEARANCE	0.0 M

****

SUFFICIENCY RATING =	33.0
STATUS	STRUCTURALLY DEFICIENT
HEALTH INDEX	98.4
PAINT CONDITION INDEX =	N/A

********** CLASSIFICATION ********** CODE

(112)	NBIS BRIDGE LENGTH- YES	Y
(104)	HIGHWAY SYSTEM- NOT ON NHS	0
(26)	FUNCTIONAL CLASS- MINOR COLLECTOR RURAL	08
(100)	DEFENSE HIGHWAY- NOT STRAHNET	0
(101)	PARALLEL STRUCTURE- NONE EXISTS	N
(102)	DIRECTION OF TRAFFIC- 2 WAY	2
(103)	TEMPORARY STRUCTURE-	
(105)	FED.LANDS HWY- NOT APPLICABLE	0
(110)	DESIGNATED NATIONAL NETWORK - NOT ON NET	0
(20)	TOLL- ON FREE ROAD	3
(21)	MAINTAIN- COUNTY HIGHWAY AGENCY	02
(22)	OWNER- COUNTY HIGHWAY AGENCY	02
(37)	HISTORICAL SIGNIFICANCE- NOT ELIGIBLE	5

********** CONDITION ********** CODE

(58)	DECK	6
(59)	SUPERSTRUCTURE	4
(60)	SUBSTRUCTURE	7
(61)	CHANNEL & CHANNEL PROTECTION	7
(62)	CULVERTS	N

********* LOAD RATING AND POSTING ********* CODE

(31)	DESIGN LOAD- UNKNOWN	0
(63)	OPERATING RATING METHOD- FIELD EVAL/ENG JUDG	0
(64)	OPERATING RATING-	27.9
(65)	INVENTORY RATING METHOD- FIELD EVAL/ENG JUD	0
(66)	INVENTORY RATING-	16.5
(70)	BRIDGE POSTING- EQUAL TO OR ABOVE LEGAL LOADS	5
(41)	STRUCTURE OPEN, POSTED OR CLOSED-	A
	DESCRIPTION- OPEN, NO RESTRICTION	

********** APPRAISAL ********** CODE

(67)	STRUCTURAL EVALUATION	4
(68)	DECK GEOMETRY	2
(69)	UNDERCLEARANCES, VERTICAL & HORIZONTAL	N
(71)	WATER ADEQUACY	7
(72)	APPROACH ROADWAY ALIGNMENT	8
(36)	TRAFFIC SAFETY FEATURES	0000
(113)	SCOUR CRITICAL BRIDGES	U

********** PROPOSED IMPROVEMENTS **********

(75)	TYPE OF WORK- MISC STRUCTURAL WORK	CODE 38
(76)	LENGTH OF STRUCTURE IMPROVEMENT	37 M
(94)	BRIDGE IMPROVEMENT COST	$519,800
(95)	ROADWAY IMPROVEMENT COST	$103,960
(96)	TOTAL PROJECT COST	$873,264
(97)	YEAR OF IMPROVEMENT COST ESTIMATE	2010
(114)	FUTURE ADT	1495
(115)	YEAR OF FUTURE ADT	2029

********** INSPECTIONS **********

(90)	INSPECTION DATE 08/11 (91) FREQUENCY	24 MO
(92)	CRITICAL FEATURE INSPECTION:	(93) CFI DATE
	A) FRACTURE CRIT DETAIL- NO	MO A)
	B) UNDERWATER INSP- NO	MO B)
	C) OTHER SPECIAL INSP- NO	MO C)

107 - PHOTO-SUPER DAMAGE/DETERIORATION

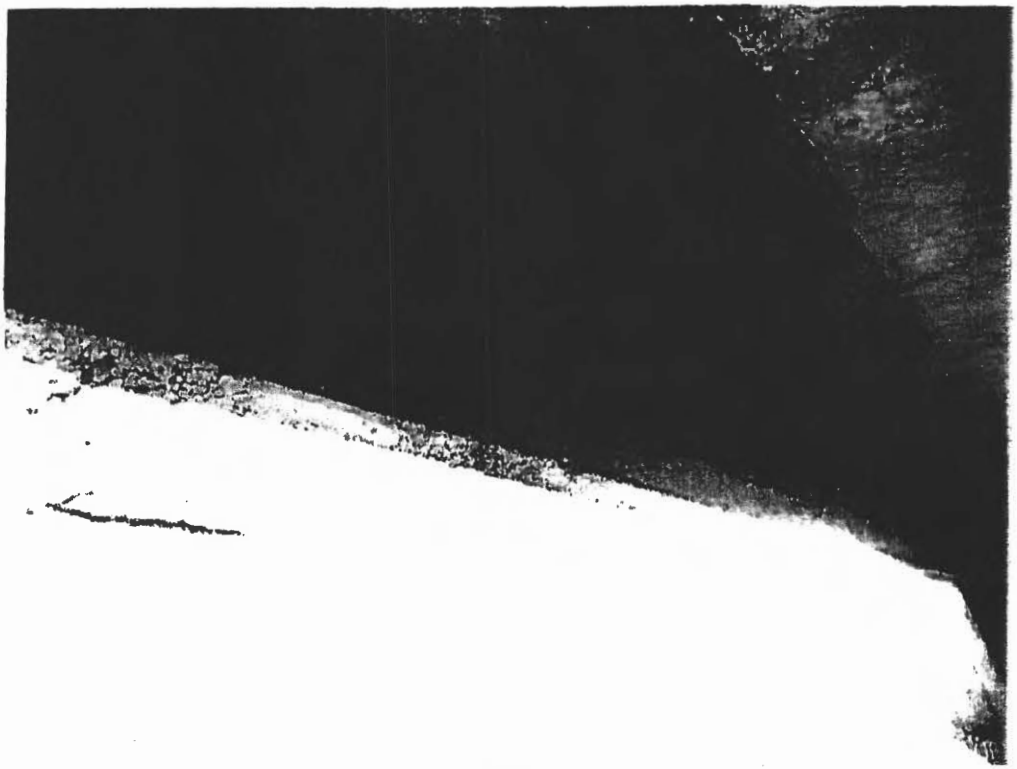

Photo No. 1

Cracks in Girder 1 in Span 1.

107 - PHOTO-SUPER DAMAGE/DETERIORATION

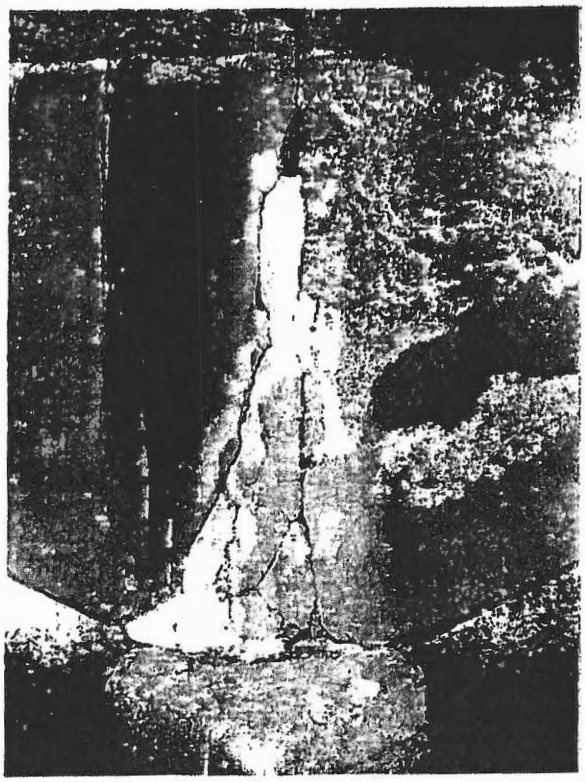

Photo No. 1

Cracked bearing area in Girder 5 at Pier 3.

APPENDIX 4

Daily Vehicle Volume Report

Location: Bridge # 04C0104 Waddington rd
Unit ID: HUMBOLT COUNTY
Study Date: Wednesday - April 06, 2011 / Thursday - April 07, 2011

Time	North Bound Volume
09:15 - 10:14	66
10:15 - 11:14	63
11:15 - 12:14	73
12:15 - 13:14	57
13:15 - 14:14	46
14:15 - 15:14	40
15:15 - 16:14	71
16:15 - 17:14	67
17:15 - 18:14	71
18:15 - 19:14	68
19:15 - 20:14	41
20:15 - 21:14	28
21:15 - 22:14	11
22:15 - 23:14	6
23:15 - 00:14	4
00:15 - 01:14	1
01:15 - 02:14	9
02:15 - 03:14	1
03:15 - 04:14	5
04:15 - 05:14	8
05:15 - 06:14	25
06:15 - 07:14	37
07:15 - 08:14	65
08:15 - 09:14	27

ADT	890
AM Peak Time	10:45 - 11:44
AM Peak Volume	75
PM Peak Time	16:00 - 16:59
PM Peak Volume	79

APPENDIX 5

CHAPTER 2

SPEED LIMITS

422-1. ALTERATION OF SPEED LIMITS.

The prima facie speed limits set forth herein are based upon recommendations which have been made by the Director of Public Works who has made engineering ~~that~~ and traffic surveys of the portions of County roads in question. The Board of Supervisors hereby determines, upon the basis of such recommendations and engineering and traffic surveys, that the speed limit of fifty-five (55) miles per hour (90 km/h) is more than ~~if~~ reasonable or safe upon the portions of County roads referred to herein, and the prima facie speed limits which have been fixed by this chapter are hereby found to be the most appropriate to facilitate the orderly movement of traffic and to be reasonable and safe. (Ord. 2351, ~~§ 351~~, 12/6, 2005)

All units of measurement are cited in standard and metric terms pursuant to § 21351.3 of the Vehicle Code of California.

Any amendment to this chapter shall be effective thirty (30) days after its enactment and when appropriate signs giving notice of the prima facie speed limit thereby determined and declared have been erected upon said County roads.

422-2. PENALTIES.

Pursuant to § 42001 of the Vehicle Code of the State of California, it shall be unlawful and an infraction for any person to drive a vehicle upon the portions of County roads referred to in this chapter at a speed in excess of the prima facie speed limits prescribed herein. Every person convicted of such infraction shall be punished upon a first conviction by a fine not exceeding ~~Fifty~~ One Hundred Dollars ~~($50.00)~~ ($100.00); for a second conviction within a period of one (1) year by a fine of not exceeding ~~One~~ Two Hundred Dollars ~~($100.00)~~ ($200.00); and for a third ~~of~~ or any subsequent conviction within the said period of one (1) year by a fine of not exceeding Two Hundred Fifty Dollars ($250.00). (Ord. 2351, § __, 12/6/2005)

422-3. FIVE MILES PER HOUR (10 KM/H) SPEED LIMIT.

The speed limit for the highways or portions thereof designated as follows is determined ~~the~~ and declared to be five (5) miles per hour (10 km/h): (Ord. 2351 § __, 12/6/2005)

(1) Bridge No. 4C-180 (Viaduct Bridge). Pursuant to Vehicle Code § 21109, 22403, the prima facie speed limit for Viaduct Bridge (County Bridge No. 4C-180) ~~o the~~ on Ishi Pishi Road (County Road No. 9R100) is hereby determined and declared to be five (5) miles per hour (10 km/h) for all buses, motor trucks and truck tractors. (Ord. 881, § 1, 10/3/72; Ord. 2351, 12/6/2005)

(11) Myrtle Avenue (County Road No. F3K300) - from its intersection with Hall Avenue (County Road No. A3K321) to a point 0.25 mile (0.4 km) south of its intersection with Freshwater Road (County Road No. F6F060). (Ord. 411 § 2, 10/3/61)

(12) Myrtle Avenue and Old Arcata Road (County Road No. F3K300) - from a point 0.25 mile (0.4 km) north of its intersection with Freshwater Road (County Road No. F6F060) to a point 0.25 mile (0.4 km) south of the Jacoby Creek Elementary School. (Ord. 411 § 2, 10/3/61)

(13) Patricks Point Drive (County Road No. 3N010) - from P.M. 0.00 to P.M. 5.51 (P.K. 0.00 to P.K. 8.73). (Ord. 1567 § 1, 12/7/82)

(13.1) Waddington Road, (County Road No. C3G025) - from P.M. 0.00 to P.M. 2.77 (P.K. 0.00 to P.K. 4.38). (Amended by Ord. 2171, §1, 5/26/98)

(14) Walnut Drive and Ridgewood Drive (County Road No. F3J300) - from a point 350 feet (0.11 km) south of its intersection with Campton Road (County Road No. A3J620) to its intersection with Elk River Road (County Road No. F3J300). (Ord. 1032 § 5, 6/17/75)

422-13. FIFTY MILES PER HOUR (80 KM/H) SPEED LIMIT.

The speed limit for the highways or portions designated as follows is determined and declared to be fifty (50) miles per hour (80 km/h):

(1) Redwood Drive (County Road No. 6B105) - from P.M. 3.20 to P.M. 4.81 (P.K. 5.07 to P.K. 7.62) (Ord. 1999, Sec. 6, 5/25/93)

422-12. FORTY-FIVE MILES PER HOUR (75 KM/H) SPEED LIMIT.

The speed limit for the highways or portions designated as follows is determined and declared to be forty-five (45) miles per hour (75 km/h):

(0.5) Briceland Thorne Road (County Road F5A010) - from P.M. 0.00 to P.M. 2.16, P.M. 3.26 to P.M. 5.65 and P.M. 6.26 to P.M. 10.15. (Ord. 2409, § 1, 11/16/93)

(1) Centerville Beach Road (County Road No. C2G010) - from a point 0.8 mile (1.29 km) westerly of its intersection with Mattole Road (County Road No. F3C010) to a point 1.5 miles (2.41 km) westerly of its intersection with Russ Lane (County Road No. 2G020). (Ord. 469, § 1, 12/10/63)

(2) Central Avenue (County Road No. A4L800) - from its intersection with State Route 200 to a point 750 feet (0.23 km) south of its intersection with Bella Vista Road (County Road No. 4L850). (Ord. 553, § 1, 3/15/66)

(3) Central Avenue (County Road No. A4L800) - from a point 100 feet (0.03 km) north of its intersection with Murray Road (County Road No. C3M020) to its intersection with the State maintained section of the on-ramp and off-ramp area at the Clam Beach Interchange. (Ord. 569, § 1, 7/12/66)

(3.5) Copenhagen Road (County Road No. 3H260) - from the intersection with Eel River Drive (County Road 3H160) Post Mile 0.00 (P.K. 0.0) to its intersection with Table Bluff Road (County Road 3H015) Post Mile 3.48 (P.K. 5.60). (Ord. ____, § __, __/__/2011)

(4) Eel River Drive (County Road No. 3H160) - from P.M. 1.50 to P.M. 2.00 (P.K. 2.38 to P.K. 3.16) (Ord. 1965, § 4, 3/24/92)

(5) Elk River Road (County Road No. F3J300) - from a point 1,000 feet (0.31 km) northerly of its intersection with Ridgewood Drive (County Road No. F3J300) to a point 3,000 feet (0.91 km) northerly of its intersection with Ridgewood Drive (County Road No. F3J300).

(6) Freshwater Road (County Road No. F6F060) - from P.M. 38.85 (P.K. 62.52) to its intersection with Myrtle Avenue (County Road No. F3K300) at P.M. 40.92 (P.K. 65.85) (Ord. 1032, § 5, 6/17/75)

(7) Grizzly Bluff Road (County Road No. F2G100) - from P.M. 5.90 to P.M. 10.93 (P.K. 9.35 to P.K. 17.31). (Ord. 1965, § 4, 3/24/92)

(8) Indianola Cutoff (County Road No. 4K200) - from the easterly right of way line of State Highway 101 located at State P.M. 82.680 (P.K. 133.06) to its intersection with Myrtle Avenue [County Road No. F3K300 at P.M. 5.35 (P.K. 8.61)]. (Ord. 61[illegible], § 1, 12/14/71)

(Jacoby Creek Road -- Repealed by Ord. 2351, § 13, 12/06/2005)

(10) Murray Road (County Road No. C3M020) - from P.M. 1.44 easterly to P.M. 5.27 (P.K. 2.32 to P.K. 8.48), a distance of 2.83 miles (4.55 km). (Ord. 1032, § 5, 6/17/75)

APPENDIX 6

Humboldt County
Traffic Engineering Department
Collision Report Summary

9/13/2012
Date Range Reported: 1/1/01 - 12/31/12
Total Number of Collisions: 17
Total Numberof Persons Injured: 11
Total Number of Persons Killed: 0

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.
1461798	5/30/04	13:30	Waddington Rd & N Waddington Rd	331'	South	Hit Object	Fixed Object	North	Ran Off Road			Improper Turning	0	0
1916586	3/3/05	07:45	Waddington Rd & Substation Rd	1056'	South	Sideswipe	Other Motor Vehicle	South	Crossed Into Opposing	North	Proceeding Straight	Wrong Side of Road	1	0
1935522	3/18/05	23:30	Waddington Rd & Grizzly Bluff Rd	68'	North	Hit Object	Fixed Object	North	Making Right Turn			Improper Turning	0	0
2710531	7/11/06	04:00	Waddington Rd & Grizzly Bluff Rd	9504'	North	Other	Animal	North	Proceeding Straight			Other Than Driver or Ped	0	0
2871915	10/25/06	15:10	Grizzly Bluff Rd & Waddington Rd	0'	In Int.	Sideswipe	Other Motor Vehicle	East	Passing Other Vehicle	East	Making Right Turn	Other Hazardous Movement	0	0
3494649	11/28/07	18:00	Waddington Rd & Substation Rd	3960'	South	Hit Object	Fixed Object	South	Proceeding Straight			Unsafe Speed	1	0
3514339	12/15/07	17:50	Waddington Rd & Pleasant Point Rd	1056'	West	Hit Object	Fixed Object	North	Proceeding Straight			Unsafe Speed	2	0
3699361	4/12/08	01:20	Waddington Rd & Substation Rd	3168'	East	Hit Object	Fixed Object	West	Ran Off Road			Unsafe Speed	0	0
3770386	6/2/08	19:00	Waddington Rd & Grizzly Bluff Rd	10560'	North	Broadside	Other Motor Vehicle	South	Making Right Turn	South	Proceeding Straight	Improper Turning	0	0
4361366	8/11/09	19:55	Grizzly Bluff Rd & Waddington Rd	0'	In Int.	Hit Object	Fixed Object	West	Proceeding Straight			Driving Under Influence	2	0
2010060011	6/6/10	17:45	Waddington Rd & Substation Rd	1056'	West	Hit Object	Fixed Object	East	Ran Off Road			Improper Turning	0	0
2010070042	7/18/10	12:55	Grizzly Bluff Rd & Waddington Rd	0'	In Int.	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Slowing/Stopping	Unsafe Speed	1	0

Report#	Date	Time	Location	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Dir. of Travel 1	Movement Prec. Coll. 1	Dir. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil.
2010070056	7/23/10	13:10	Waddington Rd & Giacomini Ln	2112'	East	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped In Road	Unsafe Speed	0	0
10100038	10/12/10	00:20	Waddington Rd & Grizzly Bluff Rd	0'	In Int.	Hit Object	Fixed Object	South	Ran Off Road			Driving Under Influence	1	0
10100084	10/27/10	18:00	Waddington Rd & Pleasant Point Rd	55'	South	Broadside	Other Motor Vehicle	South	Making Right Turn	South	Proceeding Straight	Improper Passing	0	0
11050018	5/12/11	14:17	Waddington Rd & Giacomini Ln	528'	North	Hit Object	Fixed Object	South	Ran Off Road			Improper Turning	2	0
2011110077	11/27/11	04:30	Waddington Rd & Substation Rd	1583'	South	Hit Object	Fixed Object	South	Ran Off Road			Improper Turning	1	0

Comparison of Crash Rates of County Road in Ferndale Area

Road Name	# of Crashes	Time (Years)	ADT	Road Length (miles)	Crash Rate per million miles	Notes
Centerville Rd	14	8	997	4.62	**1.04**	Major Collector
Copenhagen Rd	15	8	500	3.48	**2.95**	Minor Collector
Eel River Drive	37	8	1062	4.38	**2.72**	Minor Collector
Grizzly Bluff Road	27	8	660	6.14	**2.28**	Major Collector
Port Kenyon Road	12	8	752	1.97	**2.77**	Minor Collector
Waddington Road	17	8	894	2.77	**2.35**	Minor Collector