

# Appendix A CEQA Checklist

---



# CEQA Environmental Checklist

Ruby 1=01-DN-197-PM 4.5; Ruby 2=01-DN-197-PM 3.2-4.0; Patrick Creek Narrows=01-DN-199-PM 20.5-20.9, PM 23.92-24.08, & PM 25.55-25.65; The Narrows=01-DN-199-PM 22.7-23.0; & Washington Curve=01-DN-199-PM 26.3-26.5

Ruby 1=PM 4.5; Ruby 2=PM 3.2-4.0; Patrick Creek Narrows=PM 20.5-20.9, PM 23.92-24.08, & PM 25.55-25.65; The Narrows=PM 22.7-23.0; & Washington Curve=PM 26.3-26.5

Ruby 1=01-48110, Ruby 2=01-45490, Patrick Creek Narrows=01-47940, The Narrows=01-45000, Washington Curve=01-44830

Dist.-Co.-Rte.

P.M/P.M.

E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
--	--------------------------------	---------------------------------------	------------------------------	-----------

**I. AESTHETICS:** Would the project:

- a) Have a substantial adverse effect on a scenic vista  Potentially Significant Impact,  Less Than Significant with Mitigation,  Less Than Significant Impact,  No Impact
- b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway  Potentially Significant Impact,  Less Than Significant with Mitigation,  Less Than Significant Impact,  No Impact
- c) Substantially degrade the existing visual character or quality of the site and its surroundings?  Potentially Significant Impact,  Less Than Significant with Mitigation,  Less Than Significant Impact,  No Impact
- d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?  Potentially Significant Impact,  Less Than Significant with Mitigation,  Less Than Significant Impact,  No Impact

**II. AGRICULTURE AND FOREST RESOURCES:** In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

- a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?  Potentially Significant Impact,  Less Than Significant with Mitigation,  Less Than Significant Impact,  No Impact
- b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?  Potentially Significant Impact,  Less Than Significant with Mitigation,  Less Than Significant Impact,  No Impact

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**III. AIR QUALITY:** Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**IV. BIOLOGICAL RESOURCES:** Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**V. CULTURAL RESOURCES:** Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**VI. GEOLOGY AND SOILS:** Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**VII. GREENHOUSE GAS EMISSIONS:** Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.

**VIII. HAZARDS AND HAZARDOUS MATERIALS:** Would the project:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**IX. HYDROLOGY AND WATER QUALITY:** Would the project:

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**X. LAND USE AND PLANNING:** Would the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**XI. MINERAL RESOURCES:** Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**XII. NOISE:** Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**XIII. POPULATION AND HOUSING:** Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**XIV. PUBLIC SERVICES:**

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
--------------------------------	---------------------------------------	------------------------------	-----------

**XV. RECREATION:**

- |  |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**XVI. TRANSPORTATION/TRAFFIC:** Would the project:

- |   |                          |                          |                                     |                                     |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| e) Result in inadequate emergency access?   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**XVII. UTILITIES AND SERVICE SYSTEMS:** Would the project:

- |  |                          |                          |                          |                                     |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**XVIII. MANDATORY FINDINGS OF SIGNIFICANCE**

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>



## Appendix B Resources Evaluated Relative to the Requirements of Section 4(f)

---



# Appendix B Resources Evaluated Relative to the Requirements of Section 4(f)

---

The environmental review, consultation, and any other action required in accordance with applicable federal laws for the 197/199 Safe STAA Access Project (proposed project) is being carried out by the California Department of Transportation (Department) under its assumption of responsibility pursuant to 23 United States Code (USC) 327.

## B.1 Introduction

The Department is proposing to construct improvements on State Route (SR) 197 and U.S. Highway (US) 199 in Del Norte County to reclassify these routes as part of the Surface Transportation Assistance Act (STAA) truck route network. This Section 4(f) evaluation was prepared for the proposed project. This evaluation provides an overview of resources analyzed relative to the requirements of Section 4(f) located within 0.5 mile of the proposed project.

### B.1.1 Regulatory Setting

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 USC 303, declares that “it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.”

Section 4(f) specifies that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- there is no prudent and feasible alternative to using that land; and
- the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) further requires consultation with the U.S. Department of the Interior and, as appropriate, the involved offices of the U.S. Department of Agriculture (USDA) and U.S. Department of Housing and Urban Development (HUD) in developing transportation projects and programs that use lands protected by Section 4(f). Coordination with the State Historic Preservation Officer is also needed if historic sites are involved. According to the Federal Highway Administration’s (FHWA’s) *Section 4(f) Policy Paper* (2005), preliminary coordination with the USDA should be with the appropriate National Forest Supervisor. Coordination with HUD should occur whenever a project uses a Section 4(f) resource where HUD funding has been used.

Section 4(f) use, as defined in 23 Code of Federal Regulations (CFR) 774.17, occurs when any of the following takes place:

- Land is permanently incorporated into a transportation facility.
- There is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose as determined by the criteria in 23 CFR 774.13(d).
- There is a constructive use of a Section 4(f) property as determined by the criteria in 23 CFR 774.15.

The requirements of Section 4(f) will be considered satisfied with respect to a Section 4(f) resource if it is determined that a transportation project will have only a “*de minimis* impact” on the resource. The provision allows avoidance, minimization, mitigation, and enhancement measures to be considered in making the *de minimis* determination. The agencies with jurisdiction must concur in writing with the determination. Additional requirements for a *de minimis* impact finding include providing the public an opportunity to review and comment on the effects of the proposed project on the Section 4(f) resource. For historic properties, the National Historic Preservation Act Section 106 consultation process fulfills the public review requirement. A *de minimis impact* is defined in 23 CFR 774.17 as follows:

- For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).
- For historic sites, a *de minimis* impact means that the Department has determined, in accordance with 36 CFR Part 800, that no historic property is affected by the proposed project, or the proposed project will have “no adverse effect” on the property in question.

Per Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), once the U.S. Department of Transportation (DOT) determines that a transportation use of Section 4(f) property results in a *de minimis* impact on the property, an analysis of avoidance alternatives is not required and the Section 4(f) evaluation process is complete.

Constructive use of a Section 4(f) property would occur when the proximity impacts of a proposed project on the Section 4(f) property were so severe that the activities, features, or attributes that qualify the property or resource for protection under Section 4(f) are substantially impaired (23 CFR 774.15). Substantial impairment occurs only when the protected activities, features, or attributes are substantially diminished by the proposed project. In other words, under a constructive-use scenario, the value of the Section 4(f) resource in terms of Section 4(f) significance (recreational or historic) would be significantly reduced or lost (Federal Highway Administration 2005).

## B.2 Description of Proposed Project

The Department is proposing to improve spot locations on SR 197 and US 199 in Del Norte County to allow reclassification of the SR 197–US 199 corridor as part of the STAA network of

truck routes. The improvements would prevent vehicles needing more roadway width than the existing highways allow from encroaching into the opposing lane to negotiate tight curves or fixed objects at the shoulder's edge, thereby disrupting traffic flow in areas where sight distance is limited.

The proposed project is made up of five previously identified, separately proposed projects that share the same general purpose. These five projects are referred to as Ruby 1, Ruby 2, Patrick Creek Narrows, the Narrows, and Washington Curve and include a total of seven locations. The proposed project makes use of the names of the previously identified projects to identify the location of each improvement currently being proposed. Within the limits of the proposed project, SR 197 and US 199 are conventional two-lane undivided highways with narrow lane and shoulder widths. The project locations are shown in Figure B-1.

## **B.2.1 Purpose and Need**

### **B.2.1.1 Purpose**

The primary purpose of the proposed project is to improve spot locations on SR 197 and US 199 in Del Norte County to allow reclassification of the SR 197–US 199 corridor as part of the STAA network of truck routes, while minimizing environmental impacts. The secondary purpose is to enhance safety on the routes for automobiles, trucks, and other large vehicles at these locations.

### **B.2.1.2 Need**

The lack of STAA truck access on the SR 197–US 199 corridor restricts options for goods movement between Crescent City and Interstate 5 (I-5). Safety-enhancing improvements, including wider lanes, wider shoulders, longer-radius curves, and improved sight distances, would provide a more forgiving roadway for all users and are necessary within the project limits on the SR 197–US 199 corridor to allow safe STAA truck access and reclassification of the corridor as part of the STAA network of truck routes. The project locations and the routes' regional context are shown in Figure B-1.

See Chapter 1 of the environmental impact report/environmental assessment (EIR/EA) for a complete description detailing the need for the proposed improvements, including a discussion of the improvement needs at each project location.

## **B.2.2 Project Alternatives**

A summary of the proposed project is described below by project site. Alternatives are described where alternatives are proposed.

### **B.2.2.1 Ruby 1 (SR 197: PM 4.5)**

One build alternative is being considered at this project location. To improve the roadway, the curve of the road would be lengthened and shoulders would be increased from their existing 0- to 1-foot widths to new varying widths. To match the new roadway width, two existing culverts would be extended and new drainage inlets installed.

### **B.2.2.2 Ruby 2 (SR 197: PM 3.2 to 4.0)**

Three build alternatives are being considered at this project location: Four-Foot Shoulders, Two-Foot Shoulders, and Two-Foot Widening in Spot Locations Alternatives. Each alternative would improve the existing road curve, roadbed elevation, and roadway width. To match the new roadway width, four culverts would be extended or replaced. The approaches to eight private roads and one public road would be upgraded to match the modified roadway. The differences in the three alternatives are described briefly below.

#### ***Four-Foot Shoulders Alternative***

This alternative would increase the shoulder widths to 4 feet on both sides of the roadway.

#### ***Two-Foot Shoulders Alternative***

This alternative would increase the shoulder widths to a minimum of 2 feet on both sides of the roadway.

#### ***Two-Foot Widening in Spot Locations Alternative***

This alternative would increase the shoulder widths to 2 feet in spot locations.

### **B.2.2.3 Patrick Creek Narrows Location 1 (US 199: PM 20.5 to 20.9)**

One build alternative is being considered at this project location. The existing roadway curves would be improved and the roadway would be widened to accommodate two 12-foot-wide lanes and 4-foot shoulders. To accommodate the widening and broader roadway curves, an approximately 350-foot-long, 6-foot-tall retaining wall is proposed along the river side of the road above a portion of the existing steep rock-armored riverbank. An existing 36-inch culvert would be replaced with a longer culvert to match the new roadway width at the inlet and outlet. Also, two 18-inch culverts would be replaced with 24-inch culverts.

### **B.2.2.4 Patrick Creek Narrows Location 2 (US 199: PM 23.92 to 24.08)**

Three alternatives for improvements are being considered at this project location: the Upstream Bridge Replacement, Downstream Bridge Replacement, and Bridge Preservation with Upslope Retaining Wall Alternatives. The alternatives would realign and widen the existing 11- to 12-foot lanes to at least 12 feet and would increase the shoulders to a width of 4 to 8 feet. A cut slope of 1:1 is anticipated. Because of the fractured nature of the bedrock, rock fall may be expected after construction. Therefore, a permanent rock-fall mitigation system may be needed. This could consist of a wire-mesh drape or incorporate a rock-fall catchment area at roadway level. One culvert within the limits within this project location would be replaced to match the new roadway width. The differences in the three alternatives are described briefly below.

### **Upstream Bridge Replacement Alternative**

This alternative would replace the existing Middle Fork Smith River Bridge with a bridge upstream from its current location. In addition a retaining wall/rock bolting or rock net drapery would be constructed on the cut slope side of the highway. The retaining wall/rock bolting area would be approximately 400 feet long and up to 100 feet high.

### **Downstream Bridge Replacement Alternative**

This alternative would replace the existing bridge with a bridge downstream from the current location. In addition to the retaining wall, an additional retaining wall or viaduct would be constructed downstream from the new bridge extending for approximately 250 feet and transition directly into the proposed new bridge approach.

### **Bridge Preservation with Upslope Retaining Wall Alternative**

This alternative would retain the existing bridge but realign the roadway on either end of the bridge to allow large trucks to cross. In addition to the retaining wall, an additional retaining wall/rock bolting or rock net drapery, measuring approximately 300 feet long and up to 100 feet high, would be constructed on the cut slope side of the highway.

#### **B.2.2.5 Patrick Creek Narrows Location 3 (US 199: PM 25.55 to 25.65)**

One build alternative is being considered for this project location. This alternative would increase the shoulder width to 4 feet on both sides of the road and straighten the current “S” curve. To support the wider roadway, an approximately 135-foot-long wall up to an approximate height of 15 feet is proposed on the river side. Two culverts within the limits of this project location would be replaced to match the new roadway width.

#### **B.2.2.6 The Narrows (US 199: PM 22.7 to 23.0)**

This alternative would increase lane widths to 12 feet and provide 2-foot shoulders. Widening would be accomplished by excavating into the existing cut slope. A 1-foot-wide paved drainage ditch would be added at the shoulder of the road for a total paved width of 29 feet. One new culvert and drain inlet would be constructed. Also, an existing culvert and drain inlet would be replaced to match the new edge of pavement. In addition to roadway widening, isolated outcrops of overhanging or loose rock above the excavation limits would be stabilized with rock bolting.

#### **B.2.2.7 Washington Curve (US 199: PM 26.3 to 26.5)**

Two build alternatives are being considered at this project location: the Cut Slope and the Retaining Wall Alternatives. The features common to both build alternatives are that they would straighten the compound curve at this project location and increase the lane width to a minimum of 12 feet. One culvert would be replaced to match the new roadway. The differences in the two alternatives are described briefly below.

#### **Cut Slope Alternative**

A new slope would be excavated on the cut slope side of the roadway, and the shoulders would be widened to 2 to 6 feet.

**Retaining Wall Alternative**

This alternative would construct a retaining wall along the cut slope of the roadway to provide additional roadway width.

Table B-1 provides a summary of key project features at each project location. The evaluation of alternatives will be primarily based on total project cost and level of impact on sensitive environmental resources. Where improvements are proposed at a project location, the impacts related to redwood trees, biological habitats (including wetlands), noise caused by blasting, and recreation areas will be considered. The possibility of a bridge replacement underscores the need to consider impacts on water quality and geologic stability. Potential impacts related to safety, geologic stability, sensitive animal and plant species and plant communities, drainage patterns, and aesthetics will also be considered in the selection of alternatives. These criteria were developed to provide a range of alternatives, when feasible, that meet the project purpose and need while avoiding or minimizing potential impacts.

**Table B-1. Project Features by Location and Alternative**

Project Location and Alternative	Increased Shoulder Width	Cut Slopes	Retaining Wall	In-River Work	Blasting	Utility Relocation
<b>No Build (No Action)</b>	No	No	No	No	No	No
<b>Ruby 1</b>	Yes, 0–7 feet	Yes	No	No	No	One utility pole
<b>Ruby 2</b>						
Four-Foot Shoulders	Yes, 4 feet	Yes	No	No	No	Two utility poles
Two-Foot Shoulders	Yes, 2 feet	Yes	No	No	No	One utility pole
Two-Foot Widening in Spot Locations	Yes, 2 feet	Yes	No	No	No	No
<b>Patrick Creek Narrows Location 1</b>	Yes, 4 feet	No	Yes, on river side	No	No	No
<b>Patrick Creek Narrows Location 2</b>						
Upstream Bridge Replacement	Yes, 4–8 feet	Yes	Yes, on hill side	Yes	May be required	No
Downstream Bridge Replacement	Yes, 4–8 feet	Yes	Yes, on river side	Yes	May be required	No
Bridge Preservation with Upslope Retaining Wall	Yes, 4–8 feet	Yes	Yes, on hill side	No	May be required	No
<b>Patrick Creek Narrows Location 3</b>	Yes, 4 feet	No	Yes, on river side	No	No	No
<b>The Narrows</b>	Yes, 2 feet	Yes	No	No	Yes	No
<b>Washington Curve</b>						
Cut Slope	Yes, 2–6 feet	Yes	No	No	No	No
Soil-Nailed Retaining Wall	Yes, 2–6 feet	No	Yes, on hill side	No	No	No

### **B.2.3 No Build (No Action) Alternative for All Seven Project Locations**

The No Build (No Action) Alternative would maintain the California Legal Advisory Route classification on both SR 197 and US 199. No improvements or widening would occur at any of the seven project locations to bring the roadways to STAA network standards, and previous legislative exceptions to STAA truck regulations in Del Norte County may be reinstated. However, some of the improvements could occur individually at the project locations to reduce continual maintenance problems or improve safety. The No Build (No Action) Alternative would not satisfy the project need or achieve the project purpose. A complete project description detailing the proposed improvements at each location is available in Chapter 1 of the EIR/EA.

## **B.3 List and Description of Section 4(f) Properties**

This section discusses parks, recreational facilities, wildlife refuges, and historic properties found within or adjacent to the project area. The location of the proposed project on SR 197 and US 199 is shown in Figure B-1. Public parks, recreation areas, and facilities within 0.5 mile of the proposed project were identified to determine whether they qualify for protection as Section 4(f) resources and whether the provisions of Section 4(f) would be triggered by construction of the proposed project. The 0.5 mile area was determined to be a reasonably conservative area in which to assess potential impacts on Section 4(f) resources and is in accordance with Department guidance on complying with Section 4(f) regulations (California Department of Transportation 2010a). The public parks and recreation areas considered in this evaluation include all neighborhood, city, regional, state, and federal recreation resources in the project area.

### **B.3.1 Resources Considered but Not Evaluated**

For the purposes of Section 4(f), a historic site is significant only if it is listed or eligible for listing in the National Register of Historic Places (NRHP) and located within the areas of potential effect (APEs) for archaeological or architectural resources. The cultural resources study prepared for the project included archival research and a field survey (ICF International 2010a). No historic resources were identified in the APEs for the proposed project, including historic-era trails or mining-related features. Department cultural resources staff also indicated that no historic-era resources are known to be located within the APEs (Douglas pers. comm.). Cultural resources listed or eligible for listing in the NRHP were not found in the architectural or archaeological APEs (ICF International 2010a). Therefore, no cultural resources were eligible for Section 4(f) protection, and none is discussed in this evaluation.

In addition, no wildlife or waterfowl refuges are located within 0.5 mile of the project locations, and there are no public school playgrounds or athletic fields within 0.5 mile of the project locations along SR 197 or US 199. No USDA Forest Service–(Forest Service–) designated trails were identified within 0.5 mile of the project locations along US 199, except for the Patrick Creek Trail located near the Patrick Creek Campground.

US 199 in the project area is designated as the Smith River Scenic Byway, a National Forest Scenic Byway that traverses the Smith River National Recreation Area (NRA) for a distance of

33 miles (National Scenic Byways Program 2009). According to guidance provided in the FHWA's *Section 4(f) Policy Paper*, the designation of a road as a scenic byway is not intended to create a park or recreation area within the meaning of the Section 4(f) statutes at 49 USC 303 or 23 USC 138. Reconstruction, rehabilitation, or relocation of a publicly owned scenic byway does not come under the purview of Section 4(f) unless the improvements were to otherwise use land from a Section 4(f) resource. Therefore, the Smith River Scenic Byway (US 199) in the project area is not considered a Section 4(f) resource in this evaluation; however, potential Section 4(f) resources along US 199 were identified and evaluated for potential effects as a result of the proposed improvements.

### **B.3.2 Recreation Resources Evaluated**

Four recreation resources were identified within 0.5 mile of the project area. The recreation resources are listed below in the order in which they occur along SR 197 from north to south and along US 199 from west to east:

- Ruby Van Deventer County Park
- Jedediah Smith Redwoods State Park
- Smith River “Wild and Scenic River” system
- Smith River NRA within the Six Rivers National Forest, including the following designated and developed recreation sites:
  - Sandy Beach
  - Patrick Creek Campground and Patrick Creek Trail
  - Middle Fork Smith River Access Trails

As shown in Figure B-2, Ruby Van Deventer County Park is located within 0.5 mile of the Ruby 1 site. Jedediah Smith Redwoods State Park is located within 0.5 mile of the Ruby 2 site. The main stem of the Smith River, a state and federally designated Wild and Scenic River, parallels SR 197. The Middle Fork Smith River, a component of the Smith River Wild and Scenic River system, runs adjacent to US 199. Almost the entire length of US 199 in Del Norte County is encompassed by the Smith River NRA within the Six Rivers National Forest.

All four recreation resources listed above were evaluated relative to the requirements of Section 4(f), as discussed below. The Smith River NRA is discussed first because the proposed project would result in a Section 4(f) use of the property. Implementation of the proposed project would not result in a Section 4(f) use of Ruby Van Deventer County Park, Jedediah Smith Redwoods State Park, or the Smith River Wild and Scenic River system. These properties are discussed in Section B.8.

#### **B.3.2.1 Smith River National Recreation Area**

Almost the entire length of US 199 in Del Norte County is located within the Six Rivers National Forest, the northernmost section of which is designated as the Smith River NRA. The Six Rivers

National Forest encompasses more than 1 million acres of land in four counties in northern California (Del Norte, Humboldt, Trinity, and Siskiyou). The 300,000-acre Smith River NRA was established by Congress in the Smith River National Recreation Area Act of 1990 (Public Law 101-162). The Smith River NRA was established as a multiple-use area, with emphasis on recreation, specifically “for the purposes of ensuring the preservation, protection, enhancement, and interpretation for present and future generations of the Smith River watershed’s outstanding wild and scenic rivers, ecological diversity, and recreation opportunities while providing for the wise use and sustained productivity of its natural resources” (Public Law 101-162).

The Six Rivers National Forest is managed in accordance with the 1995 *Six Rivers National Forest Land and Resource Management Plan* (Six Rivers LRMP) (USDA Forest Service 1995). The purpose of this plan is to guide the integrated protection and use of forest resources. Within the Six Rivers LRMP, the Smith River NRA is designated as Management Area 7, which is the management unit within which US 199 and the Middle Fork Smith River fall (Figure B-3). The Smith River NRA management plan is included in the Six Rivers LRMP and provides for a broad range of recreation uses and interpretive services and facilities throughout the Smith River NRA. The plan outlines public recreation access for activities such as camping, hiking, hunting, and fishing. A variety of recreational opportunities currently exist throughout the Smith River NRA, including whitewater rafting and kayaking, bird watching, fishing, hunting, camping, and trails for hiking, horseback riding, and mountain biking. US 199 provides access to the Smith River NRA.

Within the Smith River NRA management plan, there are eight management areas; the project locations along US 199 are located within the Middle Fork–Highway 199 Management Area 3 (Figure B-4), where the management emphasis is on “maintaining wildlife values and providing for a full range of recreation uses, with particular emphasis on the scenic and recreation values associated with the Smith River, old growth redwoods, and California State Highway 199.” Management Area 3 encompasses 38,400 acres and is the most heavily visited area within the Smith River NRA (USDA Forest Service 1992).

### **B.3.2.2 Recreation Sites within the Smith River National Recreation Area**

There are specific areas within the Smith River NRA designated and developed for recreation use by the Forest Service located within a 0.5-mile radius of the project locations, including the Middle Fork Smith River, Sandy Beach, the Patrick Creek Campground, the Patrick Creek Trail, and the Middle Fork Smith River Access Trails. These resources are discussed below, with the exception of the Middle Fork Smith River, which is discussed in Section B.8.3.

#### ***Sandy Beach***

Sandy Beach is a day-use river access area located at PM 20.9 on US 199 (USDA Forest Service 2009c). The location is demarcated by a small sign and accessed from a paved pullout on US 199. A short trail leads to a swimming area on the Middle Fork Smith River approximately 1,500 to 2,000 feet from Patrick Creek Narrows Location 1. Amenities include three picnic tables and a pit toilet (Pass pers. comm.).

### **Patrick Creek Campground and Patrick Creek Trail**

Three Forest Service campgrounds are located along the US 199 corridor: Panther Flat, Grassy Flat, and Patrick Creek (Figure B-2). However, the Patrick Creek Campground is the only one situated within a 0.5-mile radius of one of the project locations. It is located approximately 0.5 mile north and west of the Narrows site. The campground was constructed in the 1930s by the Civilian Conservation Corps. The Patrick Creek Lodge is directly across US 199 from the campground. The campground is located on the south side of US 199. The campground includes 13 campsites and a picnic area, and it is open from May to September with a nightly fee of \$14 per campsite. The picnic area is a no-fee, day-use-only area, open year-round with good access to the river. Access to the campground is from US 199 (USDA Forest Service 2009a). The campsites are nestled within the surrounding forest down the slope toward the river, with limited views of US 199 (ICF International 2010d).

The Patrick Creek Trail is a short (0.2-mile) paved universal-access trail from the Patrick Creek Lodge to Patrick Creek Campground via an under-the-bridge route. The trail has four interpretive stops and a barrier-free fishing platform (USDA Forest Service 2009b).

### **Middle Fork Smith River Access Trails**

Two informal river access trails are located within a 0.5-mile radius of the project locations along US 199: the Eagle Eye Mine Trail and Cedar Rustic Trail. These informal trails are not actively managed by the Forest Service (Pass pers. comm.) and are not designated as recreational trails. These trails provide access to the Middle Fork Smith River, mainly for seasonal recreational fishing (USDA Forest Service 2009c). The Eagle Eye Mine Trail is an informal river access located at PM 23.1 on US 199. The trail is used to access a swimming and summer fishing area on the Middle Fork Smith River. There are no improvements at this location. The Cedar Rustic Trail is located at PM 23.5 on US 199. This trail leads to an old campground that is no longer used and provides access to the river (Pass pers. comm.).

## **B.4 Impacts on Smith River National Recreation Area**

The Smith River NRA is located on publicly owned national forest system lands within the Six Rivers National Forest and designated as a national recreation area, making it eligible for protection under Section 4(f). US 199 is the primary access to recreation opportunities along the Middle Fork Smith River within the Smith River NRA. The Smith River NRA was established allowing for and encompassing the existing US 199 alignment. US 199 within the project limits was built in the early 1920s, before the establishment of the Smith River NRA in 1990. Section 13(c) of the Smith River National Recreation Area Act of 1990 specifies the following:

Road Easements – Nothing in this Act shall be construed as affecting the responsibilities of the State of California or any of its political subdivisions with respect to road easements, including maintenance and improvement of State Highway 199 and County Route 427.

Therefore, the Smith River NRA contemplated future improvements on US 199 and recognized the State's responsibilities with respect to implementing such improvements. The proposed improvements along US 199 at Patrick Creek Narrows Locations 1 to and 3, the Narrows site,

and the Washington Curve sites would be constructed according to the provisions of the Smith River NRA management plan.

Those areas designated and developed for recreation use by the Forest Service and located within a 0.5-mile radius of the project locations include Sandy Beach, the Patrick Creek Campground, the Patrick Creek Trail, and the Middle Fork Smith River Access Trails. These resources are discussed below separately and were evaluated individually relative to the requirements of Section 4(f).

All project locations along US 199 are located on national forest system lands within the Smith River NRA. According to the project description and community impact assessment for the project, the proposed improvements at the project locations would occur within existing DOT easements (Trott 2010). No developed land uses are located within the limits of the project locations along US 199, and there are no areas designated for recreation, such as campgrounds, hiking trails, or trailheads, located within the limits of the project locations. Table B-2 lists the project locations relative to the Forest Service recreation areas on US 199.

**Table B-2. Project Locations Relative to Forest Service Recreation Areas on US 199**

<b>Project Location or Recreation Area</b>	<b>Post Mile on US 199</b>
Potential staging area	19.80
Potential staging area	20.08
Potential staging area	20.19
Patrick Creek Narrows Location 1	20.50–20.90
Sandy Beach	20.90
Potential staging area	21.30
Patrick Creek Campground and Trail	22.00
Potential staging area	22.11
The Narrows	22.70–23.00
Eagle Eye Mine River Access Trail	23.10
Potential staging area	23.15
Cedar Rustic River Access Trail	23.50
Patrick Creek Narrows Location 2	23.92–24.08
Potential staging area	23.96
Potential staging area	25.00
Patrick Creek Narrows Location 3	25.55–25.65
Potential staging area	25.80
Potential staging area	26.15
Washington Curve	26.30–26.50

Only Patrick Creek Narrows Location 3 is adjacent to developed land uses, where several rural residential properties are located (none of these are Section 4(f) resources). However, as stated above and shown in Table B-2, areas designated for recreation use by the Forest Service are located within a 0.5-mile radius of the project locations. These resources are discussed below in Section B.4.4.1 relative to the requirements of Section 4(f).

### Construction Delays

The primary impact on the Smith River NRA would be traffic delays during construction. These delays could be inconvenient for visitors traveling to and from recreation facilities within the Smith River NRA on US 199. Anticipated traffic control includes one-way reversible traffic control, full roadway closure without a detour, and shoulder closure.

**Table B-3. Preliminary Construction Schedule Timetable with Number of Work Days by Location**

Project Location (All Alternatives)	Construction Season <sup>a</sup>				
	1 2012	2 2013	3 2014	4 2015	5 2016
Ruby 1	50 working days <sup>b</sup> with 15-minute delays				
Ruby 2 <sup>c</sup>		60–80 working days with 15- minute delays	60–80 working days with 15- minute delays <sup>c</sup>		
Patrick Creek Narrows Location 1		90–100 working days with 15- minute delays and 1-hour delays for 80–100 working days in this season, and shoulder closure			
Patrick Creek Narrows Location 2		100 working days with 15-minute delays, and full highway closure with 1-hour delays for 75–100 working days in this season, and shoulder closure	100 working days with 15-minute delays, and full highway closure with 1-hour delays for 75–100 working days in this season, and shoulder closure	50–100 working days with 15- minute delays, and full highway closure with 1- hour delays for 75–100 working days in this season, and shoulder closure	
Patrick Creek Narrows Location 3		50–70 working days with 15- minute delays and full highway closure with 1- hour delays for 25 working days			
The Narrows	50 working days with 30-minute delays for 40 days	50 working days with 30-minute delays for 40 days			
Washington Curve			50–100 working days with 30- minute delays, night closures 50–100 days	50–100 working days with 30- minute delays, night closures 50–100 days	50–100 working days with 30- minute delays, night closures 50–100 days

<sup>a</sup> A construction season typically extends from summer through fall. For the Patrick Creek Narrows locations, the season may extend into winter.

<sup>b</sup> Number of working days is approximate.

<sup>c</sup> Darker shading represents alternate construction year.

Under typical one-way reversible control, maximum delays of 15 to 30 minutes are anticipated; however, full road closures without detour could cause delays up to 1 hour during construction. The full width of the traveled way would be open for use by public traffic on weekends (after 3:00 p.m. on Fridays), designated legal holidays, the day preceding designated legal holidays, and when construction operations are not actively in progress. Implementation of measures included in the community impact assessment would reduce the temporary access and circulation impacts of the proposed project (Trott 2010). These measures include coordinating construction improvements to minimize delays and providing the public with advance notice of closures or lengthy delays. Additional measures would be implemented as part of the approved location-specific traffic management plans for the proposed project, as described in Chapter 1 of the EIR/EA. As indicated in Table B-3, these delays could be inconvenient for visitors and would delay access to the recreational facilities along US 199 during the construction season. In particular, multiple delays could be encountered by visitors when construction is occurring at more than one location during the same construction season over a period of 5 years, which would affect accessibility to the area. These delays in access would be a temporary occupancy that interferes with the activities or purposes of the resource, and would not satisfy the criteria in 23 CFR 774.13(d), resulting in a Section 4(f) use of the Smith River NRA.

Because of the temporary nature of construction, the anticipated traffic delays during construction were evaluated for the Smith River NRA as a whole relative to the temporary occupancy criteria. Under FHWA regulations (23 CFR 774.13[d]), temporary occupancy of a property does not constitute use of a Section 4(f) resource when the following conditions are satisfied:

- **The duration of the occupancy must be temporary (i.e., less than the time needed for construction of the project), and there should be no change in ownership of the land.** The proposed project would be constructed during the construction season for up to 5 years, as indicated in Table B-3 (the maximum anticipated duration for construction at Patrick Creek Narrows Locations 1 to 3, the Narrows and Washington Curve). However, there would be no change in ownership of the land. The project meets this temporary occupancy criterion.
- **The scope of work must be minor (i.e., both the nature and magnitude of the changes to the Section 4(f) property are minimal).** The proposed project involves improvements to the existing roadway, and there would be no changes to the Section 4(f) properties along US 199, the Smith River NRA, or designated recreation areas within the Smith River NRA. The project meets this temporary occupancy criterion.
- **There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis.** There would be no anticipated adverse physical impacts on the Smith River NRA on either a temporary or permanent basis. However, this criterion would not be met because the proposed project would affect accessibility to the recreation facilities located on US 199 during the construction season over a period of 5 years (Table B-3).
- **The land being used must be fully restored (i.e., the property must be returned to a condition which is at least as good as that which existed prior to the project).** The proposed project involves improving the existing roadway, and there would be no changes to

the Section 4(f) properties along US 199. The proposed project would remove all construction debris along the roadway, and disturbed areas would be restored to a natural setting with regrading, erosion control, and revegetation. The project meets this temporary occupancy criterion.

- **There must be documented agreement of the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.** A letter requesting concurrence with these assertions from the Forest Service was prepared for submittal by the Department (see Chapter 4 of the EIR/EA).

Based on the above assertions, the proposed project would interfere temporarily with public access to the recreation facilities within the Smith River NRA. However, the temporary period of construction would extend over a period of 5 years, with delays occurring at multiple locations and project locations along US 199. These delays would affect visitor access to the Smith River NRA recreation sites along US 199, including day-use areas, campgrounds, trailheads, and Middle Fork Smith River access points. The Department has preliminarily determined that the delay in access to recreation areas within the Smith River NRA would be inconvenient enough to visitors that it would not meet the criteria for a temporary occupancy. Instead, it would constitute a Section 4(f) use and would meet the requirements for a *de minimis* impact. The Department may make such a finding only if the project will have no adverse effect on the activities, features, and attributes of the Smith River NRA, and only if the Forest Service concurs with the *de minimis* finding. The Department has designed the project to protect the activities, features, and attributes of the Smith River NRA and has been coordinating with the Forest Service to ensure that the project would have no adverse effects after including measures to minimize harm. Measures to minimize harm are described below in Section B5. After completion of the public and agency review process for the draft EIR/EA, the Department will request concurrence from the Forest Service on the *de minimis* finding on the Smith River NRA.

### ***Right-of-Way Easement***

Implementation of the proposed project may require expanding the existing DOT easement on a permanent basis at one project location: Patrick Creek Narrows Location 2. The existing right-of-way easement at this location is 100 feet left and right of the centerline (Trott 2010), and an expansion of the easement would be necessary at the top of the rock cut slope. Three alternatives are proposed at this location: the Upstream Bridge Replacement, Downstream Bridge Replacement, and Bridge Preservation with Upslope Retaining Wall Alternatives. All three alternatives are anticipated to require additional right-of-way, as shown on Figures B-5 to B-7. As shown on the figures, this area is an existing rock face and no Forest Service recreation facilities or other developed land uses are located in this area. The steepness of the rock face makes it unsuitable for any such development. The right-of-way areas that would be required by each alternative are listed below:

- The Upstream Bridge Replacement Alternative would require approximately 0.47 acre.
- The Downstream Bridge Replacement Alternative would require approximately 0.33 acre.
- The Bridge Preservation with Upslope Retaining Wall Alternative would require approximately 0.23 acre.

The addition of this land to the existing easement would result in incorporation of between 0.23 and 0.47 acre of land from the Smith River NRA into the transportation easement, constituting a Section 4(f) use. This land is located west of the existing right-of-way at the top of the rock face, and there are no recreational or developed facilities located on the land. No resources protected under Section 4(f), excluding the land itself, would be affected.

The proposed cut slope at this location has been designed to be as steep as possible, but the very upper portion of the cut extends beyond the edge of the existing transportation easement. This rock area at the top of the cut is where the easement would be extended. Although incorporation of this area constitutes a 4(f) use, the Department has preliminarily determined this action would meet the requirements for a *de minimis* impact. There would be no change in ownership of the land; however, amending the existing DOT easement would require submitting an application to and approval from the Forest Service. The Department may make such a finding only if the project will have no adverse effect on the activities, features, and attributes of the Smith River NRA, and only if the Forest Service concurs with the *de minimis* finding. The Forest Service, therefore, would have two opportunities to concur with the Department's no adverse effect determination.

#### **B.4.2 Potential Impacts on Recreation Sites within the Smith River National Recreation Area**

Designated and developed recreation sites within the Smith River NRA located within a 0.5-mile radius of the project locations on US 199 are discussed below relative to the requirements of Section 4(f).

##### **B.4.2.1 Sandy Beach**

The pullout used to access Sandy Beach is located at the eastern terminus of Patrick Creek Narrows Location 1 at PM 20.9 (Figure B-2). The beach is located more than 1,500 feet southeast of the proposed project on the banks of the Middle Fork Smith River. Construction activities at this site include increasing the existing curve radius, and roadway widening on both sides of US 199. To accommodate the widening and broader roadway curves, an approximately 350-foot-long, 6-foot-tall retaining wall is proposed along the river side of the road above a portion of the existing steep rock-armored riverbank. Additional roadway work may include paving, striping, shoulder backing, and constructing a new metal-beam guardrail. Construction at this location is anticipated to take approximately 90–100 working days over a period of one season, beginning in spring 2013. Construction at Patrick Creek Narrows Location 1 would not occur on weekends (after 3 p.m. on Fridays), designated legal holidays, and the day preceding designated legal holidays. As discussed above, traffic delays on US 199 could be inconvenient for day-use visitors traveling to and from Sandy Beach.

However, no construction activities or construction staging areas for Patrick Creek Narrows Location 1 would take place on the paved pullout used to access the beach. In addition, the proposed project would not require additional right-of-way at this area on either a temporary or permanent basis. The beach area would still be accessible, and parking in the paved pullout would be maintained at all times during construction, although accessibility may be temporarily

affected by traffic queues since the access is within the work area for Patrick Creek Narrows Location 1.

This day-use area was identified as a sensitive noise receiver in the noise study report prepared for the proposed project (ICF International 2010b). The noise study report estimated the beach area was located approximately 1,500 to 2,000 feet from the construction site. Existing short-term noise levels were measured at 55 A-weighted decibels<sup>1</sup> (dBA) with Middle Fork Smith River water flow as the primary source of noise. Estimated noise levels at a distance of 1,500 to 2,000 feet from construction activities were 50 to 56 dBA, which are similar to the existing noise levels measured in this location. Blasting and pile driving are not proposed at this location. Therefore, noise generated during construction is not expected to impair the use or enjoyment of the day-use area.

Sandy Beach is located more than 1,500 feet southeast of the proposed project on the banks of the river. Views of the construction activities on US 199 can be expected by recreationists at the beach during the construction period. However, these views would be temporary over a period of 90–100 days in 2013. Construction of improvements in this area would increase the area of the existing cut slope and construct a retaining wall above the existing rock armored bank, both of which are located on the river side of the roadway near the access point to the beach. These elements would increase the visual presence of the roadway from the beach. However, areas of cut slope would be minimized to the extent feasible, and aesthetic treatments of the wall would be implemented to minimize the wall's visual intrusion by using construction materials with pattern, texture, and color similar to that which exists in the area, and using low-sheen and non-reflective surface materials to reduce the potential for glare. These measures are included in the visual impact assessment (ICF International 2010d) and Section 2.1.6.4, "Visual/Aesthetics," of the EIR/EA, and summarized in Section B.5 below. These elements would change the existing views toward the roadway for recreationists on the beach but would not change the overall visual features of the scenic views of the river or canyon. Physical features associated with US 199 such as cut slopes and retaining walls are existing elements of the setting in the narrow Middle Fork Smith River canyon. This increase in the visual presence of the roadway at the beach would not interfere with the recreational use or enjoyment of the beach.

#### **B.4.2.2 Patrick Creek Campground and Patrick Creek Trail**

The Narrows site is situated between Patrick Creek Narrows Locations 1 and 2, with limits ranging from PM 22.7 to 23.0 (Figure B-2). Proposed improvements at the Narrows site would primarily include widening the roadway. In addition to roadway widening, isolated outcrops of overhanging or loose rock above the excavation limits would be stabilized. Roadway widening would be accomplished by cutting deeper into the existing cut slope; this work would involve drilling into the rock face and blasting in several places. Drilling, blasting, and excavation would be completed with two or three setups per day, with each setup involving all three activities. Construction is anticipated to take approximately 100 days over two seasons during summer and fall 2012 and 2013.

---

<sup>1</sup> To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of dBA) can be computed based on this information.

The Patrick Creek Campground and Patrick Creek Trail are located more than 0.5 mile north and west of the Narrows site. Although no construction would occur adjacent to the campground or trail, temporary construction impacts could occur, including intermittent noise impacts and traffic delays associated with blasting activities.

Blasting activities would occur during daylight hours at a distance of more than 2,000 feet from the campground and trail. The noise study report prepared for the proposed project estimated blasting noise levels based on a conservative set of assumptions and predicted noise levels at various distances (ICF International 2010b). Short-term noise levels measured at the campground were 50 to 55 dBA, and the primary sources of noise were water flow and traffic on US 199. The peak noise level for sound from blasting at a distance of 2,000 feet was estimated to be 112 dBA. Sound from blasting would attenuate as a result of the distance between the blast site and the campground. Additional shielding would be provided by the topography that blocks the line of sight between the blast site and the campground. This would reduce the noise levels below the estimated 112 dBA. The results in the noise study report indicate that sound from blasting could range from “distinctly perceptible to strongly perceptible” (70–90 dBA) to “strongly perceptible to mildly unpleasant” (90–120 dBA) at the campground. However, given the distance from the blasting activities, the proximity of the campground to US 199 with existing sound from occasional heavy-truck passages, and the fact that blasting would be limited to two or three isolated blasts per day, noise from blasting activities is not expected to impair the use or enjoyment of the campground, trail, or day-use area. Blasting at this site would occur during the daytime, and construction noise would not affect campers sleeping at night in the campground. Noise attenuation measures would be required to reduce the potential noise impacts on campers and trail users (ICF International 2010b). See Section B.5 for details of the attenuation measures.

According to the noise study report, there would be no impacts associated with vibration from the blasting activities at locations more than 250 feet from the proposed blast sites (ICF International 2010b). There would be no impacts on buildings or structures at the campground due to vibration because of the distance from the proposed blast sites.

The entrance to the campground would be maintained during construction. As discussed above, traffic delays on US 199 could be inconvenient for campers and day-use visitors traveling to and from the campground. The full width of the traveled roadway would be open on weekends (after 3 p.m. on Fridays), designated legal holidays, the day preceding designated legal holidays, and when construction operations are not actively in progress.

Views from the campground or trail toward US 199 are limited, and construction would occur at a distance of more than 0.5 mile from the campground. There would be no proximity impacts due to visual impacts.

### **B.4.2.3 Middle Fork Smith River Access Trails**

The informal river access trails are not designated as recreational trails or actively managed by the Forest Service for recreation. The Eagle Eye Mine Trail is located at PM 23.1, more than 500 feet east of the eastern terminus of the Narrows site (at PM 23.0). There is a proposed staging area located at PM 23.15, more than 250 feet east of the access trail. The Cedar Rustic Trail is located more than 2,000 feet west of Patrick Creek Narrows Location 2 (starts at PM 23.92). No

construction activities would occur at either of these locations, and use of these informal trails to access the river would not be affected. However, as discussed above, traffic delays on US 199 could be inconvenient for visitors traveling on US 199.

## **B.5 Measures to Minimize Harm**

The Department has designed the proposed project to protect the activities, features, and attributes of the Smith River NRA, and has been coordinating with the Forest Service to ensure that the project would have no adverse effects after including measures to minimize harm. Measures to minimize harm to the Smith River NRA are presented below.

The following measures will minimize the temporary delay in access to recreation areas within the Smith River NRA along US 199, including day-use areas, campgrounds, trailheads, and Middle Fork Smith River access points. Further, these measures will also be implemented at all project locations, including sites on SR 197, and will minimize temporary construction delays and temporary access and circulation impacts on visitors and motorists traveling to the Smith River, Jedediah Smith Redwoods State Park, and Ruby Van Deventer County Park.

- Implementation of the project specific TMPs and the measures they contain would minimize the construction delays and temporary access and circulation impacts during construction of the proposed project. Measures contained in the TMPs relevant to notifying motorists and recreationists include maintaining access to side roads and residences; providing advance notification to emergency services that may be affected by lane closures; providing advance notification of closures or delays to adjacent residents, businesses, and landowners, including the Forest Service; contacting the Oregon Department of Transportation 2 weeks in advance of planned closures on US 199 in order to warn motorists of possible delays; coordinating closures with local and regional transit systems; and using Department advisory radios and changeable signs. This list is not all-inclusive, see the complete text of the measures included in the TMPs in Appendix G, "Traffic Management Plans," of the EIR/EA.
- Additional measures that would further reduce these impacts include providing the public with advance notice of closures or lengthy delays on US 199 by using regional media (e.g., newspapers and radio stations) and a project website, and coordinating with other construction projects undertaken by the Department or other agencies to minimize delays. The full text of the measures appears under "Implement Additional Measures to Reduce Temporary Access and Circulation Impacts" in Section 2.4.3, "Community Impacts," of the EIR/EA.
- During construction, access will be maintained to recreation sites on or accessed from US 199 and SR 197, including day-use areas, campgrounds, trailheads, and the Smith River and Middle Fork Smith River access points to maintain availability of recreational opportunities during construction.
- Construction will not occur on weekends (i.e., beginning after 3 p.m. on Fridays), designated legal holidays, or the day preceding designated legal holidays, thereby reducing impacts on parks and recreationists during these peak use periods.

- Noise and vibration control measures will be implemented to reduce the temporary impacts from construction noise at all project locations, and from blasting at Patrick Creek Narrows Location 2 and the Narrows site. The full text of the measures is provided under “Employ Noise and Vibration Reducing Construction Practices by Implementing Noise and Vibration Control Measures” in Section 2.4.11, “Noise and Vibration,” of the EIR/EA.
- Measures to control airblast and vibration include reducing the quantity of explosive; modifying the confinement of explosive energy; modifying the powder factor; timing and spatial distribution of blasts; and using alternative methods such as high pressure gas methods to split rock.
- Measures to minimize temporary noise impacts from construction equipment include using effective sound-control devices on all equipment; changing the location of stationary construction equipment away from sensitive receptors as possible; turning off idling equipment; rescheduling construction activity during the daytime and/or a season that has the least impact on sensitive receptors; notifying adjacent residents in advance of construction work; installing acoustic barriers around stationary construction noise sources; scheduling substantial noise-generating activity during daytime hours, where feasible; and designating construction staging areas as far as practical from sensitive receivers.

The following measures will be implemented to maximize project aesthetics and minimize visual impacts in the project area at all project locations. These measures include the following.

- The Department, or its contractor, will follow the measures for permanent enhanced erosion control seeding and revegetation, as listed in Section 2.3.1.3, “Avoidance, Minimization, and/or Mitigation Measures for Natural Communities” in the Biological Environment section. Following those proposed measures would ensure seeding and revegetation that reflect natural existing vegetation patterns and provide multiple canopy layers, seasonality, diverse habitat, and reduced susceptibility to disease.
- Specific measures to reduce the visual impact of cut slopes, retaining walls, bridge aesthetics, and physical features associated with the construction of the roadway include coordinating with the Forest Service and the public to create a design that improves appearances of walls and bridges; maximizing slopes and reducing cut surface areas to reduce visual impacts of cut slopes; referring to local reference sites within 30 miles of the project area for design and construction treatments to reduce visual impacts; including the evaluation of steeper cut slopes to reduce wall area; evaluation of flatter toes at cut slopes to provide area for rock fall instead of using a retaining structure; using redwood soldier pile retaining walls; and mimicking aesthetics from local historical bridges within the new bridge design to lessen impacts on visual resources. The full text for this measure is provided under “Implement Best Management Practices for Project Design and Construction” in Section 2.1.6.4, “Visual/Aesthetics,” of the EIR/EA.
- To reduce the potential for glare, retaining walls will be constructed with construction materials with pattern, texture, and color similar to that which exists in the area and using low-sheen and non-reflective surface materials. The finish would be matte and roughened. The use of smooth, toweled surfaces and glossy paint would be avoided. This measure is included under “Construct Walls with Low-Sheen and Non-Reflective Surface Materials” in Section 2.1.6.4, “Visual/Aesthetics,” of the EIR/EA.

Measures to reduce the temporary air quality impacts, such as diesel fumes and dust on recreationists during construction, will be implemented at all project locations. These measures include the following.

- Comply with applicable NCUAQMD air pollution control rules, regulations, ordinances, and statutes; prohibit burning of material to be disposed of; prevent and alleviate dust by applying water, dust palliative, or both. The full text of these measures is presented under “14-9.01—Air Pollution Control” and “14-9.02—Dust Control” in Section 2.4.10, “Air Quality.”
- Measures to prevent particulate matter from becoming airborne include covering open-bodied trucks used to transporting materials; using water to control dust during demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land; and promptly removing earth or other track out material from paved streets. The full text of these measures is presented under “Implement NCUAQMD’s Rule 104 Prohibitions, Section 4.0, to Control Fugitive Dust Emissions” in Section 2.4.10, “Air Quality.”
- Measures to reduce construction-related exhaust emissions include minimizing the idling time of diesel-powered construction equipment; using alternative-fuel-powered construction equipment (i.e., compressed natural gas, biodiesel, or electric); using add-on mitigation devices, such as diesel oxidation catalysts or particulate filters; using equipment that meets the CARB’s most recent certification standard for off-road heavy-duty diesel engines; phasing project construction; and limiting heavy-duty equipment operating hours. The full text of these measures is presented under “Implement Measures to Reduce Exhaust Emissions from Off-Road Diesel-Powered Equipment” in Section 2.4.10, “Air Quality.”

Additional avoidance, minimization, and/or mitigation measures are included in the Human, Physical, and Biological Environment sections in Chapter 2 of the EIR/EA. The proposed minimization measures in this section and in Chapter 2 of the EIR/EA will be refined and additional measures may be added based on input from the Forest Service.

## B.6 Coordination

Consultation and coordination with the agencies with jurisdiction over the Section 4(f) resources described in this document and other interested parties are ongoing and will continue throughout development of the EIR/EA. The relevant Section 4(f) resources and their respective agencies are listed below:

- Coordination with the National Park Service as required by the Wild and Scenic Rivers Act was initiated for the main stem of the Smith River and has been completed with regard to the proposed improvements at the two project locations along SR 197. A letter was received from the National Park Service in February 2010 stating that construction of the proposed project at the Ruby 1 and Ruby 2 sites would not have a direct and adverse effect on the values for which the Smith River was designated. A copy of this letter is included in Chapter 4 of the EIR/EA.
- Coordination with the Forest Service has been initiated. A draft letter was prepared specifically requesting concurrence with the *de minimis* impact finding on the Smith River NRA, and the temporary occupancy of the Middle Fork Smith River and potential effects on

the Middle Fork Smith River as required by the Wild and Scenic Rivers Act. Written concurrence would be obtained from the Forest Service after the public has been afforded an opportunity to review and comment on the effects of the proposed project and is expected prior to release of the final EIR/EA. A copy of this draft letter is included in Chapter 4 of the EIR/EA.

- Coordination with the Del Norte County Parks Department has been initiated and will continue throughout the development of the EIR/EA. A draft letter was prepared specifically regarding the temporary construction easement at Ruby Van Deventer County Park. Written concurrence would be obtained from the Del Norte County Parks Department prior to release of the final EIR/EA. A copy of this draft letter is included in Chapter 4 of the EIR/EA.

## **B.7 Concluding Statement**

Based on this analysis, the Department has preliminarily determined that the proposed improvements along the US 199 alignment on national forest system lands would meet the requirements for a Section 4(f) use, *de minimis* impact on the Smith River NRA. The *de minimis* impact would result because of the potential for delays in access to the recreation facilities over a 5-year construction period at multiple sites on US 199 and incorporation of 0.23–0.47 acre of undeveloped land into the roadway right-of-way at Patrick Creek Narrows Location 2. The Department has designed the project to protect the activities, features, and attributes of the Smith River NRA and has been coordinating with the Forest Service to ensure that the project would have no adverse effects after including the measures to minimize harm in Section B.5.

The proposed project would not require a permanent use of land from Sandy Beach, the Patrick Creek Campground, the Patrick Creek Trail, or the Middle Fork Smith River Access Trails. In addition, the proposed project would not cause a constructive use of Sandy Beach, the Patrick Creek Campground, the Patrick Creek Trail, or the Middle Fork Smith River Access Trails because the proximity impacts would be temporary and would not substantially impair the protected activities, features, or attributes of these recreation resources.

## **B.8 Other Park, Recreational Facilities, Wildlife Refuges, and Historic Properties Evaluated Relative to the Requirements of Section 4(f)**

This section of the document discusses parks, recreational facilities, wildlife refuges, and historic properties found within or adjacent to the project area that do not trigger Section 4(f) protection either because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

## **B.8.1 Ruby Van Deventer County Park**

### **B.8.1.1 Description**

Ruby Van Deventer County Park, an 11.6-acre park is located near PM 4.5 along SR 197 (4705 North Bank Road). The park is owned by Del Norte County and managed by the Del Norte County Parks Department.

The heavily wooded park is situated on the banks of the Smith River, on the west side of SR 197 (Figure B-8). The park provides 18 public campsites and one group picnic area, with a camping fee of \$10 per night and a day-use fee of \$5. A group picnic site can be reserved for a fee of \$25 per day. The park is open year-round and offers swimming, boating, and fishing opportunities along the banks of the Smith River. A parking lot is situated immediately adjacent to and north of the park entrance off SR 197. The campground and picnic area are located on the bank of the Smith River, just north of the parking area between the river and SR 197. The campground and picnic area are accessed from the north end of the parking lot. Although the park property extends south approximately 0.5 mile along the banks of the river, there are no developed facilities south of the entrance to the park.

The western side of the parking lot also provides access to the banks of the Smith River. This access is not a developed boat ramp, but it is occasionally used as a drift boat put-in, and recreationists are able to drive boat trailers to the Smith River shoreline at this location (Fulton pers. comm.). Launching boats from this location can be difficult because of a large gravel sandbar in the river; as a result, this access to the river is not used very often (Fulton pers. comm.). Another public boat launch is located approximately 5 miles downstream from this location, and this location is reportedly used more frequently for boat launching than the informal, undeveloped put-in at the park (Fulton pers. comm.). Access to the river for recreational activities is available along the banks of the river within the park.

### **B.8.1.2 Evaluation Relative to Requirements of Section 4(f)**

Ruby Van Deventer County Park is a publicly owned park eligible for protection under Section 4(f). Ruby Van Deventer County Park is located adjacent to the Ruby 1 site at PM 4.5. The SR 197 right-of-way at this location is a prescriptive easement with Del Norte County. One design alternative is being considered for the Ruby 1 site, which includes roadway and shoulder widening. Ruby Van Deventer County Park is located immediately adjacent to SR 197 on the west (Figure B-8). The entrance to the park is located on the west side of SR 197 immediately adjacent to the southbound lane at the Ruby 1 site. Improvements at this site would lengthen the curve of the road and increase the width of shoulders. On the southbound side, the new shoulder width would vary from 0 to 7 feet. All work on the southbound side of the highway would occur within the existing prescriptive right-of-way, except at the entrance to the park. Implementation of improvements at the Ruby 1 site would not require the acquisition of permanent right-of-way from Ruby Van Deventer County Park, but it would require a temporary construction easement. Details of the temporary construction easement are presented below under “Temporary Occupancy during Construction.”

### **Potential Proximity Impacts during Construction**

Construction at the Ruby 1 site would not occur on weekends (after 3 p.m. on Fridays), designated legal holidays, or the day preceding designated legal holidays. In addition, night work is not anticipated at this site.

Views of the construction activities on SR 197 would be temporary during the construction period. These temporary views would not affect the use and enjoyment of the park or campsites because views toward SR 197 from the park and campsites are limited due to the vegetation and coast redwood forest separating the river from the roadway. There are direct views of SR 197 from locations within the park and campsites exist. Removal of trees or vegetation would not occur in this area.

Implementation of the proposed improvements at the Ruby 1 site could generate exhaust and dust that may temporarily affect the experience of campers and visitors to the park during the construction period. Implementation of Department Standard Specifications and additional mitigation measures recommended in the air quality study report would minimize these potential effects during the construction period (ICF International 2010c). These measures are summarized above in Section B.5. Construction activities at the Ruby 2 site would not generate exhaust or dust that could affect the visitors to the southern portion of the park.

The northern terminus of the Ruby 2 site is located approximately 0.43 mile south of the Ruby 1 site, and Ruby Van Deventer County Park is located within 0.5 mile of the Ruby 2 site (Figure B-8). The Ruby 2 site is located between approximately 400 and 580 feet west of the southern portion of the park. Three alternatives are being considered at this site to improve the existing roadway curve, superelevation, and width. Construction activities at this location would not require acquisition of temporary or permanent right-of-way from Ruby Van Deventer County Park. As stated above, there are no park facilities south of the entrance to the park.

Access to the park would not change and would be maintained at all times during construction at both proposed project locations on SR 197. However, construction-related activities on SR 197 could intermittently delay motorists traveling to the park. The maximum delays expected at the Ruby 1 and Ruby 2 locations would be up to 15 minutes. Improvements at both Ruby 1 and 2 locations would be completed over one construction season at each site. Construction is anticipated to begin at Ruby 1 in 2012 and at Ruby 2 in 2013 or 2014.

Because the park is adjacent to SR 197, noise from traffic on the roadway is an existing condition for visitors to the park. However, noise generated during the construction period could temporarily affect visitors to the park, in particular campers in sites located closest to the Ruby 1 site. The closest campsites are located approximately 50 to 100 feet away from the proposed construction site and have a direct or partial line of sight toward SR 197. Noise studies conducted for the proposed project measured the existing noise level near the entrance to Ruby Van Deventer County Park at PM 4.5 at 60 dBA, and identified the primary noise source as traffic on SR 197 (ICF International 2010b). Because the campsites are located north of the entrance, construction noise levels at the campsites are anticipated to be somewhat less than those at the entrance. However, the noise studies also indicate that at a distance of 50 feet from the construction equipment, maximum noise levels during construction periods could range from 88 to 92 dBA (ICF International 2010b). Blasting and pile driving would not occur at this site,

but noise levels generated during construction could be disruptive to campers who are in the campsites closest to the Ruby 1 site during day time construction hours. However, night work is not anticipated at this site and construction noise would not affect campers sleeping at night in the campground. Construction at the Ruby 1 site would not occur on weekends (beginning after 3 p.m. on Fridays), designated legal holidays, or the day preceding designated legal holidays. Therefore, noise generated during construction would be temporary and is not expected to impair the use or enjoyment of the campsites at Ruby Van Deventer County Park.

The southern portion of the park is located more than 400 feet west of the northern terminus of the Ruby 2 site. Existing noise levels were not measured at the southern portion of the park, but given the distance from the road, it is assumed that noise generated from traffic on SR 197 would be less than that measured near the park entrance, 60 dBA. In this part of the park, the primary noise source is more likely from water flow than traffic noise. The noise studies indicate that at a distance of 50 feet from the construction equipment, maximum noise levels during construction periods could range from 88 to 94 dBA at this location (ICF International 2010b). Noise generated during construction is expected to decrease by approximately 7 to 8 dBA per doubling of distance (ICF International 2010b) which would reduce construction noise to the range of approximately 64 to 70 dBA at this area within the park. This area of the park is limited to day use only and is not used for camping. Visitors to this area of the park would be fishing, swimming or kayaking where construction noise could be heard over waterflow of the river, however it is not anticipated that the construction noise would interfere with the enjoyment of these activities. Therefore, noise generated during construction at the Ruby 2 site is not expected to impair the use or enjoyment of the southern portion of the park.

### ***Temporary Occupancy during Construction***

Implementation of this alternative would not require the acquisition of permanent right-of-way from Ruby Van Deventer County Park, but it would require a temporary construction easement. The temporary construction easement would be located on park property at the entrance to the park (Figure B-9). The temporary construction easement is necessary to allow for modification of the park entrance to match the improved roadway surface elevation. Parking on three to four parking spaces would not be available during the time it takes to modify the entrance to the park. According to Del Norte County, the Department has used the parking area on previous occasions when working in the vicinity (Fulton pers. comm.; Renae pers. comm.).

The temporary construction easement would be located on one parcel of park property west of SR 197 (Assessor's Parcel Number [APN] 105-130-22) (Trott 2010). The temporary construction easement would include a total area of approximately 2,150 square feet (0.05 acre) (Figure B-9). The temporary construction easement would extend into the paved parking lot immediately north of the entrance and would affect up to four parking spaces (Figures B-9 and B-10).

The temporary construction easement would extend into the parking lot to allow for the transition in elevation between the roadway and entrance. Construction at the entrance is anticipated to occur over a period of 3 days. Access to the park, including the campground and picnic area, would be maintained at all times during construction at the park entrance and during the anticipated 50-day construction period at this location. The construction period at the Ruby 1 site is anticipated to occur summer through fall 2012 (California Department of Transportation

2007a). The temporary construction easement would be located at the entrance extending into the parking lot closest to the entrance, but would not extend into the campground or picnic area. Establishment of the construction zone would be done in a manner that would minimize the area unavailable for parking and would not temporarily or permanently displace any campsites or picnic sites.

The temporary construction easement would temporarily prohibit visitor parking on up to four parking spaces; however, this area would be sited to minimize the area unavailable for parking. The parking lot is approximately 85 feet long by 55 feet wide, a total area of 4,675 square feet (0.11 acre), and has 16 marked parking spaces (Renaë pers. comm.). Because of the short-term nature of the displacement (3 days) and the fact that construction would occur during the week, not on weekends, the loss of the use of the four parking spaces would not disrupt use of the park or river access by day-use recreationists.

Access to the river at the undeveloped boat launch by boaters with trailers could be reduced or limited during the period required for the temporary construction easement because there would be less room to maneuver boat trailers in the parking lot. However, this access would not be blocked and would be maintained at all times, and access to the river by other recreationists at this location would not be affected. Additionally, construction activities at the entrance could intermittently delay access to the campsites and day-use area at times when equipment or material is moving in or out of entrance. However, access to the campsites and day-use area of the park would be maintained at all times during construction activities.

Under FHWA regulations (23 CFR 774.13[d]), temporary occupancy of a property does not constitute use of a Section 4(f) resource when the following conditions are satisfied:

- **The duration of the occupancy must be temporary (i.e., less than the time needed for construction of the project), and there should be no change in ownership of the land.** The temporary construction easement proposed at Ruby Van Deventer County Park would be temporary for an anticipated period of 3 days of the 50-day construction period for this location. Once construction has been completed at this site, full use of the entrance and parking lot for visitors would resume. The construction easement would be temporary, compared with the overall construction period of the proposed improvements at this location, and construction activities would not require a change in ownership of the park lands. The project meets this temporary occupancy criterion.
- **The scope of work must be minor (i.e., both the nature and magnitude of the changes to the Section 4(f) property are minimal).** Construction activities in the area would allow for modification of the park entrance to meet the elevation of the improved roadway. The entrance would be paved to transition from SR 197 to the parking area. A temporary construction zone would be established around the area in the parking lot, with limited access for equipment and workers to pave the area. No other physical changes to the parking lot or other park property are anticipated. Removal of trees or vegetation would not be required in this area. The project meets this temporary occupancy criterion.
- **There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis.** No permanent adverse physical impacts on the

park property are anticipated as a result of the modifications to the park entrance. The Department will coordinate with the Del Norte County Parks Department to ensure that, to the extent feasible, construction would avoid impacts on as many park visitors as possible. This coordination also would ensure that access to the park, river access, and visitor use of the campsites and day-use areas continue uninterrupted during the construction period at the Ruby 1 site. Potential intermittent delays on SR 197 near the park are not expected to interfere with the protected activities, features, or attributes of the park. Once construction has been completed, use of the entrance and parking lot would resume.

Access to the river at the undeveloped boat launch by boaters with trailers could be less convenient during the estimated 3 days it would take to modify the entrance because there would be less room to maneuver boat trailers in the parking lot. However, this access would not be blocked and would be maintained at all times, and access to the river by other recreationists at this location would not be affected. Launching boats from the informal, undeveloped boat launch is difficult because of the large gravel sandbar; therefore, use of the undeveloped boat launch is infrequent or occasional. Because of the short-term nature of this temporary impact, the existing difficulty of launching boats from this location, and the availability of other boat launch facilities nearby, the temporarily reduced or limited area that boaters with trailers would have to maneuver in the parking area is not expected to interfere with the protected activities, features, or attributes of the park. The construction at the park entrance would not result in a permanent interference with the use of the river access for boaters with trailers. The project meets this temporary occupancy criterion.

- **The land being used must be fully restored (i.e., the property must be returned to a condition which is at least as good as that which existed prior to the project).** Construction activities would take place at the entrance to the park, and there would not be any physical changes to other park property. Removal of trees or vegetation would not be required for the construction activities. The entrance would be paved and fully restored to a condition as good as that which existed before the proposed project. The entrance would be restriped. However, should any modifications or inadvertent damage occur to the parking lot or other park property, the property would be restored, at a minimum, to the condition that existed before the construction activities. The project meets this temporary occupancy criterion.
- **There must be documented agreement of the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.** A letter requesting concurrence from the Del Norte County Parks Department has been prepared for submittal by the Department (see Chapter 4 of the EIR/EA).

As described above, the temporary occupancy of Ruby Van Deventer County Park would meet all the criteria outlined in 23 CFR 774.13(d) for temporary occupancy. Coordination with the Del Norte County Parks Department will provide an additional opportunity for the county to review and comment on the temporary construction easement and potential impacts at Ruby Van Deventer County Park.

### **B.8.1.3 Findings for Ruby Van Deventer County Park**

The proposed project at the Ruby 1 and 2 sites would not constitute a use of Section 4(f) property because it would not require acquisition of permanent right-of-way from the parklands. Therefore, the provisions of Section 4(f) would not be triggered.

The proposed project at the Ruby 1 and 2 sites would not cause a constructive use of Ruby Van Deventer County Park because the proximity impacts would be temporary and would not substantially impair the protected activities, features, or attributes of Ruby Van Deventer County Park. Therefore, the provisions of Section 4(f) would not be triggered.

Further, the temporary occupancy of Ruby Van Deventer County Park for construction at the Ruby 1 site would meet all of the temporary occupancy criteria outlined in 23 CFR 774.13(d). Therefore, the provisions of Section 4(f) are not triggered.

## **B.8.2 Jedediah Smith Redwoods State Park**

### **B.8.2.1 Description**

Jedediah Smith Redwoods State Park was established in 1929 and is located within the Redwood National Park. The 10,000-acre Jedediah Smith Redwoods State Park is located 9 miles east of Crescent City. US 199 meanders through the park for about 4 miles between its western boundary near Kings Valley Road and its eastern boundary at the Hiouchi Bridge near the US 199/SR 197 intersection (Figure B-2). This park, along with Prairie Creek Redwoods State Park, Del Norte Coast Redwoods State Park, and Redwood National Park, are managed cooperatively by the National Park Service and California Department of Parks and Recreation. The combined 105,516 acres of parkland are designated “Redwood National and State Parks” and contain 36% of California’s old-growth redwood forest (California Department of Parks and Recreation 2009). The old-growth redwood forests within Jedediah Smith Redwoods State Park are designated as a world heritage site and international biosphere reserve (UNESCO World Heritage Centre 2009).

The main access to Jedediah Smith Redwoods State Park is from US 199; there is limited access from SR 197. A visitor center is located on Kings Valley Road at the eastern boundary of the park, near Hiouchi, just off US 199. The Smith River and Mill Creek flow through the park, providing river access and fishing opportunities. Jedediah Smith Redwoods State Park has more than 20 miles of hiking and nature trails that meander through the redwood forest, including the Stout Grove, Boy Scout Tree, and Mill Creek Trails (Baselt 2009). These trails are located west of the Smith River. The park provides more than 106 recreational vehicle and tent camping sites, with developed camping amenities at each campsite. The campground is located near the visitor center (California Department of Parks and Recreation 2009). The park’s peak visitor season is Memorial Day through Labor Day.

### **B.8.2.2 Evaluation Relative to Requirements of Section 4(f)**

Jedediah Smith Redwoods State Park is a publicly owned park eligible for protection under Section 4(f). The Ruby 2 site is located on SR 197 between PM 3.2 and PM 4.0, 0.5 mile south of the Ruby 1 site (Figures B-1, B-2, and B-8). Jedediah Smith Redwoods State Park is located within the 0.5-mile radius of the Ruby 2 site, just south of the project terminus at PM 3.2 (Figure B-2). Three build alternatives are proposed at this location to widen the shoulders on both sides of SR 197 and increase the curve radii. The number of construction working days at the Ruby 2 site is anticipated to range from 60 days (12 weeks) under the Two-Foot Widening in Spot Locations Alternative to 80 days (16 weeks) under the Four-Foot Shoulders Alternative, with work completed over one construction season in summer/fall 2013 or 2014. Roadway widening activities would require the acquisition of right-of-way along the roadway frontage from several private property owners on both the west and east sides of the roadway.

#### ***Potential Proximity Impacts during Construction***

The northern boundary of the state park is approximately 300 feet south of the Ruby 2 site (Figures B-2 and B-8). However, no construction activities at the Ruby 2 site would occur on state-owned parklands, and the proposed project would not require acquisition of right-of-way from the parklands on either a temporary or permanent basis. Access from SR 197 to the northern portion of the park is via dirt roads and leads to private in-holdings within the park (California Department of Parks and Recreation 2009). There are no public trails, campgrounds, or other park facilities located within 1 mile of the Ruby 2 site.

The main portion of the state park is located more than 1 mile southwest of the Ruby 2 site and across the Smith River. Because of the distance of the recreation facilities at Jedediah Smith Redwoods State Park from SR 197 and the Ruby 2 site, there would be no proximity impacts due to noise or visual impacts.

Construction-related activities could delay traffic on SR 197. However, substantial traffic delays or conflicts are not anticipated from construction activities at these sites. Construction at either site would not occur during the same construction season, traffic controls would include temporary one-way reversible traffic control, and estimated maximum traffic delays would be 15 minutes. Because most park users access Jedediah Smith Redwoods State Park from US 199, the minor traffic delays on SR 197 would have a minor effect on park visitors. Before construction of project improvements each construction season, contact would be made with Jedediah Smith Redwoods State Park staff to advise them of the potential length and timing of any closures on US 199 and to determine the exact dates of any festivals in the park that might be affected by the closures.

### **B.8.2.3 Findings for Jedediah Smith Redwoods State Park**

The proposed project at the Ruby 2 site would not require a permanent or temporary use of parklands because the nearest project component is approximately 300 feet from the northernmost portion of the park. In addition, the proposed project at the Ruby 2 site would not cause a constructive use of Jedediah Smith Redwoods State Park because the proximity impacts would be temporary and would not substantially impair the protected activities, features, or

attributes of Jedediah Smith Redwoods State Park. Therefore, the provisions of Section 4(f) would not be triggered.

### **B.8.3 Smith River Wild and Scenic River System**

#### **B.8.3.1 Description**

The Smith River is part of the National Wild and Scenic Rivers System, a federal system created by Congress to recognize and protect rivers across the country. More than 300 miles of the Smith River system are designated as a Wild and Scenic River, a longer stretch than any other river in the United States. The Smith River is also undammed, for its entire length, making it the only major river system in California without dams. Of the 325.4 miles of Wild and Scenic River designation along the Smith River, 78 miles are wild, 31 miles are scenic, and 216.4 miles are classified as recreational. The Smith River Wild and Scenic River system was designated in January 1981 and redesignated in November 1990 with creation of the Smith River NRA (National Wild and Scenic Rivers 2009).

The Smith River Wild and Scenic River system is also part of the California Wild and Scenic Rivers System and the National Wild and Scenic Rivers System. The main stem of the Smith River from the confluence of its Middle Fork and South Fork up-river to the boundary of the Six Rivers National Forest is federally designated as recreational. Below this point, the main stem is a state-designated recreational river to its mouth at the Pacific Ocean. Within the Six Rivers National Forest jurisdiction, Wild and Scenic Rivers are managed by the Forest Service. Outside of the Six Rivers National Forest jurisdiction, Wild and Scenic Rivers are managed by the National Park Service.

The Middle Fork Smith River is federally and state-designated as recreational from its confluence with Knopki Creek to its confluence with the South Fork Smith River. The Wild and Scenic Rivers Act (16 USC 1271–1287) defines recreational rivers as “those rivers or segments of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.” The California Public Resources Code (PRC) includes the same definition in Sections 5093.54 et seq. The primary value for which the Smith River was designated is its “outstanding remarkable” anadromous fishery; secondary factors of the designation are its notable recreational and scenic values (USDA Forest Service 2005).

Within the project area, the main stem of the Smith River parallels SR 197, and the Middle Fork Smith River borders the project area along US 199 (Figures B-2, B-4, and B-8). In addition, the following tributaries in the project area are also designated as part of the Wild and Scenic Rivers system:

- Monkey Creek (recreational) from its headwaters in the northeast quadrant of Section 12 T18N R3E, as depicted on the 1951 U.S. Geological Survey (USGS) 15-degree Gasquet topographic map, to its confluence with the Middle Fork Smith River.
- Patrick Creek (recreational) from the junction of the east and west forks of Patrick Creek to the confluence with the Middle Fork Smith River.

- Kelly Creek (scenic) from its source in Section 32 T17N R3E, as depicted on 1951 USGS 15-degree Gasquet topographic map to the confluence with the Middle Fork Smith River.

In addition, the Siskiyou Fork Smith River is federally and state-designated as a recreational river from its confluence with the South Siskiyou Fork Smith River to its confluence with the Middle Fork Smith River.

Within the Smith River NRA, Wild and Scenic Rivers are managed by the Forest Service, and the Smith River NRA management plan serves as the management plan that satisfies the requirements of the Wild and Scenic Rivers Act (16 USC 1271–1287). State-designated rivers are also protected under the California Wild and Scenic Rivers Act (PRC 5093.50 et seq.). The California Resources Agency is responsible for coordinating activities of state agencies that may affect these designated rivers.

Streamside protection zones are established for the designated river and stream segments where removal of trees within the protection zones may only occur “when necessary for human health and safety, to maintain trails or existing roads, for the development of recreation and other facilities, for the protection of the recreation area in the event of fire, or to improve fish and wildlife habitat” (USDA Forest Service 1992).

#### **B.8.3.2 Evaluation Relative to Requirements of Section 4(f)**

Section 4(f) applies to portions of Wild and Scenic Rivers that are publicly owned and designated recreational, such as the segments of the Smith River Wild and Scenic River system. As stated above, segments of the Smith River along SR 197 and the Middle Fork Smith River along US 199 are designated as recreational rivers, qualifying both segments for protection under Section 4(f).

Designated recreational river segments allow for transportation facilities, such as SR 197 and US 199. Highway improvements on US 199 were provided for in the Smith River NRA when it was established, and the river was designated with these existing transportation facilities. In fact, US 199 is the primary access to recreation opportunities along the Middle Fork Smith River within the Smith River NRA. The proposed project does not involve permanent construction in the bed or on the banks of the main stem of the Smith River (below the ordinary high water mark [OHWM]), and it is not considered to be a water resources project subject to review under Section 7 of the Wild and Scenic Rivers Act (16 USC 1271–1287). The OHWM is an important limit because permanent construction below the OHWM could adversely affect the values for which the river was designated. This is also the case for four of the five project locations along US 199 and the Middle Fork Smith River. However, proposed improvements to the bridge that spans the Middle Fork Smith River at Patrick Creek Narrows Location 2 are anticipated to involve in-water work under two of three of the proposed alternatives at this location. Improvements at this location are discussed below. All other requirements of the Wild and Scenic Rivers Act must be satisfied, independent of the Section 4(f) approval (23 CFR 774.11[g]). See the “Wild and Scenic Rivers” section in Section 2.1.1 of the EIR/EA.

The two segments of the Smith River Wild and Scenic River system within the project area are discussed below. Recreational opportunities within the project area primarily include camping, fishing, hiking, whitewater boating, swimming, naturalist pursuits, and photography.

### **Smith River (Main Stem)**

The Smith River is located within the 0.5-mile radius of two project locations: Ruby 1 and 2 (Figure B-8). Proposed improvements at both locations include widening the roadway and increasing the curve radii. The Ruby 1 site is located closest to the river at Ruby Van Deventer County Park (Figure B-9), but no construction activities would take place on the banks of the river, 50 feet or more west of the roadway. As shown in Figure B-8, the Ruby 2 site is located 200 feet or more from the river. The proposed project at the Ruby 1 and 2 sites does not involve construction in the bed or on the banks of the river on either a temporary or a permanent basis.

Construction at the Ruby 1 and 2 sites would not occur on weekends (beginning after 3 p.m. on Fridays), designated legal holidays, or the day preceding designated legal holidays. No night work is anticipated at either site. The approximate construction duration at the Ruby 1 site is 50 days, and between 60 and 80 days at the Ruby 2 site. The maximum traffic delays expected on SR 197 would be 15 minutes. Improvements at the Ruby 1 and 2 sites would be completed in one construction season at each site. The target year for construction at the Ruby 1 site is summer through fall 2012. The target year for construction at the Ruby 2 site is summer through fall 2013 or alternatively in summer through fall 2014.

Views from the river toward SR 197 are limited because of the vegetation and coast redwood forest separating the river from the roadway. Views of the existing roadway are occasional, and this would not change during construction. No impacts on visual resources that would affect the use or enjoyment of the river for recreational purposes are expected.

Access to the Smith River at Ruby Van Deventer County Park would be maintained at all times (refer to the “Ruby Van Deventer County Park” section for additional details). Anticipated traffic delays at both sites are estimated to be a maximum of 15 minutes. In addition, construction at the Ruby 1 and 2 sites would occur during different construction seasons.

Coordination with the National Park Service, required by the Wild and Scenic Rivers Act, has been initiated for the main stem of the Smith River and completed with regard to the proposed improvements at the two project locations along SR 197. A letter was received from the National Park Service in February 2010 stating that construction of the proposed project at the Ruby 1 and Ruby 2 sites would not have a direct and adverse effect on the values for which the Smith River was designated. A copy of this letter is included in Chapter 4 of the EIR/EA.

### **Middle Fork Smith River**

US 199 winds through the canyon of the Middle Fork Smith River in a southwest-northeast direction, providing access for recreational opportunities along the river. Tributaries to the river (Monkey Creek, Patrick Creek, and Kelly Creek) are located along the US 199 corridor; however, the project locations are not located at the confluence of these tributaries with the Middle Fork Smith River. This is also the case for the Siskiyou Fork Smith River. No direct or adverse effects on the values for which these tributaries are designated as Wild and Scenic Rivers are expected to occur.

Proposed improvements at the project locations are located adjacent to the Middle Fork Smith River. The approximate distances from the river and SR 199 at each location are listed below:

- **Patrick Creek Narrows Location 1:** within approximately 50 to 100 feet
- **Patrick Creek Narrows Location 2:** US 199 spans the river
- **Patrick Creek Narrows Location 3:** more than 100 feet
- **The Narrows:** within approximately 50 to 100 feet
- **Washington Curve:** more than 100 feet

As stated previously, at four of the five project locations on US 199, the proposed project does not involve construction in the bed or on the banks of the river (below the OHWM), and it is not considered to be a water resources project subject to review under Section 7 of the Wild and Scenic Rivers Act (16 USC 1271–1287). In August 2005, the Department received correspondence from the Forest Service regarding proposed improvements at the Narrows site that concluded that the proposed project at this location would not have a direct or adverse effect on the values for which the river was designated (USDA Forest Service 2005). In addition, the letter stated that any change in scope of the project would require notifying the Forest Service (2005). This letter is included in Chapter 4 of the EIR/EA. Coordination with the Forest Service as required by the Wild and Scenic Rivers Act has been initiated with regard to the proposed improvements at the project locations along US 199.

### ***Proposed Bridge Replacement at Patrick Creek Narrows Location 2***

Three alternatives for improvements are being considered at this location where US 199 spans the Middle Fork Smith River: the Upstream Bridge Replacement, Downstream Bridge Replacement, and Bridge Preservation with Upslope Retaining Wall Alternatives. Refer to the project description for complete descriptions of the build alternatives at this location. All three alternatives may require blasting (ICF International 2010b).

The Upstream Bridge Replacement Alternative would replace the existing bridge on an alignment upstream from the current location (Figure B-5). A retaining wall on the southwest side of the roadway would also be constructed. The Downstream Bridge Replacement Alternative would replace the existing bridge on an alignment downstream from the existing bridge location (Figure B-6). A retaining wall or viaduct would be constructed on the southeast (downstream) side of the new bridge. Under either alternative, the new bridge would be constructed first, before removal of the existing bridge. A demolition plan and debris containment plan would include provisions to prevent debris from entering the Middle Fork Smith River.

The Bridge Preservation with Upslope Retaining Wall Alternative would retain the existing bridge but realign the roadway on either end of the bridge to allow large trucks to cross. In addition, this alternative would require construction of a retaining wall or rock bolting on the southwest (hill) side of the existing bridge (Figure B-7). This alternative would not preclude future bridge replacement.

The Upstream Bridge Replacement and Downstream Bridge Replacement Alternatives would require temporary in-water work (below the OHWM of the Middle Fork Smith River) to construct the proposed improvements. However, the Bridge Preservation with Upslope Retaining Wall Alternative would not require in-water work.

Bridge replacement would require a trestle, pad, or other type of support for the falsework, and a debris containment system. These may be supported by columns placed on the riverbanks or may be temporary supports in the river channel. Construction may involve water diversion during low river flow conditions, generally from mid-June to October, after which the diversion would be removed from the river (California Department of Transportation 2010b). The falsework would remain in place if construction of the bridge is not completed within one construction season. Details on potential design of falsework are included in Section 2.3.5.3, "Patrick Creek Location 2," in the "Coho Salmon—Southern Oregon/Northern California Coast ESU" section of the Environmental Consequences portion of Section 2.3.

A demolition and debris containment system would be constructed to minimize debris entering the Middle Fork Smith River during demolition of the old bridge. The debris containment system would have to extend underneath the existing bridge and would likely require supports on the banks or in the river channel that could involve water diversion. The bridge would be demolished during one construction season, and the temporary supports and diversion techniques would be removed once the bridge demolition has been accomplished (California Department of Transportation 2010b). The banks or channel of the river would not be altered.

Table B-4 provides the preliminary construction schedule for Patrick Creek Narrows Location 2.

**Table B-4. Preliminary Construction Schedule at Patrick Creek Narrows Location 2**

Location 2 Alternative	Construction Season <sup>a</sup> /Year Target	Approximate Construction Duration (Working Days) <sup>b</sup>
Upstream Bridge Replacement	Three seasons starting in late summer/fall 2013 and ending in late fall/winter 2015	300
Downstream Bridge Replacement	Three seasons starting in late summer/fall 2013 and ending in late fall/winter 2015	300
Bridge Preservation with Upslope Retaining Wall	Three seasons starting in late summer/fall 2013 and ending in late fall/winter 2015	250

<sup>1a</sup> A construction season typically extends from summer through fall. At this location, the season may extend into winter in 2015.

<sup>2b</sup> Number of working days is approximate.

As shown in Table B-4, construction at this location would occur year-round, yet primarily during summer and fall, with the exception of the third construction season, which may extend into winter 2015. In-water construction work would occur during the dry season, when river flow conditions are low.

The closest access to the river in the vicinity of this location is from the Cedar Rustic Trail, an informal river access trail at PM 23.5 used for seasonal fishing. There are no other designated river access trails in this area, and there are no beaches along this segment of the river. Recreational activities in this area are most likely seasonal fishing, kayaking, and rafting. The fishing season extends all year, although chinook salmon and steelhead fishing typically occurs

during winter and fall. The kayaking and rafting season on the Middle Fork Smith River is typically during winter, spring, and fall, when the river is navigable (USDA Forest Service 2009c). Although construction is expected to occur mainly during the off-season for the primary recreation activities, recreationists would be subject to periodic exclusion from the construction zone within the project limits for safety reasons during periods when dangerous bridge replacement and demolition work are occurring. The free-flowing condition of the river would not be affected upstream or downstream of the construction limits necessary for bridge replacement and demolition. Within the construction limits, the temporary water diversion techniques would divert water away from the temporary supports in the river channel necessary to support the falsework and debris containment system. Recreation activities on the river would continue upstream and downstream of the construction limits because the river would be temporarily diverted within the construction limits only, allowing water to flow downstream of the bridge. Recreation use of the river would not be interrupted upstream or downstream of the limited construction zone. All temporary diversion techniques in the river channel would be constructed seasonally and removed once the construction season has ended. The construction season could coincide with part of the fishing, kayaking, and rafting season during fall 2013, 2014, and 2015, and winter 2015. If boaters are present at the same time that in-water work, diversion techniques, and/or slope removal are in place, it is anticipated that boaters would need to wait for a safe opportunity to pass or portage around the construction area for safety reasons. The bridge replacement alternatives' interruption of recreation activities during construction is considered a temporary occupancy of the river at this location. Implementation of the bridge preservation alternative is not expected to require in-water work or diversion techniques, although blasting may be required and could affect recreation activities to a lesser degree.

### ***Temporary Occupancy during Construction***

Under FHWA regulations (23 CFR 774.13[d]), temporary occupancy of a property does not constitute use of a Section 4(f) resource when the following conditions are satisfied:

- **The duration of the occupancy must be temporary (i.e., less than the time needed for construction of the project), and there should be no change in ownership of the land.** Construction at this location is anticipated to take approximately 250 to 300 working days over a period of three seasons, from summer/fall 2013 through late fall/winter 2015. Once in-water construction has been completed at this location each season, full use of the river for recreation activities (fishing, kayaking, and rafting) within the project construction limits would resume. During construction, recreation use of the river would not be interrupted upstream or downstream of the limited construction zone because the river would be temporarily diverted, allowing water to flow downstream of the bridge. Boaters would be allowed to portage around the construction area on a temporary basis for safety reasons, in the event weather conditions allow the construction and boating season to coincide. Construction activities would not require a change in ownership of the lands adjacent to the river. The project meets this temporary occupancy criterion.
- **The scope of work must be minor (i.e., both the nature and magnitude of the changes to the Section 4(f) property are minimal).** Any diversion techniques in the river channel would be constructed seasonally and removed once the construction season has ended. The bridge falsework would remain in place if construction of the bridge is not completed within one construction season. The banks or channel of the river would not be permanently altered.

All construction debris would be removed, and disturbed areas would be restored to a natural setting with regrading, erosion control, and revegetation of disturbed areas. The project meets this temporary occupancy criterion.

- **There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis.** No permanent adverse physical impacts on the river are anticipated as a result of the construction activities at this location. Temporary and permanent best management practices would be implemented in addition to specific measures to minimize or mitigate potential adverse impacts on the river, as described in the resource-specific sections in Chapter 2 of the EIR/EA. If kayakers or rafters are running the river while construction is taking place, they would be required to portage around the area where bridge replacement, demolition, slope removal, or water diversion techniques are occurring. During construction, the river would be diverted, as described above, allowing water to flow freely downriver and for recreation activities on the river to continue, including fishing, kayaking, and rafting outside the limited construction zone. The project meets this temporary occupancy criterion.
- **The land being used must be fully restored (i.e., the property must be returned to a condition which is at least as good as that which existed prior to the project).** Any diversion techniques in the river channel would be removed once the construction season has ended. The bridge falsework would remain in place if construction of the bridge is not completed within one construction season. The banks or channel of the river would not be altered. All construction debris would be removed, and the site would be restored to a natural setting with regrading, erosion control, and revegetation of disturbed areas. The project meets this temporary occupancy criterion.
- **There must be documented agreement of the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.** A letter requesting concurrence with these assertions from the Forest Service has been prepared for submittal by the Department (see Chapter 4 of the EIR/EA).

As described above, the temporary occupancy of the Middle Fork Smith River would meet all the criteria outlined in 23 CFR 774.13(d) for temporary occupancy.

### ***Potential Proximity Impacts during Construction***

Similar to the discussion for the Smith River along SR 197, the primary source of noise on the banks of the Middle Fork Smith River or on the river itself would be from water flowing. Noise from traffic on US 199 is part of the existing experience along the river for recreationists. However, the potential for additional noise would be greatest at Patrick Creek Narrows Location 2 and the Narrows site because of the need for blasting on slopes above the roadway. Blasting may be required at Patrick Creek Narrows Location 2, and blasting would be required at the Narrows site. Blasting activities would occur intermittently during daylight hours at a distance of more than 50 to 100 feet from the river at both the Narrows site and at Patrick Creek Narrows Location 2. The peak noise level from blasting at a distance of 100 feet was estimated at 143 dBA. The results in the noise study report indicate that sound from blasting could range from “distinctly unpleasant to intolerable” (120–140 dBA) at these locations (ICF International 2010b). However, during blasting activities, a safety zone would be established at a distance

from the blast site on either side of the bridge, including along the roadway and the river. The safety zone would be established prior to blasting and incorporate a buffer area large enough to avoid safety concerns from the blast concussion and falling debris. Recreationists would not be exposed to the peak noise level but would experience increased noise during intermittent and short periods while blasting activities are occurring. Noise and vibration control measures would be implemented to reduce the potential noise impacts (ICF International 2010b). These measures are summarized in above in Section B.5. Given the proximity of the river to the nearby highway, existing sound from occasional truck traffic, noise from water flow, and the fact that blasting would likely be limited to two or three isolated blasts per day, noise from blasting activities is not expected to impair the use or enjoyment of the river for recreational purposes.

Blasting would not be required at Patrick Creek Narrows Location 1 or 3. The noise study report indicates that at Patrick Creek Narrows Location 1, the maximum noise levels during construction periods could range from 88 to 92 dBA at a distance of 50 feet from the construction equipment and 80 to 86 dBA at 100 feet (ICF International 2010b). During construction at Patrick Creek Narrows Location 3, the maximum noise levels during construction periods could range from 88 to 92 dBA at a distance of 50 feet from the construction equipment and 80 to 84 dBA at 100 feet. There are no designated river access points at either location, with the exception of Sandy Beach, which is located near the terminus of Patrick Creek Narrows Location 1. Potential noise levels at Sandy Beach are discussed in Section B.4. Noise from construction activities is not expected to impair the use or enjoyment of the river for recreational purposes at these locations.

Implementation of measures included in the visual impact assessment would reduce and minimize potential impacts attributable to visual impacts for recreationists on or near the river (ICF International 2010d). The views from the river toward US 199 are typically from below the level of the roadway (Patrick Creek Narrows Locations 1 and 2 and the Narrows site), and in some locations, such as at Patrick Creek Narrows Location 3 and the Washington Curve site, views are shielded by vegetation and Douglas-fir forest. However, direct views of the roadway from the river exist at the other locations, and temporary views of construction activities can be expected. These temporary views are not expected to impair the use or enjoyment of the river for recreational purposes.

Access to the river for recreational activities would be maintained at all times throughout the construction period of the proposed project. Construction at the project locations on US 199 would not occur on weekends (beginning after 3 p.m. on Fridays), designated legal holidays, and the day preceding designated legal holidays. Traffic delays are expected on US 199 (see the discussion provided for the Smith River NRA).

### **B.8.3.3 Findings for the Smith River Wild and Scenic River System**

#### ***Smith River (Main Stem)***

The proposed project at the Ruby 1 and 2 sites on SR 197 would not have a direct or adverse effect on the recreational value for which the Smith River is designated. In addition, the proposed project at the Ruby 1 and 2 sites would not cause a constructive use of the Smith River Wild and Scenic River system because the proximity impacts would be temporary and would not substantially impair the protected activities, features, or attributes of the Smith River Wild and

Scenic River system for recreation. Therefore, the provisions of Section 4(f) would not be triggered.

### **Middle Fork Smith River**

The proposed project, at the project locations along US 199, would not require permanent use of the Middle Fork Smith River, a component of the Smith River Wild and Scenic River system. The proposed project would not have a direct or adverse effect on the values for which the Middle Fork Smith River was designated a Wild and Scenic River. In addition, potential proximity impacts would not constitute a constructive use because they would not hinder the preservation or recreation use of the Middle Fork Smith River. Further, the temporary occupancy of the Middle Fork Smith River for construction at Patrick Creek Narrows Location 2 would meet all of the temporary occupancy criteria outlined in 23 CFR 774.13(d). The temporary occupancy would not have a direct or adverse effect on the values for which the Middle Fork Smith River was designated a Wild and Scenic River. Therefore, the provisions of Section 4(f) would not be triggered.

## **B.9 References Cited**

### **B.9.1 Printed References**

- Baselt, D. 2009. *Jedediah Smith Redwoods State Park*. Available: <<http://www.redwoodhikes.com/Jed%20Smith/Jed%20Smith.html>>. Accessed: March 13, 2009.
- California Department of Parks and Recreation. 2009. *Jedediah Smith Redwoods State Park*. Available: <<http://www.parks.ca.gov/pages/413/files/JedediahSmith2007REPRINT.pdf>>. Accessed: March 13, 2009.
- California Department of Transportation. 2007. *Transportation Management Plan, Ruby 1*. August 15. Eureka, CA.
- California Department of Transportation. 2010a. *Standard Environmental Reference, Forms and Templates, EIR/EA Annotated Outline, page 140*. Available: <<http://www.dot.ca.gov/ser/forms.htm>>. Accessed: May 20, 2010.
- California Department of Transportation. 2010b. *Draft Construction Scenario DN 199—PM 20.5/25.7—EA: 01-479400 Realignment and Widening at Patrick Creek Narrows, Patrick Creek Narrows Location 2*. Originally submitted December 2008; revised January 2010. Eureka, CA.
- City of Crescent City. 2001. *Crescent City General Plan*. Section 1, Land Use and Community Development. May 21. Crescent City, CA.

- Federal Highway Administration. 2005. *Section 4(f) Policy Paper*. March 1. Office of Planning, Environment, and Realty Project Development and Environmental Review. Available: <<http://environment.fhwa.dot.gov/projdev/4fpolicy.asp>>.
- ICF International. 2010a. *Draft Archaeological Survey Report for the 197/199 Safe STAA Access Project*. Sacramento, CA.
- . 2010b. *Draft Noise Study Report for the 197/199 Safe STAA Access Project*. Sacramento, CA.
- . 2010c. *Air Quality Study Report for the 197/199 Safe STAA Access Project*. Sacramento, CA.
- . 2010d. *Visual Impact Assessment for the 197/199 Safe STAA Access Project*. Sacramento, CA.
- National Scenic Byways Program. 2009. *Smith River Scenic Byway*. Available: <<http://www.byways.org/explore/byways/2197/>>. Accessed: August 4, 2009.
- National Wild and Scenic Rivers. 2009. *Smith River*. Available: <<http://www.rivers.gov/wsr-smith.htm>>. Accessed: August 15, 2009.
- Trott, R. 2010. *Community Impact Assessment, 197/199 Safe STAA Access Project*. February. Prepared for the California Department of Transportation, North Region Environmental, Unit E-1, Eureka, CA.
- UNESCO World Heritage Centre. 2009. *Redwood National and State Parks*. Available: <<http://whc.unesco.org/en/list/134>>. Accessed: March 13, 2009.
- USDA Forest Service. 1992. *Smith River National Recreation Area Management Plan*. Eureka, CA.
- . 1995. *Six Rivers National Forest Land and Resource Management Plan*. Six Rivers National Forest. Eureka, CA.
- . 2005. *Letter to California Department of Transportation*. Gasquet, CA. November 28.
- . 2009a. *Patrick Creek Campground*. Available: <<http://www.fs.fed.us/r5/sixrivers/recreation/smith-river/fishing/patrick-creek-trail/>>. Accessed: August 13, 2009.
- . 2009b. *Fishing Patrick Creek Trail*. Available: <<http://www.fs.fed.us/r5/sixrivers/recreation/smith-river/fishing/patrick-creek-trail/>>. Accessed: August 11, 2009.
- . 2009c. *Fishing the Smith River*. Available: <<http://www.fs.fed.us/r5/sixrivers/recreation/smith-river/fishing/smith-river/>>. Accessed: August 5, 2009.

## **B.9.2 Personal Communications**

Douglas, Barry. California Department of Transportation PQS Principal Investigator – Prehistoric Archaeology, August 16, 2009—Email

Fulton, Ed. Building Maintenance and Parks Superintendent. Del Norte County Parks Department, Crescent City, CA. March 13, 2009—Telephone conversation.

Pass, Don. Forest Recreation Planner. U.S. Forest Service. August 5, 2009—Telephone conversation.

Rena, Monica. Del Norte County Parks Department, Crescent City, CA. August 12, 2009—Telephone conversation.



## Appendix C Title VI Policy Statement

---



# Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

**DEPARTMENT OF TRANSPORTATION**  
OFFICE OF THE DIRECTOR  
1120 N STREET  
P. O. BOX 942873  
SACRAMENTO, CA 94273-0001  
PHONE (916) 654-5266  
FAX (916) 654-6608  
TTY (916) 653-4086

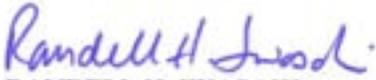


*Flex your power!  
Be energy efficient!*

August 25, 2009

**TITLE VI  
POLICY STATEMENT**

The California State Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

  
RANDELL H. IWASAKI  
Director

"Caltrans improves mobility across California"



# Appendix D Relocation Plans

---



# Appendix D Relocation Plans

---

## Relocation Assistance Advisory Services

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, the Department will provide relocation advisory assistance to any person, business, farm, or nonprofit organization displaced because of the acquisition of real property for public use. The Department will assist residential displacees in obtaining comparable replacement housing by providing current and continuing information on the availability and prices of both houses for sale and rental units that are “decent, safe and sanitary.” Nonresidential displacees will receive information on comparable properties for lease or purchase. Residential housing will be located in equal or better neighborhoods at rents or prices within the financial ability of the displacees, and will be reasonably accessible to the displacees’ places of employment. Replacement dwellings that are open to all persons regardless of race, color, religion, sex, and national origin and that are consistent with the requirements of Civil Rights Act Title VIII will be offered to displacees before any displacement occurs. Displacees will also receive information concerning federal and state assisted-housing programs and any other services known to be offered by public and private agencies in the area. Before they are asked to move, persons who are eligible for relocation payment(s) and are legally occupying a property required for the proposed project will be given at least 90 days written notice and offered at least one decent, safe, and sanitary residence, available on the market, by the Department.

## Residential Relocation Payments Program

The Relocation Payment Program will help eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for or incidental to the purchase or rental of the replacement dwelling and actual reasonable moving expenses to a new location within 50 miles of the displacement property. Any actual moving costs in excess of the 50 miles are the responsibility of the displacee. The Residential Relocation Program is summarized below.

### Moving Costs

Any displaced person who lawfully occupied the acquired property, regardless of the length of occupancy in the property acquired, will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable cost involved in moving themselves and personal property up to 50 miles or a fixed payment based on a fixed moving cost schedule.

## **Purchase Supplement**

In addition to moving and related expense payments, fully eligible homeowners may be entitled to payments for increased costs of replacement housing. Homeowners who have owned and occupied their property for 180 days or more prior to the date of the first written offer to purchase the property may qualify to receive a price differential payment and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate. The maximum combination of these three supplemental payments that the owner-occupant can receive is \$22,500. If the total entitlement (without the moving payments) is in excess of \$22,500, the Last Resort Housing Program will be used.

## **Rental Supplement**

Tenants who have occupied the property to be acquired for 90 days or more and owner-occupants of 90 to 179 days prior to the date of the first written offer to purchase may qualify to receive a rental differential payment. This payment is made when the Department determine that the cost to rent a comparable “decent, safe, and sanitary” replacement dwelling will be more than the present rent of the displacement dwelling. As an alternative, the tenant may qualify for a down payment benefit designed to assist in the purchase, subject to certain limitations noted below under “Down Payment.” In addition to moving expenses, the maximum amount payable to any tenant of 90 days or more and any owner-occupant of 90 to 179 days is \$5,250. If the total entitlement for rental supplement exceeds \$5,250, the Last Resort Housing Program will be used.

In addition to the occupancy requirements, to receive any relocation benefits, the displaced person must buy or rent and occupy a “decent, safe, and sanitary” replacement dwelling within 1 year from the date the department takes legal possession of the property or from the date the displacee vacates the displacement property, whichever is later.

## **Down Payment**

The down payment option has been designed to aid owner-occupants of 90 to 179 days and tenants with no less than 90 days of continuous occupancy prior to the project proponent’s first written offer. The down payment and incidental expenses cannot exceed \$5,250. The 1-year eligibility period in which to purchase and occupy a “decent, safe, and sanitary” replacement dwelling will apply.

## **Last Resort Housing**

Federal regulations (49 Code of Federal Regulations 24) contain the policy and procedure for implementing the Last Resort Housing Program on federal aid projects. Last Resort Housing benefits are, except for the amounts of payments and the methods in making them, the same as

those benefits for standard residential relocations as explained above. Last Resort Housing has been designed primarily to cover situations in which a displacee cannot be relocated because of a lack of available comparable replacement housing or when the anticipated replacement housing payment exceeds the \$5,250 and \$22,500 limits of the standard relocation procedure because either the displacee lacks the financial ability or other valid circumstances. In certain exceptional situations, Last Resort Housing may also be used for tenants of less than 90 days.

After the first written offer to acquire the property has been made, the Department will, within a reasonable length of time, contact the displacees to gather important information, including the following:

- Preferences in areas of relocation;
- Numbers of people to be displaced and the distribution of adults and children according to age and sex;
- Locations of school and employment;
- Specific arrangements needed to accommodate any family member's special needs; and
- Financial abilities to relocate into comparable replacement dwelling that will adequately house all members of the family

## **Nonresidential Relocation Assistance Program**

The Nonresidential Relocation Assistance Program provides assistance to businesses, farms, and nonprofit organizations in locating suitable replacement property and reimbursement for certain costs involved in relocation. The Relocation Advisory Assistance Program will provide current lists of properties offered for sale or rent suitable for a particular business's specific relocation needs. The types of payments available to eligible businesses, farms, and nonprofit organizations are: moving and searching expenses, and possibly re-establishment expenses, or a fixed in lieu payment instead of any moving, searching, and re-establishment expenses. The payment types are summarized below.

### **Moving Expenses**

Moving expenses may include the following actual, reasonable costs:

- Moving of inventory, machinery, equipment and similar business-related property dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting of personal property;
- Loss of tangible personal property provides payment for actual, direct loss of personal property that the owner is permitted not to move; and
- Expenses related to searching for a new business site (up to \$1,000 for reasonable expenses actually incurred)

## **Reestablishment Expenses**

Eligible businesses, farms, and nonprofit organizations may receive reestablishment expenses related to the operation of the business at the new location (up to \$10,000 for reasonable expenses actually incurred).

## **Fixed In Lieu Payment**

A fixed payment in lieu of moving and searching payments and reestablishment payments may be available to businesses that meet certain eligibility requirements. This payment is an amount equal to the average annual net earnings for the last two taxable years prior to the relocation and may not be less than \$1,000 or more than \$20,000.

## **Additional Information**

### **Relocation Payments Not Income**

Reimbursement for moving costs and replacement housing payments are not considered income for the purpose of the Internal Revenue Code of 1954 or resources for the purpose of determining the extent of eligibility of a displacee for assistance under the Social Security Act, local Section 8 housing programs, or other federal assistance programs.

### **Right to Appeal**

Any person, business, farm, or nonprofit organization that has been refused a relocation payment by the project proponent's relocation advisor or believes that the payment(s) offered by the agency are inadequate, may appeal for a special hearing of their complaint. No legal assistance is required. Information about the appeal procedure is available from the relocation advisor.

# Appendix E Minimization and/or Mitigation Summary

---



# Appendix E    Minimization and/or Mitigation Summary

---

## **Widen and Upgrade Private Road Approaches at Ruby 2 Site**

The private road approaches to residential properties affected by improvements at the Ruby 2 site would be widened and upgraded to current standards as part of the proposed project. As part of the widening of SR 197 and reconstruction of private road approaches, any mailboxes, fencing, signage, or landscaping (including ornamental trees) displaced by the proposed project on affected residential properties would be replaced in coordination with property owners.

## **Follow Best Management Practices to Implement Permanent Enhanced Erosion Control Seeding and Revegetation for the Proposed Project**

The Department, or its contractor, would follow the measures for permanent enhanced erosion control seeding and revegetation, as listed in Section 2.3.1.3, “Avoidance, Minimization, and/or Mitigation Measures for Natural Communities in the Biological Environment.” Following those proposed measures would ensure seeding and revegetation that reflect natural existing vegetation patterns and provide multiple canopy layers, seasonality, diverse habitat, and reduced susceptibility to disease.

## **Implement Best Management Practices for Project Design and Construction**

The following design practices will be utilized to maximize project aesthetics and minimize visual impacts:

- The Department will coordinate with the Forest Service and the public to select locally appropriate aesthetic treatments for the final design of retaining walls, bridges, barriers, and other construction elements. Aesthetic treatments will address materials, patterns, texture, and color.
- Refer to local reference sites that are within 30 miles of the project area, such as Idlewild Curves, Hardscrabble Creek Bridge and Hiouchi/Myrtle Creek Viaduct sites on US 199, for design and construction treatments that will reduce visual impact and retaining wall and bridge aesthetics. This may include the use of slope rounding, steeper cut slopes to reduce wall area and/or cut surface areas, use of flatter toes at cut slopes to provide area for rock fall instead of using a retaining structure, using redwood soldier pile retaining walls, and mimicking aesthetics from local historical bridges within the new bridge design to lessen impacts on visual resources.

## **Construct Walls with Low-Sheen and Non-Reflective Surface Materials**

To reduce the potential for glare, retaining walls will be constructed with construction materials with pattern, texture and color similar to that which exists in the area and using low-sheen and non-reflective surface materials. The finish would be matte and roughened. The use of smooth, trowelled surfaces and glossy paint would be avoided.

### **Implement Avoidance and Notification Procedures for Cultural Resources**

It is the Department's policy to avoid cultural resources whenever possible. If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find. The Department will implement all reasonable measures needed to avoid, minimize, or mitigate further harm to the resource. If appropriate, the Department will notify Indian tribes or Native American groups that may attach religious or cultural significance to the affected property.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the county coroner shall be contacted. Pursuant to PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC, which will then notify the Most Likely Descendent (MLD). The Department will work with the MLD to avoid the remains, and if avoidance is not feasible, to determine the respectful treatment of the remains. Further provisions of PRC Section 5097.98 are to be followed as applicable.

### **Implement Standard Specifications, Special Provisions, and Permit Requirements**

Contract standard specifications, special provisions, and permit requirements reduce potential short-term impacts. Construction-related impacts are required by Standard Specification (SSP) 07-345 and Order 99-06-DWQ, and short-term protections are contained in the Department's Construction Site BMP manual. These are minimum requirements that must be met by all Contractors working on Department projects. The Department has a program to research and test the effectiveness of new BMPs for construction sites (CTSW-RT-03-049), which allows for continued improvement of BMPs for construction sites. An active SWPPP program also provides BMP inspection and sampling to ensure their maintenance until the project is complete and the site stabilized.

### **Minimize Sediments, Turbidity, and Floating Material**

Suspended material is the most likely pollutant resulting from Department construction projects. Erosion of sediments is the main source of suspended material. Turbidity and floating material are reduced through the use of BMPs. Implementing standard Department practices and procedures will reduce potential impacts.

During the construction activities, the standard BMPs listed below would be utilized to reduce or eliminate sediment, turbidity, and floating materials to receiving waters:

- SS-1 Scheduling
- SS-2 Preservation of Existing Vegetation
- SS-3 Hydraulic Mulch
- SS-4 Hydroseeding
- SS-5 Soil Binders

- SS-6 Straw Mulch
- SS-7 Geotextiles, Plastic Covers, Erosion Control Blankets: Cover Soil/Stockpiles
- SC-1 Silt Fence
- SC-5 Fiber Rolls
- SC-7 Street Sweeping and Vacuuming
- SC-10 Storm Drain Inlet Protection
- WE-1 Wind Erosion Control
- TC-1 Stabilized Construction Entrance/Exit
- NS-1 Water Conservation Practices

Additional BMPs that may be used on this project for sediment control are as follows:

- SS-12 Streambank Stabilization
- SC-3 Sediment Trap
- SC-4 Check Dams
- SC-6 Gravel Bag Berms
- SC-9 Straw Bale Barrier
- TC-3 Entrance/Outlet Tire Wash
- NS-2 Dewatering Operations
- NS-4 Temporary Stream Crossing
- NS-5 Clear Water Diversion

In addition to BMPs required as part of the project-specific Stormwater Pollution Prevention Plan (SWPPP), Design Pollution Prevention BMPs reduce the amount of erosion during construction using slope designs that reduce erosion potential via techniques such as slope rounding, benching, track walking, reducing slope length, and providing top of slope drains. Hydraulic design techniques also reduce erosion through the use of Pollution Prevention BMPs such as flared-ends sections, rock slope protection, paved water conveyances, and energy-dissipater pads. These BMPs have been demonstrated to be effective for reducing erosion and sedimentation to non-significant levels.

### **Minimize Oil, Grease, and Chemical Contamination**

Contract specifications and permit conditions prohibit the Contractor from discharging oils, greases, or chemicals into receiving waters. Construction operations are required to follow BMPs that provide potentially harmful chemical containment and spill protection. Construction site accidents may introduce pollutants to the environment. The Department addresses these problems with detection and reporting procedures to ensure prompt cleanup. By implementing Construction Site BMPs and SSPs, any build alternatives selected would reduce potential

impacts from construction-related oils, greases, and chemicals. The following BMPs may be deployed to prevent and reduce releases of these pollutants during the active construction period:

- NS-3 Paving and Grinding Operations
- NS-6 Illicit Connection/Illegal Discharge Detection and Reporting
- NS-8 Vehicle and Equipment Cleaning
- NS-9 Vehicle and Equipment Fueling
- NS-10 Vehicle and Equipment Maintenance
- NS-12 Concrete Curing
- NS-13 Material and Equipment Use Over Water
- NS-14 Concrete Finishing
- NS-15 Structure Demolition/Removal Over or Adjacent to Water
- WM-1 Material Delivery and Storage
- WM-2 Material Usage
- WM-3 Stockpile Management
- WM-4 Spill Prevention and Control
- WM-8 Concrete Waste Management

Additional BMPs that may be used prevent and reduce the release of these pollutants include:

- WM-5 Solid Waste Management
- WM-6 Hazardous Waste Management
- WM-7 Contaminated Soil Management
- WM-9 Sanitary/Septic Waste management
- WM-10 Liquid Waste Management

### **Stabilize Proposed Cut and Fill Areas**

#### Ruby 2

The potential for increased erosion associated with the proposed cuts would be reduced by slope rounding and revegetation (i.e., erosion control seeding and/or installation of containerized plants).

#### Patrick Creek Narrows Location 2

The risk of landslides and rockfall associated with the different alternatives would be reduced by the following or similar measures: implementation of appropriate cut-slope ratios, slope

rounding, controlled blasting, catchment areas, rock bolts,<sup>1</sup> anchored wire mesh, and retaining walls.

### The Narrows

The potential for rockfall and landslides would be reduced by controlled blasting, rock bolts, anchored wire mesh, and cable drapes.

### Washington Curve

The Retaining Wall Alternative would have a lower potential for erosion than the Cut Slope Alternative. The potential of landslides and rockfall associated with the Cut Slope Alternative would be reduced by an appropriate cut-slope ratio, slope rounding, and catchment area for rocks at the bottom of the slope. After construction is completed, a chain link fence would be constructed along the top of the proposed wall if needed to prevent rocks from entering the roadway from the slope above.

### **Enhanced Erosion Control Seeding and Revegetation**

- **Enhanced Erosion Control:** Enhanced erosion control seeding would be implemented at all project locations after construction is complete. For the purposes of this project, enhanced erosion control seeding refers to using a more diverse species selection in the seed mix, including a variety of regionally appropriate native trees, shrubs, and herbs. This permanent erosion control will be applied to all disturbed soils consistent with the North Coast Regional Water Quality Control Board 401 Certification for the project and the Department's current *Storm Water Quality Handbook Construction Site Best Management Practices Manual*. Seed mixes would be customized to address habitat variation at the different project sites and to be ecologically suitable for the site conditions after soil disturbance from construction activities. The potential seeding species to be collected are the native species listed by occurrence at each location in Appendix N, overseen by a botanist, plant ecologist, or qualified staff with knowledge of flora of the SR 197 and US 199 region. In case seed collection does not provide enough seed for each location, an adequate quantity of a regional native grass species (northwest California), such as wildrye (*Elymus glaucus*) or Idaho fescue (*Festuca idahoensis*) will supplement collected seed and ensure short-term soil stabilization during establishment of long-term native revegetation. **Revegetation:** Revegetation, for the purposes of this project, refers to the planting of containerized native trees, shrubs, and/or herbs in disturbed soil areas. This is proposed at Ruby 2 in front of private parcels as a visual screen, with permission from property owners, and it would also likely occur at Patrick Creek Narrows Location 2. The revegetation species list would include regionally appropriate (Del Norte County) trees, shrubs, and herbs that are suited to the habitats of the project area. Planting would reflect natural vegetation patterns, groupings, strata, and species diversity. The species selection and quantity would be determined based on habitat, disturbance

---

<sup>1</sup> The purpose of rock bolts as part of a retaining wall is to pin two planes of rock, by bolting the slipping plane to a solid rock plane. Rock bolting is a construction technique used when constructing a retaining wall in rocky material. A crane with a drill rig on a platform is raised to the desired location. Loose rock is removed, a hole is drilled, and compressed air flushes the bored hole clean and the drill hole is further widened. Finally, a bar is bolted and secured with epoxy in place, then grouted and tensioned along its length. Each grouted and secured bar is finally locked with a faceplate. Rock bolted tension bars are constructed along the face of the retaining wall to secure the new slope in place.

tolerance, and desired spacing, without over-planting, and as evaluated by a qualified botanist, plant ecologist, or similarly qualified staff. The potential container plants that would be used are the native plants listed by occurrence at each location, in Appendix N.

- **Invasives:** No invasive plant species would be used at any location. During the revegetation monitoring period, invasive species such as Himalayan blackberry (*Rubus armeniacus*, formerly *R. discolor*) and French broom (*Genista monspessulana*) will be eliminated or controlled per the Invasive Plants Avoidance, Minimization, and Mitigation Measures section (see Section 2.3.6.4).
- **Site Preparation:** On-site topsoil and/or duff (i.e., leaf litter and small branches) will be collected prior to construction whenever feasible, stockpiled, then reapplied in disturbed soils in project areas, such as along the old highway alignment that would be decommissioned if a bridge replacement alternative is selected at Patrick Creek Narrows Location 2. Off-highway staging and old highway alignment areas, where seeding or revegetation is anticipated, will require approximately 18 to 24 inches of ripping, where feasible, to decompact soils and facilitate revegetation prior to topsoil/duff application and seeding/revegetation.
- **Monitoring of Enhanced Erosion Control:** Enhanced erosion control seeding would be monitored for 2 years, starting approximately 1 year after hydroseeding and preferably during the blooming season. There would be two monitoring success criteria: 70% relative cover<sup>2</sup> (except rock faces), and presence of at least 30% native species that were included in the seed mix. If the success criteria are not met, a review will be conducted by a qualified botanist, plant ecologist, or similarly qualified staff to determine potential reason(s) for failure to meet the success criteria and to develop and implement remedial measures as needed (remedial measures may not be needed if native recruitment adequately ameliorates poor planting success). Potential remedial measures may include additional native seed collection and re-seeding the project location.
- **Revegetation Monitoring:** Revegetated areas (i.e., Ruby 2 and likely Patrick Creek Narrows Location 2) will be annually census monitored. Survival will be assessed approximately one year after planting and for two subsequent years to assess the survival of installed plants (three years total). The monitoring success criterion will be that greater than 70% of plants installed at the end of the monitoring period will have survived. If survival falls below 70%, a review will be conducted by a qualified botanist, plant ecologist, or similarly qualified staff to determine potential reason(s) for failure to meet the success criterion and to develop and implement remedial measures as needed. Potential remedial measures may include re-planting, if native plant recruitment has not adequately ameliorated poor planting success.

Further details regarding enhanced erosion control seeding and revegetation are listed in Appendix R, Enhanced Erosion Control Seeding and Revegetation Plan.

### **Delineate Environmentally Sensitive Areas with Exclusionary Fencing**

The Department will establish, as indicated on project plans, specifications to avoid potential construction impacts on sensitive biological resources (i.e., sensitive natural communities and

---

<sup>2</sup> Relative cover is the proportional contribution of native species cover compared to undisturbed vegetation cover observed in adjacent areas with similar habitat.

plant and lichen locations) adjacent to the construction sites and staging areas. Temporary exclusionary fencing will be placed around areas of sensitive natural communities and special-status and sensitive plant and lichen species that are adjacent to proposed staging/storage and construction areas, thereby prohibiting construction activities in those areas.

### **Control Plant Pathogens**

To avoid the spread of plant diseases such as sudden oak death and Port Orford cedar (POC) root disease, best management practices will be implemented. These include the following:

- washing heavy equipment before and after ground-disturbing activities,
- removing POC from road areas to reduce the risk of infection (sanitation logging),
- directing water runoff away from POC areas, and
- using pathogen-free water for dust control.

### **Protect Old-Growth Tree Roots**

At both project locations on SR 197, many old-growth redwood trees (with a dbh of more than 36 inches) are within the project area. To minimize potential impacts on old-growth trees, only hand tools or air spades will be used for excavation within the Structural Root Zone of old-growth redwood trees. The Structural Root Zone of a tree is a circular area (the tree trunk is at the center of the circle) with a radius three times the dbh of the trunk. Only an air spade or handwork will be used for excavation within the Structural Root Zone of redwood trees that are 36 inches dbh or greater. Within the Structural Root Zone, any root encountered will be cut cleanly to optimize healing potential.

### **Mitigation for Impacts on Old-Growth Redwoods**

If one of the Ruby 2 alternatives that would remove old growth redwood trees is selected, off-site or out-of-kind mitigation would be required. This would include measures that indirectly benefit old growth redwoods and associated plant and animal species. Some options for off-site or out-of-kind mitigation include:

- Purchasing acreage of existing old growth redwoods in nearby private ownership and transferring it to a non-profit conservation organization (such as Save-the-Redwoods League), or to a County, State, or National Park.
- Removal of invasive exotic plant species within the Department's right-of way in the Ruby 2 project vicinity to enhance habitat for native redwood forest species.
- Provide corvid-proof trash containers in nearby Ruby Van Deventer Park (corvids such as crows, ravens, and jays eat the eggs of marbled murrelets).

### **Limit Construction in Waters of the State/United States to the Dry Season**

To minimize and avoid impacts on waters of the United States, work in watercourses will be scheduled to take place during periods of low flow or when the watercourse is dry, which can be

as early as May 2 and as late as October 15. When watercourses are dry, no stream diversion is required; sediment discharge is avoided. Many frog and salamander species move to other areas when seasonal streams dry-up. Therefore, impacts to these species would be avoided by working when the watercourse is dry. Specific work windows and limitations on construction will be determined as a result of Endangered Species Act Section 7 consultations and permits from federal and state regulatory agencies.

### **Implement Erosion and Pollution Control Measures**

To maintain water quality and minimize the movement of soils and sediment into and within the project watercourses, effective erosion and pollution control measures will be developed and implemented. These measures will be implemented for all ground disturbing activities during and after construction as is practicable. It is expected that minor amounts of sediment discharge due to this project are unavoidable. However, the Department will ensure that applicable BMPs are used to stabilize all disturbed soil areas to minimize adverse effects on water quality, aquatic habitat, and listed fish species. The following measures and BMPs are applicable to the proposed project.

- Temporary construction BMPs will include the following measures and features:
  - **Soil stabilization and wind erosion control:** scheduling, preservation of existing vegetation, hydraulic mulch, erosion control blankets, and stream bank stabilization
  - **Sediment control:** silt fences, check dams, fiber rolls, gravel bag berms, street sweeping, and storm drain inlet protection
  - **Tracking control:** stabilized construction entrances/exits; non-stormwater management measures to address paving and grading operations; temporary dewatering and clear water diversions, and structure demolition/removal over or adjacent to water
  - **Waste management and material pollution control:** material handling and storage, concrete waste management, and sanitary waste management
- Site-specific temporary construction BMPs will be identified in a Water Pollution Control Program or Storm Water Pollution Prevention Plan developed by the Contractor and approved by the Resident Engineer.
- Pollution BMPs measures considered will include flow conveyance systems such as dikes, overside drain outlet protection and velocity dissipation devices; slope and surface protection systems such as vegetated surfaces and hard surfaces.
- To reduce long-term erosion and sediment discharge into receiving waters, RSP will be placed at culvert outlets. Typically, 6-foot-wide by 14-foot-long area of RSP is placed in the drainage channel. The RSP consists of 1/4-ton crushed rock (approximately 1.8 feet in diameter).
- On-site duff, composed of leaf litter and small branches, will be collected prior to construction whenever feasible, stockpiled, then reapplied. All trees removed, that are not used for other purposes for the project, will be processed through a chipper and the chips applied to the areas of exposed soil within the project area as a soil-stabilizing mulch.

- Disturbed soils will be seeded with an enhanced erosion control seed mix appropriate to the habitat(s) at each project location, using regionally appropriate, native species (also see Section 2.3.1.4).
- Excess material excavated from the work site will be disposed of off site at an appropriately permitted disposal site.

### **Evaluate and Implement Permanent Storm Water Treatment Options**

Approximately 1–2 acres of additional impervious surface will be added to the highway facility as a result of the proposed project. Storm water treatment BMPs will be incorporated to address pollutant removal from stormwater runoff. Treatment BMPs evaluated will include Low-Impact Development–type BMPs such as biofiltration strips and swales. Because traction sand is applied occasionally, traction sand traps will be evaluated and constructed where feasible. Treatment BMPs will be designed to meet approved guidelines.

### **Compensate for Temporary and Permanent Impacts on Wetlands and Other Waters**

Compensation may be a combination of onsite restoration/creation, offsite restoration, or mitigation credits. Compensation ratios (number of acres restored or created for every 1 acre filled) will be based on site-specific information and determined through coordination with state and federal agencies, as part of the permitting process for the project. Concurrent measures such as working when a site is dry (seasonal avoidance) and erosion control BMP's along with post-project mitigation measures will be implemented.

### **Minimize Effects on Special-Status and CNPS List 4 Plants, Lichen, and Fungi**

All special-status lichen and fungi identified during botanical surveys will be avoided.

Typically, mitigation is proposed when potential impacts on rare or listed plant species are anticipated to be adverse. With the exception of one rare species, yellow-tubered toothwort (CNPS 1B.3), all species that would be affected by proposed construction activities (i.e., California lady's-slipper, Howell's lomatium, Piper's bluegrass, and Del Norte willow) are CNPS List 4 species and considered uncommon but not rare. Potential impacts on yellow-tubered toothwort are minor (i.e., 3% to 10%, when accounting for total number of yellow-tubered toothwort across all US 199 project locations and the total number affected by proposed activities), so mitigation for potential impacts on yellow-tubered toothwort is not necessary.

Impacts on List 4 species are generally not mitigated unless the population is significant, but good stewardship and recognition of the potential significance of the List 4 species occurring within project limits prompts the Department to assess and attempt minimization measures for species that would be affected by proposed construction activities. As noted above, only four (of nine) List 4 species within project areas would be affected by project activities. One of the List 4 species that would be affected by proposed construction is California lady's-slipper, a CNPS List 4.2 species. This species is more sensitive than List 4.3 species because it is threatened by horticultural collecting and logging; many protected populations on Forest Service land are not reproducing; and its habitat is restricted to wet areas, usually associated with serpentine, an

uncommon soil/habitat (California Native Plant Society 2010). Although this species is more sensitive than other List 4 species within project limits, only ~8 to 15% of plants within project areas would be affected, and minimization measures are proposed below in an attempt to offset impacts on this species at the Narrows. The other CNPS List 4.2 species is California pitcherplant; it is threatened by horticultural collecting and mining and is restricted to generally serpentinite seeps or wet areas, which are also uncommon habitats. Construction activities have been amended to avoid potential impacts on this species.

The minimization measures proposed below are for one special-status species, yellow-tubered toothwort, and for the following sensitive species: California lady's-slipper, Howell's lomatium, Piper's bluegrass, and Del Norte willow, all of which occur in areas anticipated to have construction impacts.

### **Designate and Fence Environmentally Sensitive Areas for Sensitive Plants, Lichen, and Fungi and Their Habitats**

The Department will avoid and minimize potential impacts on sensitive plants and sensitive plant habitat to the greatest extent practicable during project construction.

Wherever any sensitive plants are close to construction, staging, or disposal areas, temporary exclusionary fencing or stakes/flagging will be placed to protect them, buffering them from disturbance. These areas will be designated as Environmentally Sensitive Areas and shown on the project plans. No construction workers or construction equipment will be permitted in these areas.

### **Relocate Sensitive Plants, When Possible**

The Department will attempt to relocate special-status and sensitive (i.e., all CNPS-listed) plants that are in areas of soil disturbance. These will be salvaged with methods appropriate to the particular species (i.e., digging up and replanting clumps of yellow-tubered toothwort tubers at Patrick Creek Narrows Locations 2 and 3; collecting and sowing seed of Piper's bluegrass at Patrick Creek Narrows Location 1 and the Narrows and potentially transplanting some plants; digging up rhizome clusters and surrounding soil of California lady's-slipper at the Narrows; collecting and sowing seed from Howell's lomatium at Patrick Creek Narrows Location 1; and taking and replanting Del Norte willow cuttings at the Narrows). Experimental trials of proposed minimization measures in 2010 will determine the feasibility and potential success of the proposed measures. These trials are proposed for species that occur in areas where proposed construction impacts are likely (e.g., collecting seed of Piper's bluegrass at Patrick Creek Narrows Location 1 where the retaining wall is proposed), and transplantation/seed sowing will occur nearby but outside proposed project limits and in suitable habitat for each species. This will occur in consultation with the Forest Service because these trials will likely be planted within the easement with the Forest Service. The Department will monitor the results of the trials in 2011 to determine success. If results are positive, the measures will be expanded to encompass remaining sensitive plant areas anticipated to be affected. The collected plant material will be stored in a safe location until construction is complete, and replanting will occur in suitable habitat in the project vicinity within the Department's right-of-way or in a location agreed upon by the Department and the landowner of the parcel where transplanting is proposed. Transplants

will be watered, if necessary, and monitored for a 3-year period to assess successful re-establishment of at least some individuals in each transplanted species and success of the transplanting techniques used.

Some studies show that transplantation is often unsuccessful (e.g., Fiedler 1991 in California Native Plant Society 1998) and not considered viable mitigation by the CNPS and others for project impacts on rare and listed plant species (California Native Plant Society 1998). However, transplantation is proposed as a minimization measure for California lady's-slipper, a sensitive but not rare species, at the Narrows in an attempt to maintain genetic diversity and minimize loss of individuals that would occur if no minimization measures were implemented.

Successful re-establishment will be assessed by recording survival of transplanted material or obvious expression of germinated seed, such as concentrations in the area that was seeded. Results will be noted in the monitoring reports. The Department acknowledges that the proposed transplanting and seed collection is experimental. Attempts to assist in re-establishing existing genetic diversity and individuals combined with weeding of invasive plant species in disturbed soil areas is responsible stewardship and will increase knowledge of sensitive plant re-establishment.

### **Implement Invasive Weed Control Program**

As a compensatory measure to improve habitat for native plants in and adjacent to disturbed soil areas at project locations and to minimize competition from non-native/invasive plants, the Department will implement a 3-year program of invasive weed control in all areas of disturbed soil.

### **Minimize Effects of Nighttime Construction Lighting**

To minimize effects on nocturnal species such as Pacific fisher and American martin, if night work is required, the lighting will be directed downward toward the roadway and will not substantially exceed the level of disturbance of the existing traffic headlights.

### **Contact and Consult with DFG and Forest Service if Nesting Osprey Are Found**

If osprey are found to be nesting in or near the project area at the time of construction, the Department will contact DFG and Forest Service, and consult with those agencies to identify and implement avoidance and minimization measures.

### **Limit Vegetation Removal to the Non-Nesting Season for Migratory Birds**

In compliance with the MBTA, grass, tree, and shrub removal will take place between September 1 and March 1 to avoid impacts on nesting birds. If vegetation must be removed outside these dates, a biological survey for nesting birds must be conducted prior to vegetation removal.

### **Limit Construction in Watercourses to the Dry Season**

Work involving seasonal creeks/drainages will take place when they are dry and there is no precipitation occurring or anticipated. Work in the water of perennially flowing channels will take place during the dry season, generally between June 15 and October 15, to minimize impacts on amphibians and other aquatic organisms.

### **Conduct Pre-Construction Surveys for Western Pond Turtle**

Measures will be implemented to minimize impacts on western pond turtles that may be present in the work area. Every day, prior to any in-stream work with active water flow, a Biological Monitor will survey for turtles in the area. If any are found, they will be moved to similar habitat downstream. Gravel or any other material added to the stream for construction purposes will be introduced slowly starting upstream giving turtles an opportunity to escape downstream.

### **Conduct Pre-Construction Surveys for Northern Red-Legged Frog**

Measures will be implemented to minimize impacts on northern red-legged frogs that may be present in the work area. Every day, prior to any in-stream work with active water flow, the Biological Monitor will survey for frogs and frog egg masses in the area. If any are found, they will be moved to similar habitat downstream. Gravel or any other material added to the stream for construction purposes will be introduced slowly, starting upstream to give frogs an opportunity to escape downstream.

### **Conduct Pre-Construction Surveys for Foothill Yellow-Legged Frog**

Measures will be implemented to minimize impacts on foothill yellow-legged frogs that may be present in the work area. Every day, prior to any in-stream work with active water flow, the Biological Monitor will survey for frogs and frog egg masses in the area. If any are found, they will be moved to similar habitat downstream. Gravel or any other material added to the stream for construction purposes will be introduced slowly, starting upstream to give frogs an opportunity to escape downstream.

### **Implement Avoidance and Minimization Measures for Chinook Salmon and Salmonids**

The Department will avoid and minimize potential impacts on the salmonids and their Critical Habitat and EFH to the greatest extent practicable during project construction. Specific work windows and limitations on construction will be determined through consultations with resource agencies. To avoid, minimize, and offset impacts, the following measures will be included by the Department:

- Large woody debris obtained from tree removal in the project area will be made available to resource agencies for placement in nearby streams and rivers. This will have a positive effect on fish rearing habitat.
- All trees not taken by resource agencies or used by other government or private entities, with approval from the Department, will be put through a chipper and the chips will be applied to areas of exposed soil on-site as erosion control mulch.

- Sediment and erosion control measures will be implemented to minimize sediment discharge to the river or other waters.
- A vacuum sweeper will be used to clean the pavement.
- No material will be placed where it may enter the river due to precipitation.
- Noise blankets are being considered to help reduce the noise from blasting at the Narrows.
- If feasible during blasting activities at the Narrows, K-rail will be placed near the centerline, and a cyclone fence will be placed on top of that.
- No impact pile driving will be used for bridge work or retaining walls.
- All in-stream activity will take place between June 15 and October 15 when no adult coho are present.
- Debris resulting from bridgework at Patrick Creek Narrows Location 2 will be contained to the maximum extent practicable.
- Gravel or any other material added to the stream for construction purposes will be introduced slowly, starting upstream to give fish an opportunity to escape downstream.
- If material (e.g., gravel) is introduced into the river, the Biological Monitor will be present during this activity to survey for fish in the area of impact. If any fish are found, they will netted, placed in cool river water, and moved to similar habitat downstream.

### **Implement Avoidance and Minimization Measures for Coastal Cutthroat Trout**

The Department will avoid and minimize potential impacts on the coastal cutthroat trout and its habitat during project construction by the measures outlined above for chinook salmon so there will be no adverse impacts on coastal cutthroat trout.

### **Protect Migratory Birds**

Per the federal MBTA, the contractor will be instructed that migratory birds and their (active) nests, eggs, and young are protected and measures must be implemented to avoid the harassment or take of any birds. These measures include:

- Tree and shrub removal should occur from September 1 to March 1 to avoid taking nesting birds.
- If vegetation removal cannot occur within this window, then surveys by the Department Biologist or biological monitor will be required prior to the removal of any trees.
- If nesting birds are present, tree and shrub removal will not be permitted until a Department Biologist or biological monitor has given authorization to proceed.

### **Use Removed Trees and Stumps to Improve Fish Rearing Habitat**

Large trees and stumps that are removed in the project area will be made available to resource agencies for placement in nearby streams and rivers. This will have a positive effect on fish rearing habitat.

### **Implement Measures to Minimize Impacts on Reptiles and Amphibians**

Measures will be implemented to minimize impacts on western pond turtles and special-status frogs that may be present in the work area. Every day prior to any drainage work that involves a watercourse with active water flow, the Biological Monitor will survey for frogs and turtles in the area. If any are found, they will be moved to similar habitat nearby.

Every day, prior to any in-stream work with active water flow, the Biological Monitor will survey for western pond turtles, frogs, and frog egg masses in the area. If any are found, they will be moved to similar habitat downstream. Gravel or any other material added to the stream for construction purposes will be introduced slowly, starting upstream to give frogs an opportunity to escape downstream.

### **Construct During Specific Work Windows to Protect Marbled Murrelet and Northern Spotted Owl**

To avoid adverse effects to northern spotted owl during the critical breeding season (March 1–June 30), no night work will take place and there will be no blasting. To avoid potential noise impacts on migrating marbled murrelet between March 24 and September 15, there will be no construction activity involving equipment with noise levels in excess of ambient traffic noise (including blasting) in the morning for a 3-hour period, starting 1 hour before sunrise and lasting until 2 hours after sunrise. In the evening, no construction activity (including blasting) will occur in a 3-hour window beginning 2 hours before sunset and lasting until 1 hour after sunset. Therefore, from July 1 to September 15, there can be night work starting 1 hour after sunset and ending 1 hour before sunrise. After September 15 (until March 1), there will be no restrictions on night work. Final work windows will be determined through Section 7 consultation and may include additional restrictions or restrictions based upon noise levels and frequency.

### **Avoid and Minimize Impacts on Salmonids**

The Department will avoid and minimize potential impacts on salmonids and their critical habitat and EFH to the greatest extent practicable during project construction. To avoid, minimize, and offset impacts, the following measures will be implemented by the Department:

- Large woody debris obtained from tree and stump removal in the project area will be made available to resource agencies for placement in nearby streams and rivers. This will have a positive effect on fish-rearing habitat.
- All trees not taken by resource agencies or used by other government or private entities, with approval from the Department, will be put through a chipper and the chips will be applied to areas of exposed soil on-site as erosion control mulch.

- Sediment and erosion control measures will be implemented to minimize sediment discharge to the river or other waters.
- A vacuum sweeper will be used to clean the pavement.
- No material will be placed where it may enter the river.
- Noise blankets will be considered to help reduce the noise from blasting at the Narrows.
- If feasible during blasting activities at the Narrows, K-rail segments will be placed near the centerline and a cyclone fence will be placed on top of that.
- No impact pile driving will be used for bridge work or retaining walls.
- All in-stream activity will take place between June 15 and October 15 when no adult coho salmon are present
- All debris resulting from bridgework at Patrick Creek Narrows Location 2 will be contained and not allowed to enter the river.
- Gravel or any other material added to the stream for construction purposes will be introduced slowly, starting upstream to give fish an opportunity to escape downstream.
- If material (e.g., gravel) is introduced into the river, the Biological Monitor will be present during this activity to survey for fish in the area of impact. If any are found, they will netted, placed in cool river water, and moved to similar habitat downstream.

### **Implement Compensatory Mitigation for Coho Salmon—Southern Oregon/Northern California Coast ESU**

Compensatory mitigation measures will be implemented in consultation with NMFS and DFG for impacts on coho salmon. To offset impacts on coho salmon from this project, fish passage at culverts on other watercourses in the Smith River watershed will be identified and the fish passage improved. This work may be done in advance of this project, concurrently, and/or afterwards.

### **Limit Timing of Construction Activity to Avoid Noise Effects on Migrating Marbled Murrelet**

To avoid potential noise impacts on migrating marbled murrelet between March 24 and September 15, there will be no construction activity (including blasting) in the morning for a 3-hour period, starting 1 hour before sunrise and lasting until 2 hours after sunrise. In the evening, no construction activity involving equipment with noise levels in excess of ambient traffic noise (including blasting) will occur in a 3-hour window starting 2 hours before sunset and lasting until 1 hour after sunset. Therefore, from July 1 to September 15, there can be night work starting 1 hour after sunset and ending 1 hour before sunrise. After September 15 (until March 1), there will be no restrictions on night work. Final work windows will be determined through Section 7 consultation, and may include additional restrictions or restrictions based upon noise levels and frequency.

### **Implement Measures to Reduce Spread of Invasive Plant Species**

To reduce the spread of invasive non-native plant species, the Department may implement the following protection measures, in compliance with Executive Order 13112, to the greatest degree practicable:

- Excess excavated soil and plant materials will be disposed of at an appropriately permitted disposal site in compliance with all federal, state, county, and local regulations.
- Plant species used for erosion control will consist of native, non-invasive, regionally appropriate species or non-persistent hybrids that will serve to stabilize site conditions and prevent invasive species from colonizing.
- Certified weed-free imported materials (or rice straw in upland areas) will be used.
- If invasive weeds in areas disturbed by project activities show evidence of spreading into other areas, the Department will develop an Invasive Weed Eradication Plan that targets identified invasive species on the Cal-IPC and CNPS lists. Herbicide use is not permitted at the US 199 locations adjacent to Forest Service land, but it is permitted at the SR 197 locations. To avoid the spread of invasive plants, any wheeled or tracked equipment that is operated off pavement will be washed before entering and after leaving the BSA.

### **Implement Measures to Reduce Temporary Access and Circulation Impacts**

The following measures would reduce impacts related to temporary access and circulation delays during construction:

- Access to side roads and residences would be maintained at all times. When work or traffic queues extend through an intersection or driveway, additional traffic control will be required at the intersection or driveway.
- The Department Resident Engineer would provide information to residents, businesses, and adjacent landowners (e.g., Jedediah Smith Redwoods State Park, Forest Service) before and during project work that may represent a negative impact on commerce and travel surrounding the zone of construction. Funding will be included in supplemental funds for the Resident Engineer to print flyers.
- The ODOT public information officer will be contacted 1 week before any planned closure on US 199 to allow ODOT to warn public traffic of the possible delays on the US 199 corridor.
- Prior to construction of project improvements each construction season, contact would be made with staff at Jedediah Smith Redwoods State Park to advise them of the potential length and timing of any closures of US 199 and to determine the exact dates of any festivals in the park that might be affected by the closure.

In addition to implementing measures for specific project sites, the following measures would reduce the temporary access and circulation impacts of the project caused by potentially lengthy construction delays and highway closures:

- The traffic management plans for each project location would require that emergency service providers (i.e., sheriff, fire, and ambulance services) be given at least 1 week of notice before any planned full roadway closures on US 199 during construction. Notification is particularly critical for highway closures at Patrick Creek Narrows Locations 1, 2, and 3 and the Washington Curve site, and for potentially lengthy delays at the Narrows site. Construction Contractors would be required by the Department to expedite the passage of emergency service vehicles through work zones at all times.
- Information regarding delays and scheduled closures would be made readily available to the traveling public on the internet through the Department's California Highway Information Network (CHIN), and other sources. It is recommended that the website dedicated to the five projects covered by this environmental document be maintained to provide additional information to the public regarding the status of the projects, planned night time full roadway closures, etc. The address of this website would be included in all media advisories.
- The Department should use regional media (e.g., newspapers and radio stations) to advise the public of closures or lengthy delays at Patrick Creek Narrows Locations 1 to 3, The Narrows site, and the Washington Curve site. Media advisories on full highway closures should be provided at least 1 week in advance of closures.
- Coordination with sponsors of projects near the project sites would be required to avoid conflicts with other projects. This coordination needs to extend to other Department projects and projects that may be undertaken by Del Norte County and other agencies.
- In addition to notification of emergency service providers, the Department would notify Pelican Bay State Prison before any full closures on US 199 at least 1 week in advance. The prison occasionally transports prisoners in multi-car convoys, and convoy delays at construction sites could pose security and logistical problems for prisoner transportation (Hablitzel pers. comm.).

The following recommended measure would reduce potential effects on trucking and shipping businesses from construction delays and closures of US 199:

- The Department would coordinate with regional trucking firms and major shippers to ensure that these businesses are notified of major delays and planned highway closures so that shipments can be rescheduled or alternative trucking routes used. To the extent possible, notification would be provided through electronic communications (e.g., email).

### **Implement Additional Measures to Reduce Temporary Access and Circulation Impacts**

The following recommended measures would further reduce the temporary access and circulation impacts of the project caused by potentially lengthy construction delays and highway closures:

- Access to side roads and residences would be maintained at all times. When work or traffic queues extend through an intersection or driveway, additional traffic control will be required at the intersection or driveway.
- The Department would use regional media (e.g., newspapers and radio stations) to advise the public of closures or lengthy delays at Patrick Creek Narrows Locations 1 to 3, The Narrows

site, and the Washington Curve site. Media advisories on full highway closures would be provided at least 1 week in advance of closures.

- Information regarding delays and scheduled closures would be made readily available to the traveling public on the internet through the Department's California Highway Information Network and other sources. It is recommended that the website dedicated to the proposed project be maintained to provide additional information to the public, such as the status of the project and planned nighttime full roadway closures. The address of this website would be included in all media advisories.
- The Department Resident Engineer would provide information to residents, businesses, and adjacent landowners (e.g., Jedediah Smith Redwoods State Park, Forest Service) before and during project work that may represent a negative impact on commerce and travel surrounding the zone of construction.
- Prior to construction of project improvements each construction season, contact would be made with staff at Jedediah Smith Redwoods State Park to advise them of the potential length and timing of any closures of US 199 and to determine the exact dates of any festivals in the park that might be affected by the closure.
- The ODOT public information officer will be contacted 1 week before any planned closure on US 199 to allow ODOT to warn public traffic of the possible delays on the US 199 corridor.
- Coordination with sponsors of projects near the project locations would be required to avoid conflicts with other projects. This coordination needs to extend to other Department projects and projects that may be undertaken by Del Norte County and other agencies.
- Bicyclists would be accommodated through the work zone. For a lane closure controlled by flaggers, bicyclists would be instructed to join the traffic queue. For a lane closure controlled by a signal, signal timing would be adjusted to accommodate bicyclists.
- When pedestrians are found to use construction areas, they would be transported through the work zone using a pilot vehicle, vehicle transport, or other appropriate method.
- The TMPs for each project location would require that emergency service providers (e.g., sheriff, fire, and ambulance services) be given at least 1 week of notice before any planned full roadway closures on US 199 during construction. Notification is particularly critical for highway closures at Patrick Creek Narrows Locations 1 to 3 and the Washington Curve site, and for potentially lengthy delays at The Narrows site. Construction Contractors would be required by the Department to expedite the passage of emergency service vehicles through work zones at all times.
- In addition to notification of emergency service providers, the Department would notify Pelican Bay State Prison before any full closures on US 199 at least 1 week in advance. The prison occasionally transports prisoners in multicar convoys, and convoy delays at construction sites could pose security and logistical problems for prisoner transportation (Hablitzel pers. comm.).

### **Minimize Effects of In-Water Work at Patrick Creek Narrows Location 2 for Bridge Replacement Alternatives**

Diverting river flow from construction activities at Patrick Creek Narrows Location 2 for the Upstream and Downstream Bridge Replacement Alternatives will greatly reduce the potential for water quality impacts. Techniques that could be used may include constructing a solid platform over the live channel or using clear water diversions for routing flow around the work areas. The platform would intercept some debris before reaching the water. Routing flow would allow material to be cleaned up. These practices have temporary impacts associated with them but would provide a favorable water quality trade off. More specific in-stream activity and associated impact details may need to be included in the CWA Section 401 Water Certification Application for it to be issued.

### **Maintain Access to Parks and Recreational Facilities**

Construction Contractors would be required to maintain access to recreation sites on or accessed from SR 197 and US 199, including day-use areas, campgrounds, trailheads, and access points to the Smith River and Middle Fork Smith River to maintain availability of recreational opportunities during construction.

### **Limit Construction to Non-Holiday Periods**

Construction would not occur on weekends (beginning after 3 p.m. on Fridays), designated legal holidays, or the day preceding designated legal holidays, thus reducing impacts on recreationists during these peak use periods.

### **Implement Measures to Minimize Effects on Ruby Van Deventer County Park**

Coordination with the Del Norte County Parks Department would provide an opportunity for the county to review and comment on the temporary construction easement and impacts at Ruby Van Deventer County Park. In addition to the minimization measures listed above, measures specific to Ruby Van Deventer County Park would reduce the temporary effects on the park and visitors during construction at the Ruby 1 site.

- The Department will coordinate with the Del Norte County Parks Department to ensure that, to the extent feasible, construction would avoid impacts on as many park visitors as possible.
- Access to the recreation areas in the park, including the campground, picnic area, day-use area, and banks along the Smith River would be maintained at all times during construction period to allow for continued recreational use.
- The construction zone at the entrance would not use more than four parking spaces over an anticipated period of three days to minimize the number of spaces unavailable for visitor use.
- The entrance would be paved and fully restored to a condition as good as or better than that which existed before the proposed project. The entrance will be restriped and any modifications or inadvertent damage to the parking lot or other park property would be restored to the condition that existed before the construction activities.

The proposed minimization measures will be refined and additional measures may be added based on input from the County. A letter to the Del Norte County Parks Department regarding the temporary construction easement and the potential impacts on the park was prepared for submittal by the Department (see Chapter 4).

### **Coordinate with the Forest Service to Minimize Effects on Smith River NRA and Middle Fork Smith River**

Coordination with the Forest Service regarding the potential effects on the Smith River NRA and Middle Fork Smith River would minimize effects on recreation facilities and opportunities along US 199 by providing an opportunity for the Forest Service to review and comment on the temporary construction impacts on the Smith River NRA and Middle Fork Smith River. Proposed minimization measures will be refined and additional measures may be added based on Forest Service input. A letter to the Forest Service requesting concurrence with the *de minimis* impact findings on the Smith River NRA, temporary occupancy of the Middle Fork Smith River, and Wild and Scenic Rivers Coordination was prepared for submittal by the Department (see Chapter 4).

Measures identified to reduce community impacts, traffic and transportation, air quality, and noise would also reduce effects related to parks and recreational facilities. These measures are:

### **Implement NCUAQMD's Rule 104 Prohibitions, Section 4.0, to Control Fugitive Dust Emissions**

In the Department's Standard Specifications, Section 14-9.01 specifically requires compliance by the Contractor with all applicable laws and regulations related to air quality, including air pollution control district or air quality management district regulations and local ordinances. The Construction Contractor will be required to implement measures to reduce construction-related fugitive dust emissions. The applicable requirements from the NCUAQMD Rule 104 Prohibitions, Section 4.0, are described below:

- No person shall do or allow handling, transporting, or open storage of materials in such a manner which allows or may allow unnecessary amounts of particulate matter to become airborne.
- Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including, but not limited to, the following provisions:
  - Covering open-bodied trucks when used for transporting materials likely to give rise to airborne dust.
  - The use of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land.
  - The application of asphalt, oil, water or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts.
  - The paving of roadways and their maintenance in a clean condition.

- The prompt removal of earth or other track out material from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water, or other means.

### **Employ Noise- and Vibration-Reducing Construction Measures**

Implementation of the following measures would minimize the temporary noise and vibration impacts from construction:

- Using sound-control devices on all equipment that are no less effective than those provided on the original equipment by the manufacturer. No internal combustion equipment will have an unmuffled exhaust.
- Implementing appropriate additional noise mitigation measures as directed by the Department, including changing the location of stationary construction equipment to ensure it is as far away from sensitive receptors as possible, turning off idling equipment, rescheduling construction activity during the daytime and/or a season that has the least impact on sensitive receptors, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.
- Scheduling substantial noise-generating activity during daytime hours where feasible.
- Designating construction staging areas as far as practical from receivers.
- Performing a pre-blast condition survey of all buildings, structures, and utilities within 1,000 feet of proposed blasting activity. The survey will distinguish different types of existing cracks in structures—cosmetic and structural—by means of camera or video.
- Employ measures to control airblast and vibration from blasting such that airblast and vibration does not exceed USBM standards for airblast and vibration. Such measures include reducing the quantity of explosive, modifying the confinement of explosive energy, modifying the powder factor, timing and spatial distribution of blasts, and using alternative methods such as high pressure gas methods to split rock.
- Conducting airblast and vibration monitoring at receivers within 1,000 feet of proposed blasting using seismographs capable of recording PPV in three mutually perpendicular axes and which have a fourth channel for recording airblast. The frequency response of the instrumentation will be from 2 to 250 Hz, with a minimum sampling rate of 1,000 samples per second per channel. The recorded data must be such that the frequency of the vibrations can be determined readily. If blasting is found to exceed USBM standards for vibration and airblast, blasting will cease and alternative blasting or excavation methods will be employed that result in the USBM standards not being exceeded.
- Responding to and investigating all complaints of disturbance.

### **Notify Emergency Service Providers 1 Week before Highway Closures during Construction**

The TMPs for each project site would require that emergency service providers (e.g., sheriff, fire, Office of Emergency Services, and ambulance services) be given at least 1 week of notice before US 199 is closed during construction. Notification is particularly critical for highway

closures at Patrick Creek Narrows Locations 1 to 3 and the Washington Curve site and for potentially lengthy delays at The Narrows site.

Construction Contractors would be required by the Department to expedite the passage of emergency service vehicles through work zones at all times.

### **Notify Pelican Bay State Prison before Highway Closures during Construction**

In addition to notification of emergency service providers, the Department would notify Pelican Bay State Prison before closures of US 199. The prison occasionally transports prisoners in multicar convoys, and convoy delays at construction sites could pose problems for prisoner transportation (Hablitzel pers. comm.).

### **Limit Construction on SR 197 to Daylight Hours**

Construction activities scheduled to occur after 6 p.m. or on weekends would not continue past daylight hours (which vary according to season). This will reduce the amount of construction experienced by viewer groups because most construction activities will occur during business hours (when most viewer groups are likely at work), and it will eliminate the need to introduce high-wattage lighting sources to operate in the dark.

### **Implement Measures to Ensure Worker Safety during Blasting Operations**

Blasting operations must comply with federal, state, and local blasting regulations. Regulations containing specific Cal-OSHA requirements for blasting activities include 8 CA Code of Regulations, Ch 4, Subchapter 7, Group 18: "Explosive Materials. Controlled blasting would be directed by a licensed blaster in accordance with Cal/OSHA regulations and any environmental constraints."

### **Implement Measures to Ensure Worker Safety from Rock Fall during Construction of Cut Slopes**

During construction of the cuts at Patrick Creek Narrows Location 2, The Narrows, and at Washington Curve, rock scaling, construction of temporary rockfall barriers, and/or monitoring of the slopes would be required prior to and during construction to minimize the risk of injury to workers.

### **Potential to Expose Workers to Naturally Occurring Geologic Hazardous Materials during Construction**

During construction at Patrick Creek Narrows Location 1 and the Washington Curve site, the Contractor will be required to comply with Department and State standards to protect health and safety of workers and the traveling public when working with potentially hazardous materials, including naturally occurring asbestos. Details on NOA and avoidance, minimization, and mitigation measures are discussed in Section 2.2.4, "Hazardous Waste/Materials."

### **Potential for Debris to Enter the River during Bridge Demolition**

If a bridge replacement alternative is selected at Patrick Creek Location 2, demolition and debris containment standards must be met. A containment system would be constructed to catch material and contain it during demolition. Concrete would be separated from steel, then loaded into trucks and removed as it was collected. Most debris would be recycled at a permitted commercial facility. Concrete could also be disposed of at permitted disposal sites.

### **Potential for Construction-Related Soil Erosion and Sedimentation**

Contractors will be required to implement a SWPPP in compliance with SSP 07-345 and Order 99-06-DWQ. The SWPPP will specify BMPs that will be implemented to control runoff, accelerated wind and soil erosion, and sedimentation during construction, and to stabilize the project area once construction is complete.

### **Health and Safety for Workers and the Traveling Public**

The Contractor will be required to comply with Department and State standards to protect health and safety of workers and the traveling public when working with potentially hazardous materials, including LCP, soils containing ADL, ACMs, NOA, and TWW. The Contractor will be required to comply with Department and State standards regarding transport and storage of hazardous materials that are used or stored during construction.

### **Aerially Deposited Lead and Pavement Striping Handling**

In accordance with the Department's amended 2006 Standard Specifications for lead compliance, the Contractor will be required to prevent or minimize worker exposure to lead while managing and handling earth materials, paint system debris, traffic stripe residue, and pavement marking residue containing lead. Additionally, the Contractor must comply with specific Cal/OSHA requirements when working with lead including 8 CA Code of Regulations § 1532.1. The lead compliance provisions will be implemented by the Contractor and approved by a certified industrial hygienist to address worker safety issues due to lead, dust control, and material disposal.

### **Implement the Spill Prevention Plan**

The Department has prepared a spill contingency plan, which is a part of the SWPPP. The SWPPP includes identification of procedures and response crews in the event of an accidental release of hazardous materials. The Contractor will be required to implement these plans during construction. The plans will address the proper use and storage of hazardous materials.

### **Dispose of Treated Wood Waste in Accordance with Appropriate Regulations**

The Department will require Contractors to follow regulations adopted by the DTSC when managing TWW to prevent releases of hazardous chemical preservatives, scavenging, and exposure to people, aquatic life, and animals. The Alternative Management Standards to TWW

regulations by DTSC allow disposal at approved Class III landfills rather than a hazardous waste landfill.

### **Implement the Asbestos Compliance Plan and Dust Control Plan**

The Department's Standard Special Provisions pertaining to dust control and dust palliatives are required in all construction contracts and would effectively reduce and control impacts from emissions during construction. Several sections of the Department's Standard Specifications—Section 7-1.0F, "Air Pollution Control," Section 10, "Dust Control," and Section 18, "Dust Palliative"—require the Contractor to comply with North Coast Unified Air Quality Management District (NCUAQMD) rules, ordinances, and regulations. These measures are also discussed in Section 2.2.5, "Air Quality."

The Contractor will also implement the CARB's Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations (2008). The applicable text of the ATCM is provided below. These requirements are spelled out in the Department's Standard Special Provision 19-910, "Material Containing Naturally Occurring Asbestos."

- **Requirements for Road Construction and Maintenance.** These requirements shall apply to roads that are not part of a construction or grading project, quarry, or surface mine project.
  - No person shall conduct any road construction or maintenance activities that disturb any area that meets any criterion listed in subsections (b)(1) or (b)(2) unless all of the following conditions are met.
    - The Air Pollution Control Officer (APCO) is notified in writing at least fourteen (14) days before the beginning of the activity or in accordance with a procedure approved by the district.
    - All the following dust control measures are implemented during any road construction or maintenance activity:
      - Unpaved areas subject to vehicle traffic must be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25% asbestos;
      - The speed of any vehicles and equipment traveling across unpaved areas must be no more than fifteen (15) miles per hour unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust that is visible crossing the project boundaries;
      - Storage piles and disturbed areas not subject to vehicular traffic must be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25% asbestos; and
      - Activities must be conducted so that no track-out from any road construction project is visible on any paved roadway open to the public.
    - Equipment and operations must not cause the emission of any dust that is visible crossing the project boundaries.
  - No person shall conduct any road construction or maintenance activity that disturbs the ground surface in an area that meets the criteria in subsection (b)(3) unless:

- The APCO is notified no later than the next business day of the discovery that the area meets the criteria in subsection (b)(3); and
- The requirements of subsections (d)(1)(B) through (d)(1)(C), are implemented within twenty-four (24) hours of the discovery.
- **Exemptions from the Requirements for Road Construction and Maintenance.** The following exemptions may apply in addition to the applicable general exemptions specified in subsection (c).
  - **Remote Locations:** The APCO may provide an exemption from the requirements of subsection (d) for any activity which will occur at a remote location.
    - The district shall grant or deny a request for an exemption within ninety (90) days of the receipt of a complete application.
    - If the request for an exemption is denied, the APCO shall provide written reasons for the denial.

The remaining text of the CARB's ATCMs can be found at the following website:  
<http://www.arb.ca.gov/toxics/atcm/asb2atcm.htm>.

### **Implement Measures to Reduce Exhaust Emissions from Off-Road Diesel-Powered Equipment**

The Construction Contractor will implement measures to reduce construction-related exhaust emissions. Appropriate measures include maintaining properly tuned engines; minimizing the idling time of diesel-powered construction equipment to 2 minutes; using alternative-fuel-powered construction equipment (i.e., compressed natural gas, biodiesel, or electric); using add-on mitigation devices such as diesel oxidation catalysts or particulate filters; using equipment that meets the CARB's most recent certification standard for off-road heavy-duty diesel engines; phasing project construction; and limiting heavy-duty equipment operating hours. The Construction Contractor may select any combination of the measures identified above. If alternative measures are to be implemented, they must be shown to achieve tangible reductions in construction-related exhaust emissions and approved by either the NCUAQMD or CARB.



Appendix F Summary of Truck Route  
Classification Legislation and  
Definitions

---



# Appendix F Summary of Truck Route Classification Legislation and Definitions

---

## Legislation Regarding Truck Route Classifications in California

Truck route classifications, developed out of a series of federal and state legislative acts, are summarized below.

### Federal Surface Transportation Assistance Act (STAA)

In 1982, the federal government passed the STAA. This act required states to allow “larger trucks” on the National Network, which is comprised of the Interstate system plus the non-Interstate Federal-aid Primary System. "Larger trucks" include (1) doubles with 28.5-foot trailers, (2) singles with 48-foot semi-trailers and unlimited kingpin-to-rear axle (KPRA) distance, (3) unlimited length for both vehicle combinations, and (3) widths up to 102 inches. (California Department of Transportation 2009.)

### Assembly Bill 866

In 1983, California passed Assembly Bill (AB) 866 to implement the STAA provisions. AB 866 also increased the "California Legal" vehicle length from 60 to 65 feet and its width from 8.0 to 8.5 feet. The Department then evaluated State highways, and classified as "Terminal Access" those State highways with geometric standards high enough to accommodate STAA trucks. (California Department of Transportation 2009.)

### Senate Bill 2232

In 1986, California passed Senate Bill (SB) 2232 which increased the maximum KPRA length from 38 feet to 40 feet for trailers with two or more axles. SB 2232 also directed the Department to determine which State highways could not safely accommodate trucks with a 40-foot KPRA length. In December 1989, the Department completed the report to the legislature, "Truck Kingpin-To-Rear Axle Length State Highway System Evaluation." The report states that, of the 15,166 miles comprising the State Highway System, 3,364 miles cannot accommodate a 40-foot KPRA length, and 3,185 miles cannot accommodate a 38-foot KPRA length. Those route segments that cannot accommodate a 40-foot KPRA were designated "Advisory." (California Department of Transportation 2009.)

## **Truck Route Classification Definitions**

STAA trucks are limited to the National Network, Terminal Access routes, and Service Access routes (STAA Network). "California Legal" trucks can use the STAA Network and California Legal routes. The route classifications in California are listed below.

### **National Network (Federal)**

The National Network (NN) is primarily comprised of the National System of Interstate and Defense Highways, for example I-10, I-5, and I-80. STAA trucks are allowed on the NN (California Department of Transportation 2009).

### **Terminal Access (State, Local)**

Terminal Access (TA) routes are portions of State routes, or local roads that can accommodate STAA trucks. TA routes allow STAA trucks to (1) travel between NN routes, (2) reach a truck's operating facility, or (3) reach a facility where freight originates, terminates, or is handled in the transportation process (California Department of Transportation 2009).

### **Service Access (State, Local)**

STAA trucks may exit the National Network to access those highways that provide reasonable access to terminals and facilities for purposes limited to fuel, food, lodging, and repair, when that access is consistent with safe operation. The facility must be within one road mile of an exit from the National Network and that exit must be identified by signage. (California Department of Transportation 2009.)

### **California Legal (State)**

California Legal routes are State routes that allow California Legal-size trucks. STAA trucks are not allowed on these routes because of limiting geometrics, such as sharp curves and/or lack of turn-around space. (California Department of Transportation 2009.)

### **California Legal Advisory (State)**

California law allows regulatory prohibition of a 38-foot KPRA or greater where posted in black-on-white. However, many California Legal routes cannot safely accommodate California Legal-size trucks with a KPRA less than 38 feet, due to limiting geometrics such as sharp turns and highway width. Although California Legal trucks may travel on these segments, the driver is still legally responsible for unsafe off-tracking, such as crossing the centerline or driving on shoulders, curbs and sidewalks. (California Department of Transportation 2009.) Both SR 197 and US 199 are currently classified as California Legal-Advisory truck routes.

Source: California Department of Transportation. 2009. *Truck Size & Routes*. Available: <<http://www.dot.ca.gov/hq/traffops/trucks/routes/truck-routes.htm>>. Revised June 15, 2009. Accessed June, 25 2009.



## Appendix G Traffic Management Plans

---



# TRANSPORTATION MANAGEMENT PLAN

To: Atifa Ferouz  
Project Engineer – Design 58

Date: August 29, 2005  
File: 01-DN – 199 KP 36.5.37 0  
(PM 22.7/23.0)

From: Department of Transportation  
District 1 - Office of Traffic Operations

Work: Remove Rock Outcropping &  
Widen Roadway  
EA # 01-45000

## 1. Construction Project Information

Location:	In Del Norte County, near Patrick's Creek Campground on Route 199.
Length of Project:	0.2 km (0.3 miles)
Type of Work:	Rock removal, earthwork to construct shoulder widening and asphalt concrete overlay.
Anticipated Traffic Control:	One-Way Reversible Control and Traffic Stoppages.
Estimated Maximum Delay due to Traffic Control:	5 Minutes under typical one-way control.
Estimated Corridor Delay:	1 Hour during staged construction.
Peak Hour Traffic Volumes:	390 vehicles.
Peak Month Average Daily Traffic:	4,150 vehicles.
Duration of Project:	1 Construction Season.
Estimated Start of Construction:	Summer 2010
DOT Contact for TMP Issues:	John P Carson (707) 445-6377
Alternate DOT Contact:	Timothy L Boasé (707) 445-6689

## 2. Recommendation

Significant traffic impacts are anticipated on this project. Staged construction for Rock Removal will require full road closures of up to 30 minutes due to blasting operations. In accordance with Deputy Directive-60, District Lane Closure Review Committee approval is required for projects whose anticipated traffic delay is 30 minutes or greater.

An updated Transportation Management Plan should be requested during the Design Phase of this project.

### Hours of Work

Except during stage construction, the full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays, designated legal holidays and the day preceding designated legal holidays, after 3:00 p.m. on Fridays and when construction

operations are not actively in progress. If a legal holiday falls on a Monday the full width of the traveled way shall be open on the preceding Friday.

### **Special Events**

Contact should be made with Jedediah Smith Redwoods State Park to advise them of work schedules and to determine exact dates of Jamming at the Jed (usually the second weekend in September) and any other festivals which may require work suspension to avoid excessive traffic volumes accessing the park.

### **Public Notice**

- Upon receipt of notice that the traveled way for a direction of travel will be narrowed to less than 4.42 meters, the Resident Engineer shall promptly notify the District Permits Engineer.
- The District Public Information Officer, (707) 445-6444, should be contacted two weeks in advance of the start of construction.
- Any emergency service agency whose ability to respond to incidents will be affected by any lane closure must be notified prior to that closure.
- Work shall be coordinated with the local busing system (including school busses and other public transportation) to minimize impact on their bus schedules.
- The Resident Engineer should communicate and cooperate with local emergency services to ensure that no areas isolated from needed services. Table 1 lists the main emergency contacts in the Highway 101 area.

**Table 1: Emergency Contacts**

<b>1. Agency</b>	<b>Address</b>	<b>Phone #</b>
Six Rivers National Forest (Fortuna)	CDF & Forest Service Dispatch	725-1193
California Department of Forestry State Park Service & National Park System Dispatch Center	1025 Hwy 101 N, Crescent City (Sacramento Telephone Number)	464-5526 (916) 986-7322
Del Norte County Public Works	700 5 <sup>th</sup> Street, Crescent City	464-7229
Del Norte County Sheriff	650 5 <sup>th</sup> Street, Crescent City	464-9521
California Highway Patrol	1444 Parkway Drive, Crescent City	464-3117
Sutter Coast Hospital	600 E. Washington Blvd., Crescent City	464-8511
Del Norte Ambulance	2600 Morehead Rd. Crescent City	487-1116
West Log Aviation (Ambulance)	202 Dale Rupert Rd. Crescent City	465-3804

### Traffic Control – General

- It is anticipated that one-way reversible control (*Traffic Control System For Lane Closure on Two Lane Conventional Highways*) will be a sufficient means of traffic control for a majority of this project. The maximum length of control shall not exceed 500 meters.
- A minimum of one 3.3 meter lane and a 0.6 meter shoulder, where available, shall be open to public traffic at all times
- Bicycles shall be accommodated through the work zone.
- Due to the curvilinear nature of Route 199 in this location, advance flaggers are required during one lane, one way control. All flaggers shall be equipped with radio communication devices.
- A minimum of one PCMS in advance of either end of the construction site (two PCMS per location) shall be required in order to notify the public of the closures related to this project. It is noted that the permanent CMS sign located just south of the Oregon Border and the CMS signs near the 199/197 junction and Patrick's Creek Lodge are reserved for TMC emergency use and may be used during staged construction that is anticipated to require full road closures of up to 30 minutes .
- Any questions regarding the use of CMS Signs should be directed to Royal McCarthy, Chief of Traffic Management Center, at (707) 445-6385 or Jim Sandford, Traffic Management Center, at (707) 445-1212.
- Include SSP 12-220 within the special provisions to allow the coordination of closures in this project with closures in other nearby projects.
- Based upon the COZEEP Guidelines (CPB 99-6) there are a several potential risk factors associated with the project which may necessitate the need for COZEEP. The risk factors associated with this project include: staged construction for blasting, end of queue management, speed management, significant truck volumes, lane closure with one-way control night construction activity and workers exposed to traffic. The decision to use COZEEP and the potential costs need to be assessed by the Resident Engineer.

### Traffic Control – Staged Construction

- It is anticipated that during Staged Construction to allow for blasting operations, traffic will be required to stop and the road may be closed for periods not to exceed 30 minutes. After each closure, all accumulated traffic shall be allowed to pass through the work zone before another closure is made.

### 3. Contingency Plan

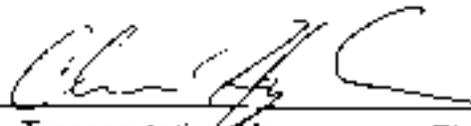
If congestion or delays exceed original estimates due to unforeseen events, such as work-zone collision, higher than predicted traffic demand, or delayed closures, the

contractor and the Resident Engineer shall use all appropriate resources to restore or minimize effects on traffic. Those contingencies should include

- Calling for CHP or other emergency personnel in the event of a work-zone collision,
- Picking up the lane closure as soon as it is safe to do so to mitigate significant delay.
- Assigning personnel to work end-of queue protection.

4. Approval

Approved by:

  
\_\_\_\_\_  
Transportation Management Plan Coordinator

AML: aml

cc: 1) TADavis, 2) MDVina, 3) SLFerguson, 4) File  
1) JPCarson, 2) CEHayler 3) JCandalot  
Lyte Radtke (CHP Commander)  
RMcCarthy  
EGLeo  
Rick Lingford  
File

## TRANSPORTATION MANAGEMENT PLAN

To: Carlon Schrieve  
Design Engineer  
D1 Advance Planning

Date: 01 March 2007  
File: DN-199 PM 20.5/25.5  
EA: 01-47940K  
Shoulder Widening and Bridge  
Replacement Project  
Program HE12

From:   
Troy Arseneau  
Chief, Office of Traffic Operations  
District 1

### Project Information

Location:	In Del Norte County near Patrick Creek from 1.5 miles south of Patrick Creek to 5 miles north of Patrick Creek (PM 20.5/25.5).
Type of Work:	Widen shoulders and replace Middle Fork Smith River Bridge No. 1-0015 to provide STAA truck access to Del Norte County.
Anticipated Traffic Control:	One-way reversible traffic control. Full closure without detour. Shoulder closure.
Estimated Maximum Delay:	10 minutes during one-way reversible control. 1 hour during full closure without detour.
Peak Hour Traffic Volumes	410
Lane Closure Charts Included:	No.
Number of Working Days:	TBD.
Next Major Milestone and Date:	PID (PSR) - April/2007
RTL Date:	TBD.
District Traffic Manager/ TMP Manager:	Troy Arseneau (707) 445-6377

### Anticipated Traffic Impacts

Significant traffic impacts are not anticipated provided that the following recommendations are incorporated into the project. **In conformance with Deputy Directive-60, District Lane Closure Review Committee approval is required for projects with anticipated traffic delay more than 30 minutes. The full road closure during controlled blasting operations will require DLCRC**

**approval. Per the Transportation Management Plan Guidelines- Revised May 2004 This document may be found at this link to the D03 website:**

**[http://onramp.dot.ca.gov/hq/traffops/otrafopr/system\\_development/Final May%202004 TMP%20Guidelines\\_09-30-04\\_garamond.doc](http://onramp.dot.ca.gov/hq/traffops/otrafopr/system_development/Final_May%202004_TMP%20Guidelines_09-30-04_garamond.doc)**

**The functional unit requesting the lane closure shall provide sufficient information needed to provide complete understanding of the proposal. Please refer to Section IV – Major Lane Closure Approval Process for details regarding the required contents of the submittal process.**

An updated Transportation Management Plan should be requested during the Design Phase of this project.

#### Hours of Work

- Except for staged construction, the full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays, designated legal holidays and the day preceding designated legal holidays, after 3:00 p.m. on Fridays, and when construction operations are not actively in progress. If a legal holiday falls on a Monday the full width of the traveled way shall be open on the preceding Friday.
- Except for staged construction, the full width of the traveled way shall be open for use by public traffic from the proceeding Friday to the following Monday for the Jamming on the Jed festival held the second weekend in September.

#### Public Notice

- Upon receipt of notice that the traveled way for a direction of travel will be narrowed to less than 15 ft, the Resident Engineer shall promptly notify the District Permits Engineer.
- The District Public Information Office, (707) 445-6444, shall be contacted two weeks in advance of the start of construction.
- Any emergency service agency whose ability to respond to incidents will be affected by any lane closure must be notified prior to that closure.
- The Resident Engineer should provide information to businesses before and during project work that impacts business.
- The Oregon Department of Transportation, (ODOT) Public Information Officer shall be contacted two weeks prior to any closure on Route 199 in

## Shoulder Widening and Bridge Replacement Project

order to allow ODOT to warn public traffic of the possible delays on the 199 corridor.

- Closures shall be coordinated with the local and regional transit systems to minimize impact on their schedules.
- Contact should be made with Jedediah Smith State Park to advise them of the closure of Route 199, and to determine exact dates of any festivals in the park which might be affected by the closure.
- Caltrans Highway Advisory Radios, (HARS) and the Changeable Message Signs may be used to aid in notifying the traveling public of the full closure. The following locations are suggested:

CMS, DN 101 PM 28.50 S/O 101/199 Crescent City

CMS, DN 101 PM 20.56 at Cushing Creek For NB traffic

CMS, DN 101 PM 37.54 N/O 101/197 Smith River For SB traffic

CMS, DN 199 PM 36.1 S/O State Line for SB traffic

HARs, Crescent City, Arcata, and Eureka, and their associated EMS alert signs.

#### Traffic Control

- One-way traffic control shall be in conformance with the Caltrans Standard Plan T-13, "TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS."
  - A minimum of one paved traffic lane, not less than 12 ft wide with 4 ft contiguous paved shoulder, shall be open for use by public traffic. In areas where a 12 ft wide paved traffic lane with 4 ft contiguous paved shoulder is not possible, a 2 ft shoulder shall be sufficient.
  - The maximum length of one-way traffic control closure is 3000 ft.
  - During one-way traffic control, additional advance flaggers will be required. All flaggers shall have continuous radio contact with personnel in the work area.
  - During one-way traffic control, bicycles shall be ferried across using a pilot vehicle, where a 12 ft wide traveled lane with a 2 ft contiguous paved shoulder is not available. Signage shall be used at each end of the

## Shoulder Widening and Bridge Replacement Project

construction area to alert bicyclists to obtain instruction from designated personnel handling the pilot vehicle bicycle transport. Bicycle queue times shall not be longer than 10 minutes.

- During one-way traffic control, pedestrians shall be ferried across using a pilot vehicle, where a 12 ft wide traveled lane with a 2 ft contiguous paved shoulder is not available. Signage shall be used at each end of the construction area to alert pedestrians to obtain instruction from designated personnel handling the pilot vehicle pedestrian transport. Pedestrian queue times shall not be longer than 10 minutes.
- During the complete closure of Route 199, a minimum of six additional PCMS will be required to notify the traveling public of the closure. The following locations are suggested:
  1. On Route 101, South of the intersection with Route 199
  2. On Route 101, North of the intersection with Route 199
  3. On Route 101, at the intersection with Route 197
  4. On Route 199 / Parkway Drive Northbound at Elk Valley Road
  5. On Route 199, North of Hiouchi
  6. On Route 199, at the California / Oregon state line.
- A shoulder closure consisting of at least one Shoulder Work Ahead advance warning sign and channelizing devices shall be used when work occurs within 8 ft of the edge of traveled way. Channelizing devices shall be placed 200 ft in advance of, and adjacent to the work zone with a maximum distance of 50 ft between channelizers.
- A minimum of one PCMS in advance of both ends of the construction site shall be required in order to notify the public of the closures related to this project.
- Access to side roads and residences should be maintained at all times. When work or traffic queues extend through an intersection, additional traffic control will be required at the intersection.
- COZEEP is recommended for this project based on risk factors associated with this project and the COZEEP Guidelines (CPB 99-6). The associated risk factors are: lane closure with one-way control, workers exposed to traffic, end of queue management, speed management, and significant truck volumes.

**Contingency Plan**

The contractor shall prepare a contingency plan for reopening closures to public traffic. The Contractor shall submit the contingency plan for a given operation to the Engineer within one working day of the Engineer's request. Contingencies for unanticipated delays, emergencies, etc. shall be coordinated between the RE and the Contractor.

**Approval**

Approved by:

  
\_\_\_\_\_  
Transportation Management Plan Manager

TAA/gpw

CC: 1)TAArseneau, 2)JCandalot  
1)RMMartinelli, 2) DMorgan, 3)File  
Kevin Church  
HLQuintrell  
RLingford



## **TRANSPORTATION MANAGEMENT PLAN**

To: Cindy Graham  
Project Engineer

Date: 15 August 2007  
File: DN-197 PM 4.5  
EA: 01 - 481100  
Widening.

From: Troy Arseneau, Chief  
District 1 Traffic Operations

### Project Information

Location: In Del Norte County, near Fort Dick, at the entrance to Ruby Van Deventer County Park.

Type of Work: Excavation, culvert extension, OGAC paving, and pavement striping.

Anticipated Traffic Control: One-way reversible traffic control. Shoulder closure.

Estimated Maximum Delay: 5 minutes.

Peak Hour Traffic Volumes 260 vph.

Lane Closure Charts Included: No.

Number of Working Days: 50 days.

Next Major Milestone and Date: PA&ED – September/2008

RTL Date: March/2009

District Traffic Manager Troy Arseneau (707) 445-6377

District TMP Coordinator: Jamie Lusk (707) 445-6419

### Anticipated Traffic Impacts

Significant traffic impacts are not anticipated provided that the following recommendations are incorporated into the project. In conformance with Deputy Directive-60, District Lane Closure Review Committee approval is not required for projects with anticipated traffic delay less than 30 minutes.

An updated TMP should be requested once the preferred “Alternative” is selected.

### Hours of Work

- The full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays, designated legal holidays and the day preceding designated legal holidays, after 3:00 p.m. on Fridays, and when construction

operations are not actively in progress. If a legal holiday falls on a Monday the full width of the traveled way shall be open on the preceding Friday.

- The full width of the traveled way shall be open for use by public traffic from the proceeding Friday to the following Monday for the Jamming on the Jed festival held the second weekend in September.

#### Public Notice

- Upon receipt of notice that the traveled way for a direction of travel will be narrowed to less than 16 ft, the Resident Engineer shall promptly notify the District Permits Engineer.
- The District Public Information Office, (707) 445-6444, shall be contacted two weeks in advance of the start of construction.
- Any emergency service agency whose ability to respond to incidents will be affected by any lane closure must be notified prior to that closure.
- The Resident Engineer should provide information to businesses before and during project work that impacts business.

#### Traffic Control

- One-way traffic control shall be in conformance with the Caltrans Standard Plan T-13, "TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS."
  - A minimum of one paved traffic lane, not less than 12 ft wide with 4 ft contiguous paved shoulder, shall be open for use by public traffic.
  - The maximum length of one-way traffic control closure is 1,800 ft.
  - During one-way traffic control, additional advance flaggers will be required. All flaggers shall have continuous radio contact with personnel in the work area.
  - During one-way traffic control, bicycles and pedestrians shall be ferried across using a pilot vehicle, where a 12 ft wide traveled lane with a 4 ft contiguous paved shoulder is not available. Signage shall be used at each end of the construction area to alert bicyclists and pedestrians of the requirement to obtain instruction from designated personnel handling the pilot vehicle bicycle and pedestrian transport. Bike and pedestrian queue times shall not be longer than 5 minutes.

- A shoulder closure consisting of at least one Shoulder Work Ahead advance warning sign and channelizing devices shall be used when work occurs within 8 ft of the edge of traveled way. Channelizing devices shall be placed 200 ft in advance of, and adjacent to the work zone with a maximum distance of 50 ft between channelizers.
- A shoulder closure consisting of at least one Shoulder Work Ahead advance warning sign shall be used when work occurs more than 8 ft but less than 15 ft from the traveled way.
- A minimum of one PCMS in advance of both ends of the construction site shall be required in order to notify the public of the closures related to this project.
- Access to side roads and residences should be maintained at all times. When work or traffic queues extend through an intersection, additional traffic control will be required at the intersection.
- If traffic is required to drive on any unpaved section of road it must be well maintained and sufficiently compacted.
- If traffic is to be placed on unpaved surfaces over night, advanced flashing beacons on the advance signing as shown in Standard Plan T-13 shall be required. Flashing beacons on all three advance signs should be required where possible. In setting flashing beacons, care should be taken to avoid impacting inhabited dwellings with the light.
- “Watch for Bicycles” signs should be placed, in each direction of travel, prior to the construction zone.
- Work shall be coordinated with the local busing system (including school buses and public systems) to minimize impact on their bus schedules (Del Norte County Unified School District at 464-0202).
- COZEEP is recommended for this project based on risk factors associated with this project and the COZEEP Guidelines (CPB 99-6). The associated risk factors are: lane closure with one-way control, workers exposed to traffic, end of queue management, speed management, and significant truck volumes.

### **Contingency Plan**

The contractor shall prepare a contingency plan for reopening closures to public traffic. The Contractor shall submit the contingency plan for a given operation to the Engineer within one working day of the Engineer’s request. Contingencies for

unanticipated delays, emergencies, etc. shall be coordinated between the RE and the Contractor.

**Approval**

Approved by: **as signed by JLusk 9/19/2007**  
District Transportation Management Plan Coordinator

Approved by: **as signed by TAArseneau 9/19/2007**  
District Traffic/TMP Manager

TAA/cwk

CC: 1)TAArseneau, 2)JCandalot  
1)RMMartinelli, 2) MABrady, 3)MGDavenport  
JSalas  
KChurch  
HLQuintrell  
RLingford

## TRANSPORTATION MANAGEMENT PLAN

To: Cindy Graham,  
Project Engineer

Date: 1 February 2008  
File: DN-197 PM 3.7/4.0  
EA: 01-454900  
Widening

From: Troy Arseneau, Chief  
District 1 Office of Traffic Operations

### Project Information

Location: In Del Norte County near Fort Dick from 0.81 mile to 0.03 mile south of Ruby Vandeventer County Park.

Type of Work: Excavation, paving, and pavement striping.

Anticipated Traffic Control: One-way reversible traffic control.

Estimated Maximum Delay: 5 minutes.

Peak Hour Traffic Volumes 260 vph.

Lane Closure Charts Included: No.

Number of Working Days: 60 days.

Next Major Milestone and Date: PA&ED - February/2009.

RTL Date: February/2010.

District Traffic Manager/ TMP  
Manager: Troy Arseneau (707) 445-6377

TMP Coordinator: Jamie Lusk (707) 445-6419

### Anticipated Traffic Impacts

Significant traffic impacts are not anticipated provided that the following recommendations are incorporated into the project. In conformance with Deputy Directive-60, District Lane Closure Review Committee approval is not required for projects with anticipated traffic delay less than 30 minutes.

### Hours of Work

- The full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays, designated legal holidays and the day preceding designated legal holidays, after 3:00 p.m. on Fridays, and when construction operations are not actively in progress. If a legal holiday falls on a Monday the full width of the traveled way shall be open on the preceding Friday.

### Public Notice

- Upon receipt of notice that the traveled way for a direction of travel will be narrowed to less than 16 ft, the Resident Engineer shall promptly notify the District Permits Engineer.
- The District Public Information Office, (707) 445-6444, shall be contacted two weeks in advance of the start of construction.
- Any emergency service agency whose ability to respond to incidents will be affected by any lane closure must be notified prior to that closure.
- The Resident Engineer shall provide information to residents and businesses before and during project work that may represent a negative impact on commerce and travel surrounding the zone of construction. Funding shall be included in supplemental funds for the Resident Engineer to print flyers.
- Work shall be coordinated with the local busing system (including school buses and public systems) to minimize impact on their bus schedules. (The Del Norte County Unified School District Director of Transportation telephone number is 464-0250).

### Traffic Control

- One lane closure is permitted within the project limits.
- One-way traffic control shall be in conformance with the Caltrans Standard Plan T-13, "TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS."
  - A minimum of one paved traffic lane, not less than 12 ft wide with 2 ft contiguous paved shoulder, shall be open for use by public traffic.
  - The maximum length of one-way traffic control closure is 2000 ft.

- During one-way traffic control, additional advance flaggers will be required. All flaggers shall have continuous radio contact with personnel in the work area.
- In the event the traveled way is restricted to less than 14 ft in width, bicycles shall be routed to share a motor vehicle lane and “Share the Road” signs shall be placed in each direction of travel prior to the construction zone. The maximum length of the one-way traffic control closure shall be 1000 ft.
- “Watch for Bicycles” signs shall be placed, in each direction of travel, prior to the construction zone.
- A shoulder closure consisting of at least one Shoulder Work Ahead advance warning sign and channelizing devices shall be used when work occurs within 6 ft of the edge of traveled way. Channelizing devices shall be placed 200 ft in advance of, and adjacent to the work zone with a maximum distance of 50 ft between channelizers.
- A minimum of one PCMS in advance of both ends of the construction site shall be required in order to notify the public of the closures related to this project.
- Access to side roads and residences shall be maintained at all times.
- Bicycles shall be accommodated through the work zone.
- If traffic is required to drive on any unpaved section of road it must be well maintained and sufficiently compacted.
- If traffic is to be placed on unpaved surfaces over night, advanced flashing beacons on the advance signing as shown in Standard Plan T-13 shall be required. Flashing beacons on all three advance signs shall be required where possible. When placing flashing beacons, care shall be taken to avoid impacting inhabited dwellings with the light.
- If persons with disabilities (e.g. hearing, visual, or mobility) are found to use this facility, the temporary traffic control measures mentioned in the California MUTCD Chapter 6D shall be incorporated to accommodate disabled pedestrians through the work zone.
- COZEEP is recommended for this project based on risk factors associated with lane closure with one-way control on curvilinear roadway.

**Contingency Plan**

The contractor shall prepare a contingency plan for reopening closures to public traffic. The Contractor shall submit the contingency plan for a given operation to the Engineer within one working day of the Engineer's request. Contingencies for unanticipated delays, emergencies, etc. shall be coordinated between the RE and the Contractor.

**Approval**

Approved by:

\_\_\_\_\_  
Transportation Management Plan Coordinator

**AS SIGNED BY TAA**

Approved by:

\_\_\_\_\_  
District Traffic/ TMP Manager

TAA/sam

CC: 1)TAArseneau, 2)JCandalot  
1)RMMartinelli, 2) MABrady, 3)MGDavenport

JSalas  
Kevin Church  
HLQuintrell  
RLingford  
AJones

## TRANSPORTATION MANAGEMENT PLAN

To: Brenda Harwell  
Project Engineer

Date: 17 September 2008  
File: DN-199 PM 26.3/26.5  
EA: 01-448300

Widen Left Shoulder

From: Troy Arseneau, Chief  
District 1 Office of Traffic Operations

### Project Information

Location:	Near Patrick Creek from 2.3 km to 2.5 km north of Middle Fork Smith River Bride #1-16 (KP 42.3/42.6).	
Type of Work:	Widen shoulder.	
Anticipated Traffic Control:	One-way reversible traffic control. Shoulder closure.	
Estimated Maximum Delay:	5 minutes.	
Peak Hour Traffic Volumes:	600 vph.	
Lane Requirement Charts Included:	No.	
Number of Working Days:	TBD.	
Next Major Milestone and Date:	PA&ED - August/2010	
RTL Date:	January/2011	
District Traffic Manager/ TMP Manager:	Troy Arseneau	(707) 445-6377
TMP Coordinator:	Paul Hailey	(707) 445-5213

### Anticipated Traffic Impacts

Significant traffic impacts are not anticipated provided that the following recommendations are incorporated into the project. In conformance with Deputy Directive-60, District Lane Closure Review Committee approval is not required for projects with anticipated traffic delay less than 30 minutes.

### Recommendation

A request for an updated Transportation Management Plan shall be made during the design phase.

### Hours of Work

- Except during the use of temporary barrier rail, the full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays, designated

## Widen Left Shoulder

legal holidays and the day preceding designated legal holidays, after 3:00 p.m. on Fridays, and when construction operations are not actively in progress. If a legal holiday falls on a Monday the full width of the traveled way shall be open on the preceding Friday.

- The full width of the traveled way shall be open for use by public traffic from the preceding Friday to the following Monday for the following Special Events: The Sea Cruise held the second weekend of October. The contractor shall verify the actual dates for these Special Events.

Public Notice

- Upon receipt of notice that the roadway width (including paved shoulder) for a direction of travel will be narrowed to less than 16 ft, the Resident Engineer shall promptly notify the District Permits Engineer.
- The District Public Information Office, (707) 445-6444, shall be contacted two weeks in advance of the start of construction.
- Any emergency service agency whose ability to respond to incidents will be affected by any lane closure must be notified prior to that closure.
- Work shall be coordinated with the local busing system (including school buses and public systems) to minimize impact on their bus schedules.

Traffic Control

- One closure is permitted within the project limits.
- One-way traffic control shall be in conformance with the Caltrans Standard Plan T-13, "TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS."
  - A minimum of 14 ft of paved roadway shall be open for use by public traffic, where available.
  - The maximum length of one-way traffic control closure is 1000 ft.
  - During one-way traffic control, additional advance flaggers will be required. All flaggers shall have continuous radio contact with personnel in the work area.
  - "Watch for Bicycles" signs shall be placed, in each direction of travel, prior to the construction zone.

Widen Left Shoulder

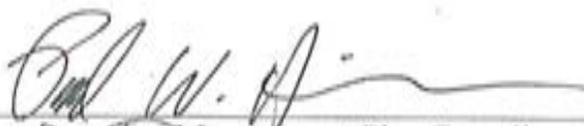
- In the event the roadway is restricted to less than 14 ft in width during one-way reversible traffic control, bicyclists shall be routed to share a motor vehicle lane and "Share the Road" signs shall be placed in each direction of travel prior to the construction zone.
- A shoulder closure consisting of at least one Shoulder Work Ahead advance warning sign and channelizing devices shall be used when work occurs within 6 ft of the edge of traveled way. Channelizing devices shall be placed 200 ft in advance of, and adjacent to the work zone with a maximum distance of 50 ft between channelizers.
- A minimum of one PCMS in advance of both ends of the construction site shall be required in order to notify the public of the closures related to this project.
- Access to side roads and residences shall be maintained at all times. When work or traffic queues extend through an intersection, additional traffic control will be required at the intersection.
- Bicycles shall be accommodated through the work zone.
- The following projects are anticipated to have closures within this project's work limits and shall be included in SSP 07-850: *TBD*.
- The following projects are anticipated to have closures near this project and shall be used to assess cumulative corridor delay: *TBD*.

Contingency Plan

The contractor shall prepare a contingency plan for reopening closures to public traffic. The Contractor shall submit the contingency plan for a given operation to the Engineer within one working day of the Engineer's request. Contingencies for unanticipated delays, emergencies, etc. shall be coordinated between the RE and the Contractor.

Approval

Approved by:

  
\_\_\_\_\_  
Transportation Management Plan Coordinator

Approved by:

  
\_\_\_\_\_  
District Traffic/ TMP Manager

TAA/pwh

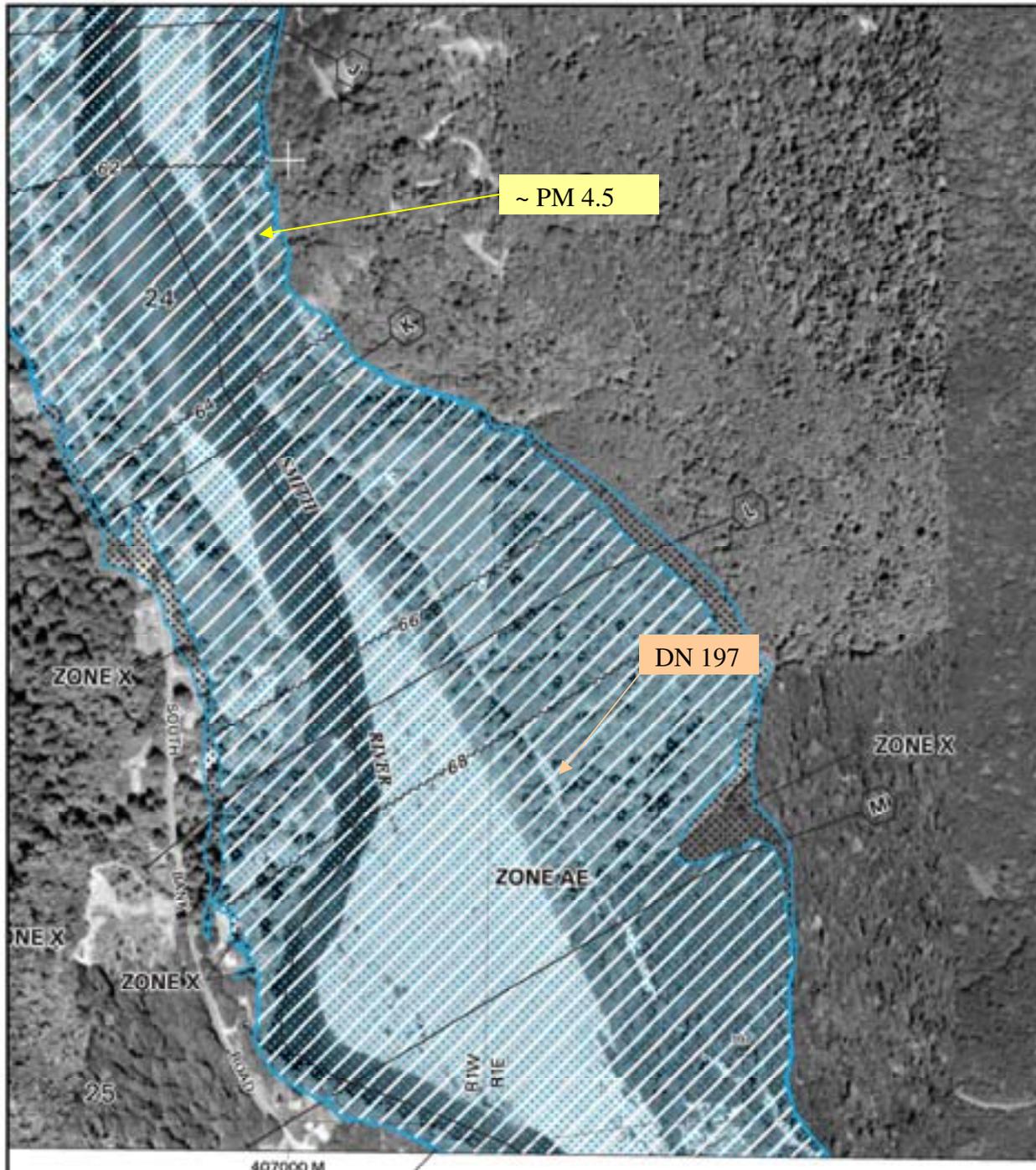
CC: 1)TAArseneau, 2)JCandalot  
1)RMMartinelli, 2) MABrady, 3)MGDavenport  
LRAshley  
KChurch  
HLQuintrell  
RLingford  
AJones

## Appendix H Flood Insurance Rate Maps

---



FIRM Panel 06015C0226E - DN 197



If flood insurance is available in this community, contact your local Flood Insurance Program at (800) 638-6620.



MAP SCALE 1" = 500'



**NFP**

**PANEL 0226E**

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
 DEL NORTE COUNTY,  
 CALIFORNIA AND  
 INCORPORATED AREAS

**PANEL 226 OF 675**  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
DEL NORTE COUNTY, UNINCORPORATED AREAS	06015	C0226	E

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
 06015C0226E

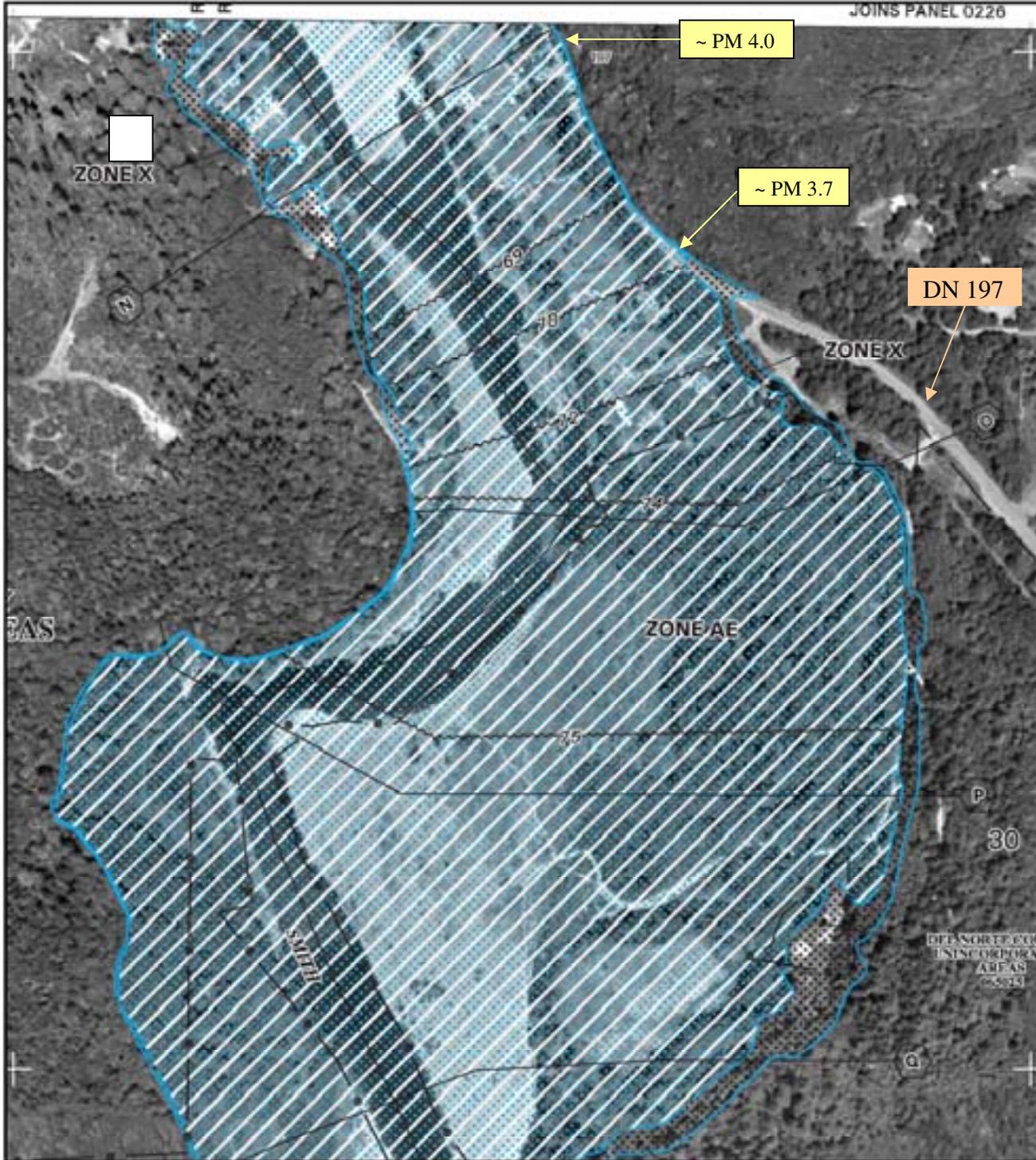
**EFFECTIVE DATE:**  
 SEPTEMBER 26, 2008

Federal Emergency Management Agency

**NATIONAL FLOOD INSURANCE PROGRAM**

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

# FIRM Panel 06015C0228E - DN 197



lood insurance is available in this community, contact your local Flood Insurance Program at (800) 638-6620.

  
**MAP SCALE 1" = 500'**  


---

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0228E

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
 DEL NORTE COUNTY,  
 CALIFORNIA AND  
 INCORPORATED AREAS

**PANEL 228 OF 675**

SEE MAP INDEX FOR FIRM PANEL LAYOUT

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DEL NORTE COUNTY UNINCORPORATED AREAS	06015C	0228E	E

Notice to User: The Map Number shown below should be used when placing FIRM orders. The Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
06015C0228E

**EFFECTIVE DATE:**  
SEPTEMBER 26, 2008

Federal Emergency Management Agency

---

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

## Appendix I Compliance with 40 CFR 1502.22



# Appendix I Compliance with 40 CFR 1502.22

---

This text is taken from the Federal Highway Administration's *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents*, Appendix C (Federal Highway Administration 2009).

## **Sec. 1502.22 INCOMPLETE OR UNAVAILABLE INFORMATION**

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

- a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.
- b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:
  1. a statement that such information is incomplete or unavailable;
  2. a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;
  3. a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and
  4. the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts that have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.
- c) The amended regulation will be applicable to all environmental impact statements for which a Notice to Intent (40 CFR 1508.22) is published in the Federal Register on or after May 27, 1986. For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.

### ***INCOMPLETE OR UNAVAILABLE INFORMATION FOR PROJECT-SPECIFIC MSAT HEALTH IMPACTS ANALYSIS***

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway

alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The U.S. Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is “a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects” (EPA, <https://www.epa.gov/iris/>). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA’s Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, <http://pubs.healtheffects.org/view.php?id=282>) or in the future as vehicle emissions substantially decrease (HEI, <http://pubs.healtheffects.org/view.php?id=306>).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable. The results produced by the EPA’s MOBILE6.2 model, the California EPA’s Emfac2007 model, and the EPA’s DraftMOVES2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 significantly underestimates diesel particulate matter (PM) emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of EPA’s guideline CAL3QHC model was conducted in an NCHRP study ([http://www.epa.gov/scram001/dispersion\\_alt.htm#hyroad](http://www.epa.gov/scram001/dispersion_alt.htm#hyroad)), which documents poor model performance at ten sites across the country – three where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with National Ambient Air Quality Standards for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-

year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways, and to determine the portion of time that people are actually exposed at a specific location.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (<http://pubs.healtheffects.org/view.php?id=282>). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (<http://www.epa.gov/risk/basicinformation.htm#g>) and the HEI (<http://pubs.healtheffects.org/getfile.php?u=395>) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine a “safe” or “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA’s approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Due to the limitations cited, a discussion such as the example provided in this Appendix (reflecting any local and project-specific circumstances), should be included regarding incomplete or unavailable information in accordance with Council on Environmental Quality (CEQ) regulations [40 CFR 1502.22(b)]. The FHWA Headquarters and Resource Center staff Victoria Martinez (787) 766-5600 X231, Shari Schaftelein (202) 366-5570, and Michael Claggett (505) 820-2047, are available to provide guidance and technical assistance and support.



# Appendix J Natural Communities in the Project Area

---



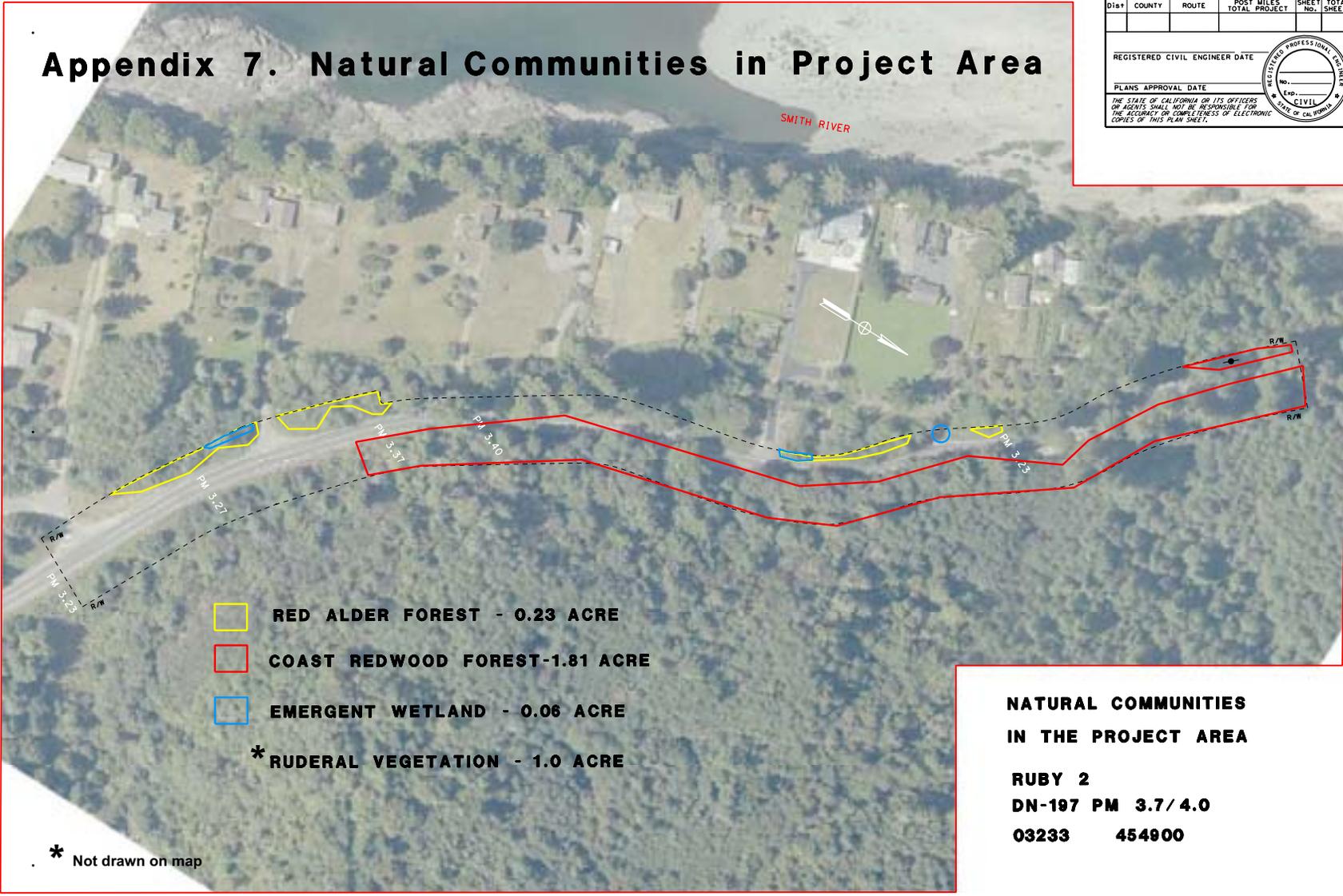


# Appendix 7. Natural Communities in Project Area

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

- RED ALDER FOREST - 0.23 ACRE
- COAST REDWOOD FOREST-1.81 ACRE
- EMERGENT WETLAND - 0.06 ACRE
- \* RUDERAL VEGETATION - 1.0 ACRE

\* Not drawn on map

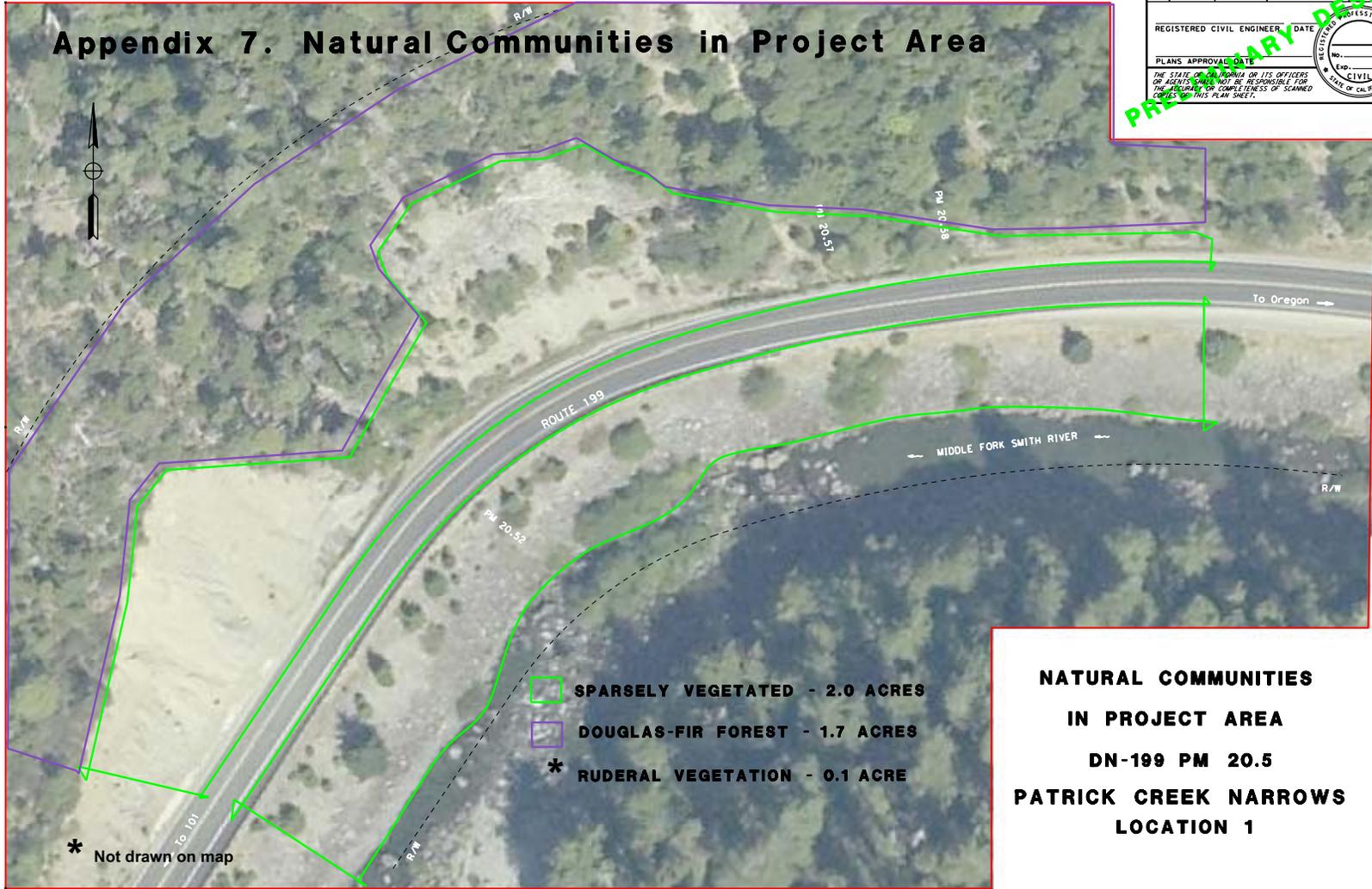
**NATURAL COMMUNITIES  
 IN THE PROJECT AREA**

**RUBY 2  
 DN-197 PM 3.7/4.0  
 03233 454900**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  


FUNCTIONAL SUPERVISOR \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 DESIGNED BY \_\_\_\_\_  
 REVISIONS  
 DATE  
 REVISIONS  
 DATE

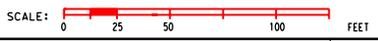
# Appendix 7. Natural Communities in Project Area



- SPARSELY VEGETATED - 2.0 ACRES
- DOUGLAS-FIR FOREST - 1.7 ACRES
- \* RUDERAL VEGETATION - 0.1 ACRE

**NATURAL COMMUNITIES  
IN PROJECT AREA  
DN-199 PM 20.5  
PATRICK CREEK NARROWS  
LOCATION 1**

\* Not drawn on map



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
REGISTERED CIVIL ENGINEER		DATE		
PLANS APPROVAL		No. _____		
Exp. _____		CIVIL		

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

PRELIMINARY DESIGN

REQUEST STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN  
 FUNCTIONAL SUPERVISOR  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

BORDER LAST REVISED 4/11/2008

RELATIVE BORDER SCALE IS IN INCHES

USERNAME => #USER  
DGN FILE => #REQUEST

CU 00000

EA 000000

DATE PLOTTED => #DATE  
 TIME PLOTTED => #TIME











# Appendix K Locations of Trees 6 inches dbh and Greater in the Project Area

---



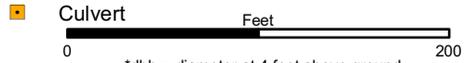
**DN-197/199 Safe STAA Access Project  
Ruby Location 1  
Locations of Trees Greater than 6 inches dbh\***

Legend

-  Caltrans Trees
-  Red alder, dbh 6-12 in
-  Red alder, dbh > 12 in.
-  Bigleaf Maple, dbh 6-12 in
-  Coastal redwood, dbh 6-12 in
-  Coastal redwood, dbh > 12 in.
-  California bay laurel, dbh 6-12 in
-  California bay laurel, dbh > 12 in.

-  ESL Area -  
Ruby 1 - 1.95 acres  
Ruby 2 - 6.88 acres

-  Caltrans Right of Way



\*dbh = diameter at 4 feet above ground  
Aerial Photo Source: Caltrans



PM 4.50

PM 4.47

Smith River

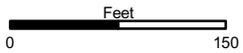




DN-197/199 Safe STAA Access Project  
Patrick Creek Narrows Location 1  
Locations of Trees 6 inches dbh\* and Greater

Legend

- |                                   |                                   |
|-----------------------------------|-----------------------------------|
| ✕ Douglas-fir, dbh 6-12 in.       | ● Douglas-fir, dbh > 12 in.       |
| ✕ Incense cedar, dbh 6-12 in.     | ● Incense cedar, dbh > 12 in.     |
| ✕ Port Orford cedar, dbh 6-12 in. | ● Port Orford cedar, dbh > 12 in. |
| ✕ White alder, dbh 6-12 in.       | ● Tanoak, dbh > 12 in.            |
| ✕ Pacific madrone, dbh 6-12 in.   | — Project Components              |



▬ Caltrans Right of Way

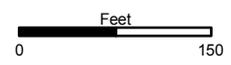
\*dbh = diameter at 4 feet above ground  
Aerial Photo Source: Caltrans

Middle Fork Smith River

# DN-197/199 Safe STAA Access Project Patrick Creek Narrows Location 2 Locations of Trees 6 inches dbh\* or Greater

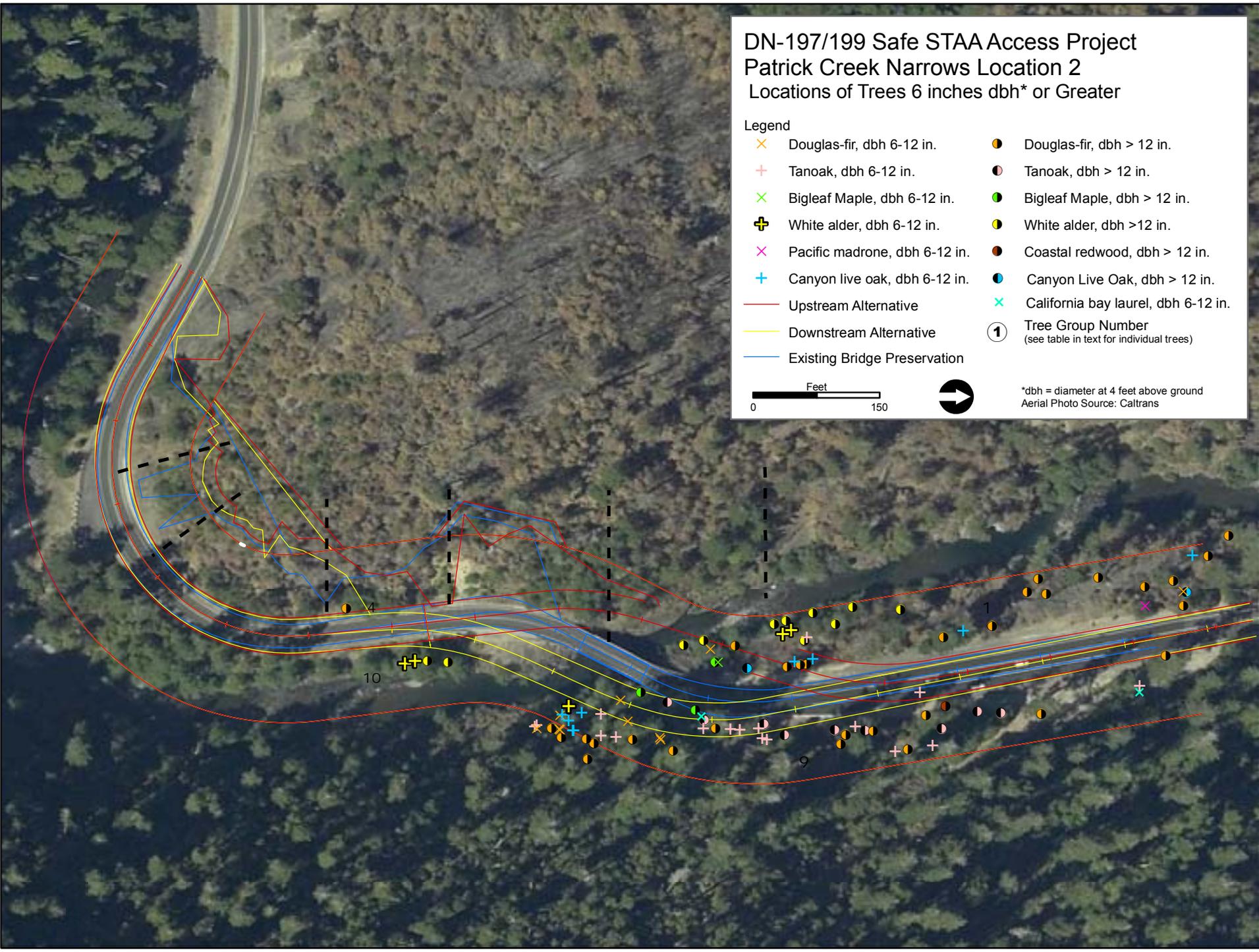
## Legend

- ✕ Douglas-fir, dbh 6-12 in.
- ✕ Tanoak, dbh 6-12 in.
- ✕ Bigleaf Maple, dbh 6-12 in.
- ✕ White alder, dbh 6-12 in.
- ✕ Pacific madrone, dbh 6-12 in.
- ✕ Canyon live oak, dbh 6-12 in.
- Upstream Alternative
- Downstream Alternative
- Existing Bridge Preservation
- Douglas-fir, dbh > 12 in.
- Tanoak, dbh > 12 in.
- Bigleaf Maple, dbh > 12 in.
- White alder, dbh > 12 in.
- Coastal redwood, dbh > 12 in.
- Canyon Live Oak, dbh > 12 in.
- ✕ California bay laurel, dbh 6-12 in.
- ① Tree Group Number  
(see table in text for individual trees)



\*dbh = diameter at 4 feet above ground  
Aerial Photo Source: Caltrans

Q:\PROJECTS\CALTRANS\00599\_08\_TO41\MAPDOC\TREES\_PATRICKCR2.MXD\_DS (01-06-10)





**DN-197/199 Safe STAA Access Project  
Patrick Creek Narrows Location 3  
Locations of Trees 6 inches dbh\* and Greater**

**Legend**

- Tree Group Location  
(see table in text for individual trees)
- Project Components
- ▬ Caltrans Right of Way



\*dbh = diameter at 4 feet above ground  
Aerial Photo Source: Caltrans

# DN-197/199 Safe STAA Access Project Washington Curve

## Locations of Trees 6 inches dbh\* and Greater

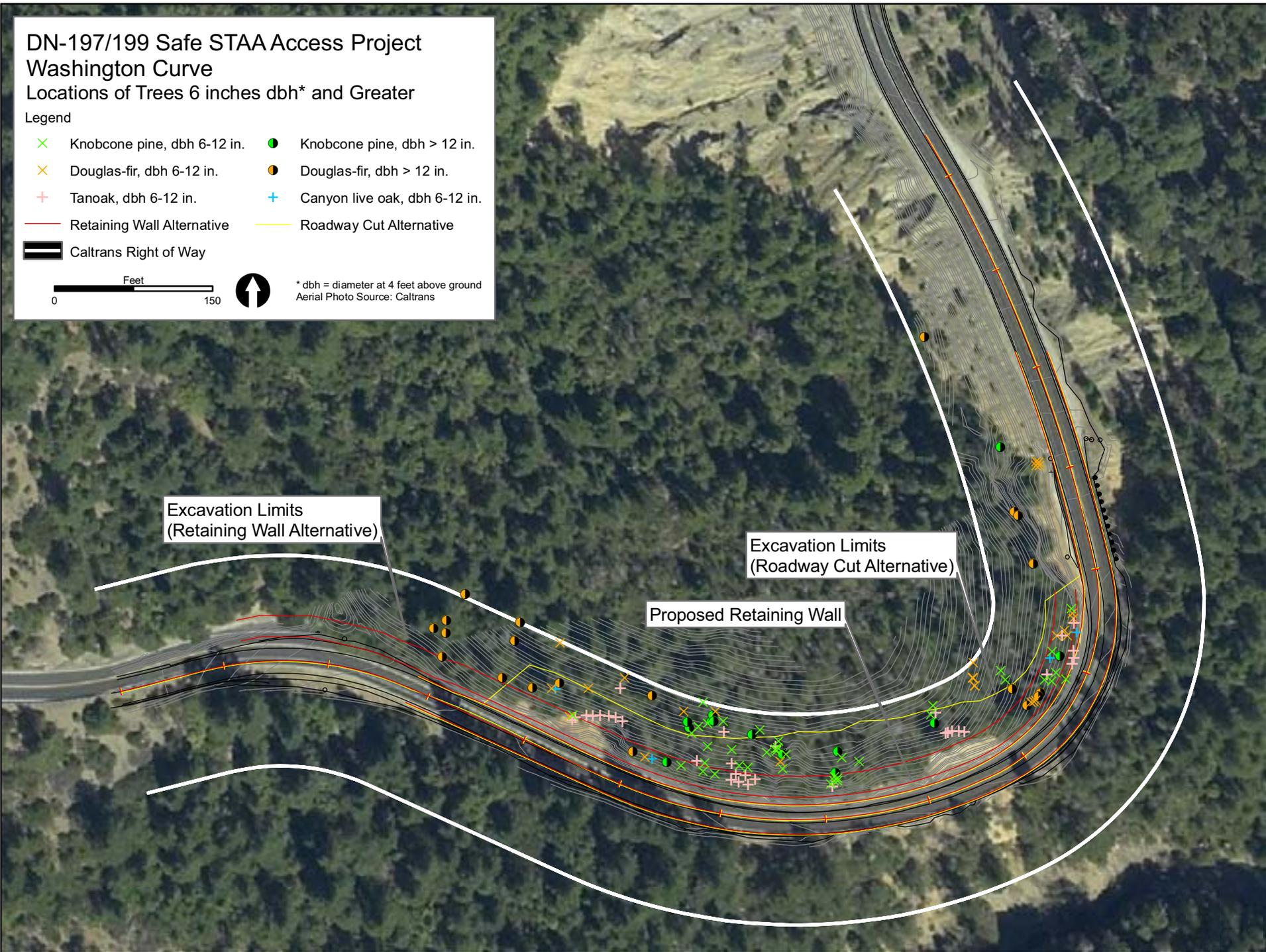
### Legend

- ✕ Knobcone pine, dbh 6-12 in.
- Knobcone pine, dbh > 12 in.
- ✕ Douglas-fir, dbh 6-12 in.
- Douglas-fir, dbh > 12 in.
- + Tanoak, dbh 6-12 in.
- + Canyon live oak, dbh 6-12 in.
- Retaining Wall Alternative
- Roadway Cut Alternative
- ▬ Caltrans Right of Way



\* dbh = diameter at 4 feet above ground  
Aerial Photo Source: Caltrans

Q:\PROJECTS\CALTRANS\00599\_08\_T041\MAPDOC\TREES\_WASHINGTON.MXD.LD (06-17-09)



Excavation Limits  
(Retaining Wall Alternative)

Excavation Limits  
(Roadway Cut Alternative)

Proposed Retaining Wall



Appendix L Summary of Wetland/Waters Habitat  
Functions and Values at all  
Locations for the 197/199 Safe  
STAA Access Project in Del Norte  
County

---



**Appendix L. Summary of Wetland/Waters Habitat Functions and Values at All Locations for the 197/199 Safe STAA Access Project in Del Norte County**

Function / Value	Criteria	Riverine Upper Perennial Isolated Freshwater Seeps <sup>1</sup>	Riverine Upper Perennial Rock Bottom <sup>2</sup>	Riverine Perennial/ Intermittant <sup>3</sup>	Palustrine Emergent <sup>4</sup>
Groundwater recharge	High: groundwater table slopes away from wetland, non-riparian, not permanently inundated. Low: wetlands with impervious underlying strata or marine/estuarine wetlands	High (3) Rationale: Groundwater table slopes away from wetland.	Low (1) Rationale: underlying strata is bedrock.	Low (1) Rationale: Groundwater table slopes toward drainage.	Low (1) Rationale: Permanently inundated
Groundwater discharge	High: permanently inundated, below dam/impoundment, outlets but no defined inlet, presence of springs Low: rated "High" for groundwater recharge, non-permanently flooded wetlands lacking the "High" characteristics defined above	Moderate (3) Rationale: Permanently inundated, outlet but no defined inlet, presence of springs	Low (1) Rationale: Not permanently inundated. Defined inlet and outlet.	Low (1) Rationale: Not permanently inundated. Defined inlet and outlet.	Moderate (2) Most areas not permanently inundated. Non-riparian No defined inlet, weakly define outlet
Floodflow alteration	High: regulated reservoir, outflow less than inflow, non-tidal, capacity to delay runoff (depression) Low: permanently inundated (i.e. less capacity), no potential for ponding, all tidal wetlands	Moderate (2) Rationale: Permanently inundated, some potential for ponding	Low (1) Rationale: No runoff delay, permanently inundated	Moderate (2) Rationale: Some areas not permanently inundated.	High (3) Rationale: Permanently inundated, potential for ponding
Sediment Stabilization	High: potential erosive forces present, canals/levees present that confine water, high water velocity, evidence of long-term erosion, presence of water & vegetation interspersions. Low: no flowing water, no open water wider than 100', no eroding areas abutting the wetland, no vegetation or rubble	High (3) Rationale: Potential erosive forces present, presence of water & vegetation interspersions	High (3) Rationale: High water velocity, evidence of long-term erosion	High (3) Rationale: Erosion present, ditches confine water, high water velocity, vegetation interspersions	Moderate (2) Rationale: In median-- Well vegetated, no flowing water, no open water wider than 100'
Sediment/toxicant retention	High: potential for erosion or toxicants in the watershed combined with capacity to confine or impound water; no outlet (or constricted), riffle and pool complexes, erect vegetation Low: no flowing water, no open water, >100 feet wide, or no vegetation; immediately downstream of impoundment, high-velocity flows, tidal flows	Low (1) Rationale: Flowing water, <100 feet wide.	Low (1); Rational: High-velocity flow, no vegetation.	Moderate (2) Rationale: Flowing water, vegetation present.	High (3) Rationale: Water confined, vegetation present.
Nutrient removal/transformation	High: same as for sediment/toxicant retention (capacity to confine or impound water; no outlet, constricted, riffle & pool complexes, erect vegetation) Low: low sediment trapping, peat sediments, anoxic water column, marine wetlands	Low (1) Rationale: Flowing water, <100 feet wide.	Low (1) Rationale: High-velocity flow	Moderate (2) Rationale: Flowing water, vegetation present.	High (3) Rationale: Water confined, vegetation present.
Production export	High: high primary productivity & high water velocity; Riverine wetlands with eutrophic conditions. Marine or estuarine with high primary productivity or eutrophic conditions. Low: no permanent or intermittent outlets	Moderate (2) Rationale: low water velocity.	High (3) Rationale: High primary productivity & high water velocity	Moderate (2) Rationale: low water velocity, permanent outlet.	Low (1) Rationale: No permanent or intermittent outlets
Wildlife diversity/abundance	High: riparian wetlands, floodplain wetlands, high vegetation diversity, wetland-upland complexes, large & diverse wetlands Low: isolated wetlands within urbanized areas, lack of connecting corridors, small wetlands with low vegetation diversity or narrow ecotones	Moderate (2) Rationale: moderate wildlife and plant diversity. Habitat for plants and amphibians	High (3) Federally listed SONCC Coho in MF Smith River. Other aquatic species present.	Low (1) Rationale: Roadside drainages, lack connecting corridors, low vegetation diversity, narrow ecotones	Low (1) Rationale: Roadside drainages, lack connecting corridors, low vegetation diversity, narrow ecotones
Aquatic diversity/abundance	High: regularly flooded, erect vegetation, adequate levels of dissolved oxygen, diverse vegetation cover providing partial shading Low: substrate of bedrock or rubble, farmed, acidic surface water	Moderate (2) Rationale: High dissolved oxygen, diverse vegetation cover, bedrock substrate	High (3) Rationale: diverse fish and other aquatic species present. Habitat, nursery, & refuge areas for fish.	Low (1) Rationale: Roadside drainages, lack of connecting corridors, low vegetation diversity,	Low (1) Rationale: Roadside drainages, lack connecting corridors, low vegetation diversity,
Uniqueness/heritage	High: presence of special status species, significant archeological resources, "unique" wetland types, or publicly owned lands designated for conservation, preservation, or research Low: absence of criteria listed above	High (3) Rationale: provide habitat for rare plants	High (3) Rationale: adjacent to the Publicly owned Wildlife Areas. Rare plants present	Low (1) Rational: in median, not a unique wetland type, not designated for conservation.	Low (1) Rational: in median, not a unique wetland type, not designated for conservation.
Recreation	High: wetlands utilized and accessible for recreation Low: wetlands not utilized or accessible for recreation	Low (1) Rationale: wetlands not utilized or accessible for recreation	High (3) Rationale: MF Smith River used for swimming, fishing, boating	Low (1) Rationale: Drainages not utilized or accessible for recreation	Low (1) Rationale: Roadside wetlands not utilized or accessible for recreation.
<b>Overall Wetland Function/Values*:</b>		<b>23 (Moderate)</b>	<b>23 (Moderate)</b>	<b>17 (Low)</b>	<b>19 (Moderate)</b>

\* Overall Function/Values; 11-17, Low; 18-25, Moderate; 26-33, High.

<sup>1</sup> Present at PCN Locations 1 & 2, The Narrows; <sup>2</sup> Present at PCN Location 2

<sup>3</sup> Perennial/intermittent drainages present at all locations,

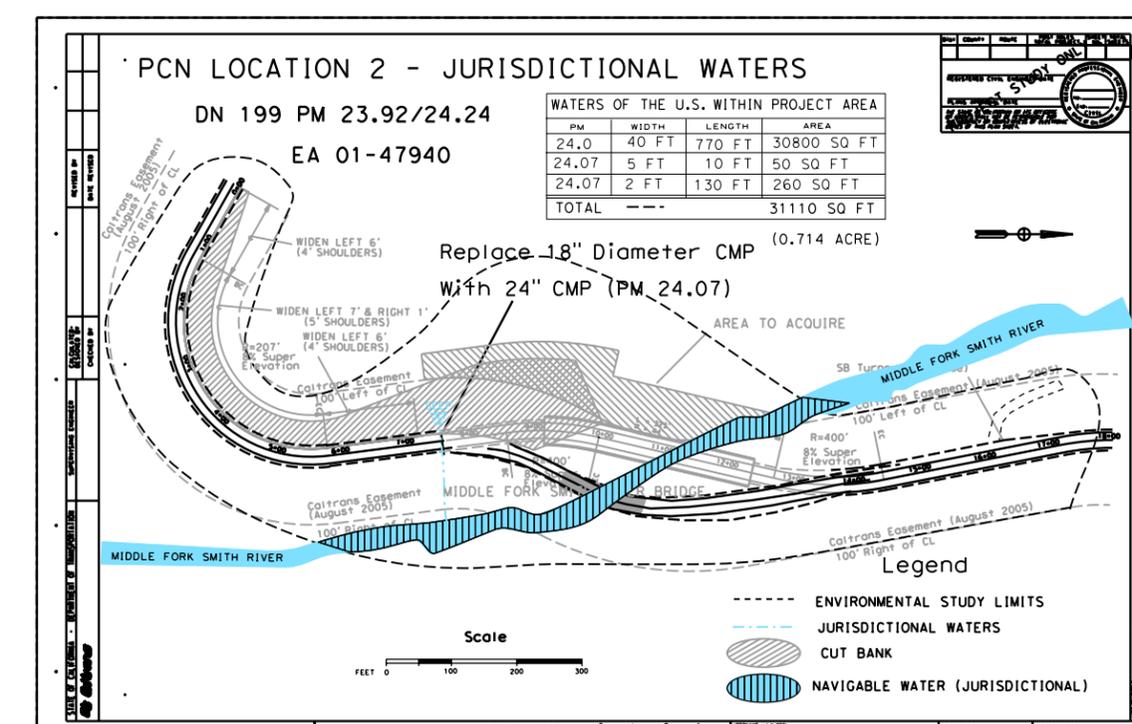
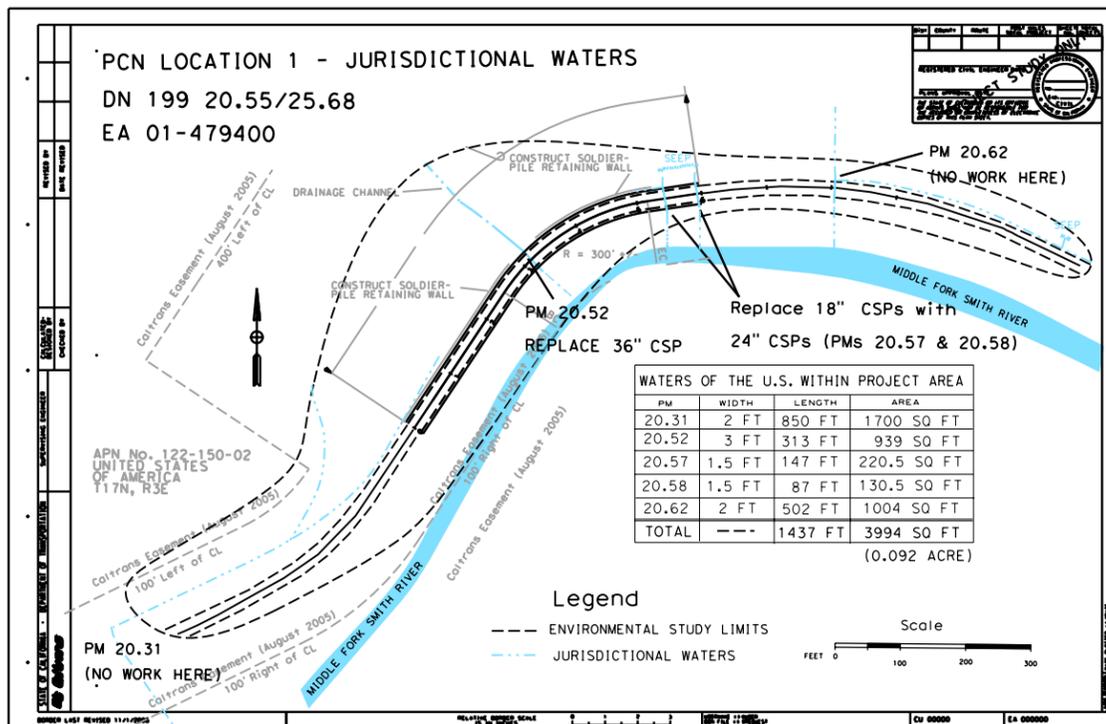
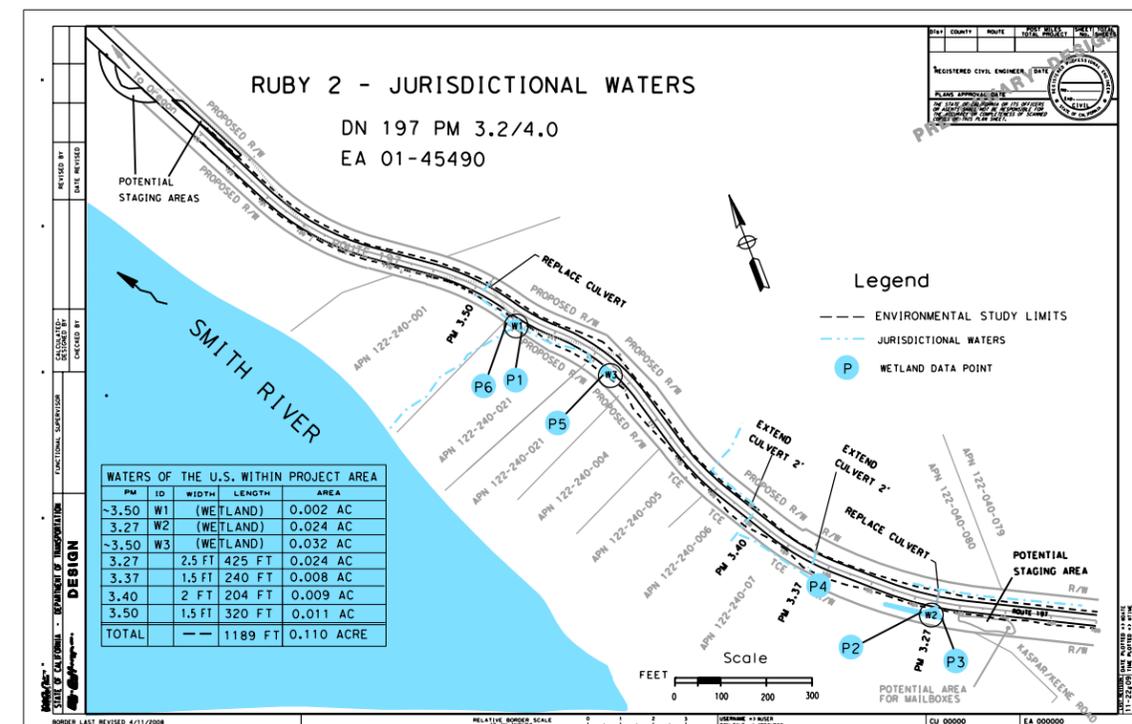
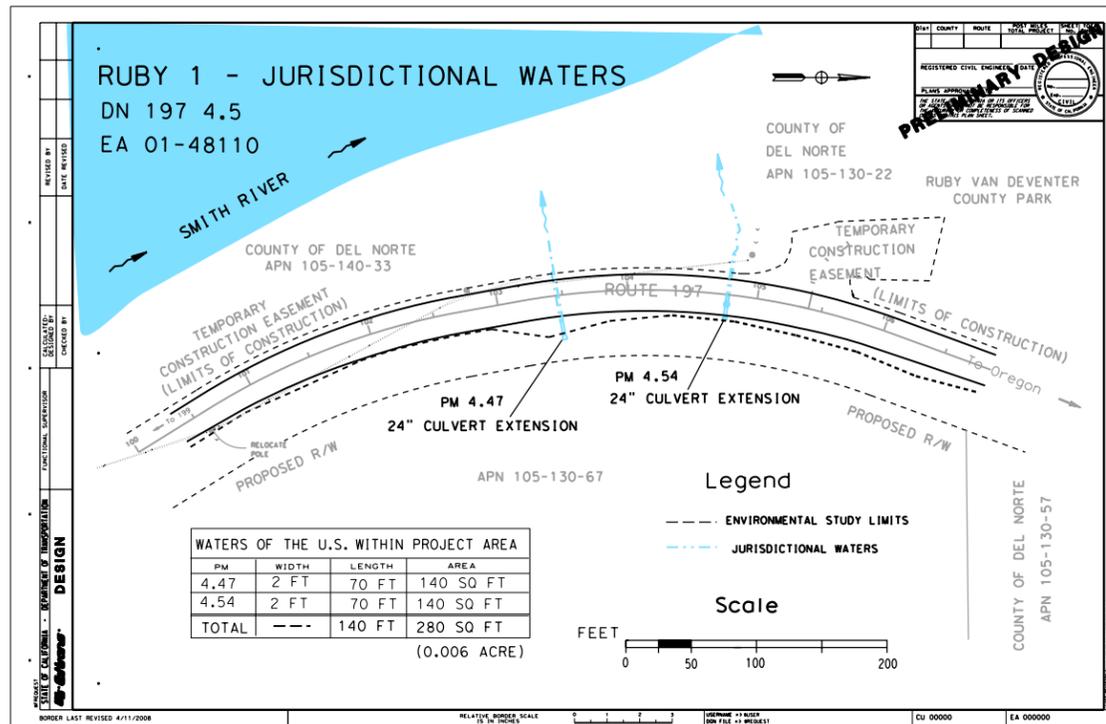
<sup>4</sup> Present at Ruby 2 and The Narrows

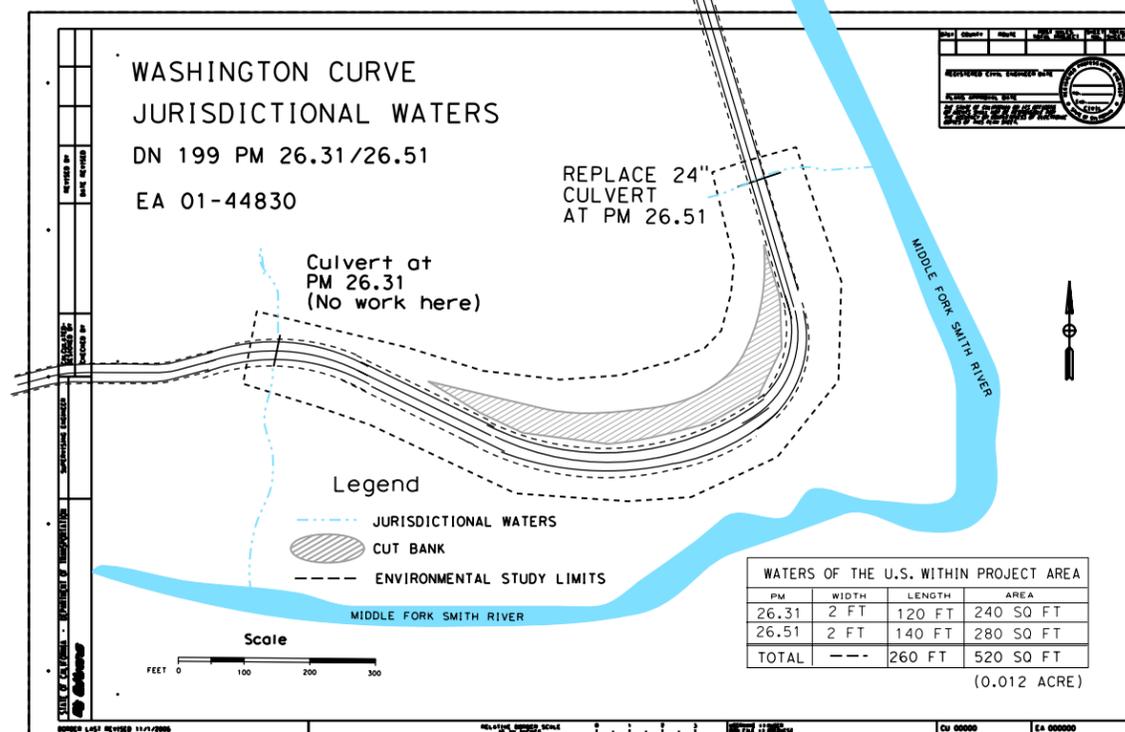
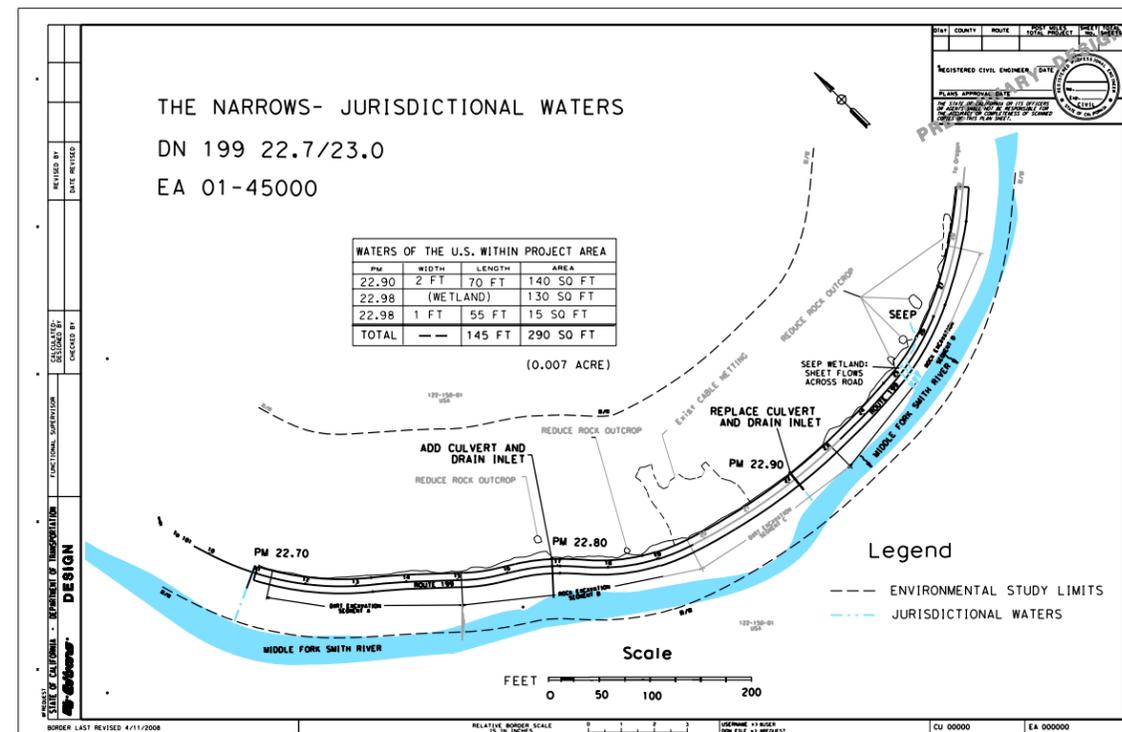
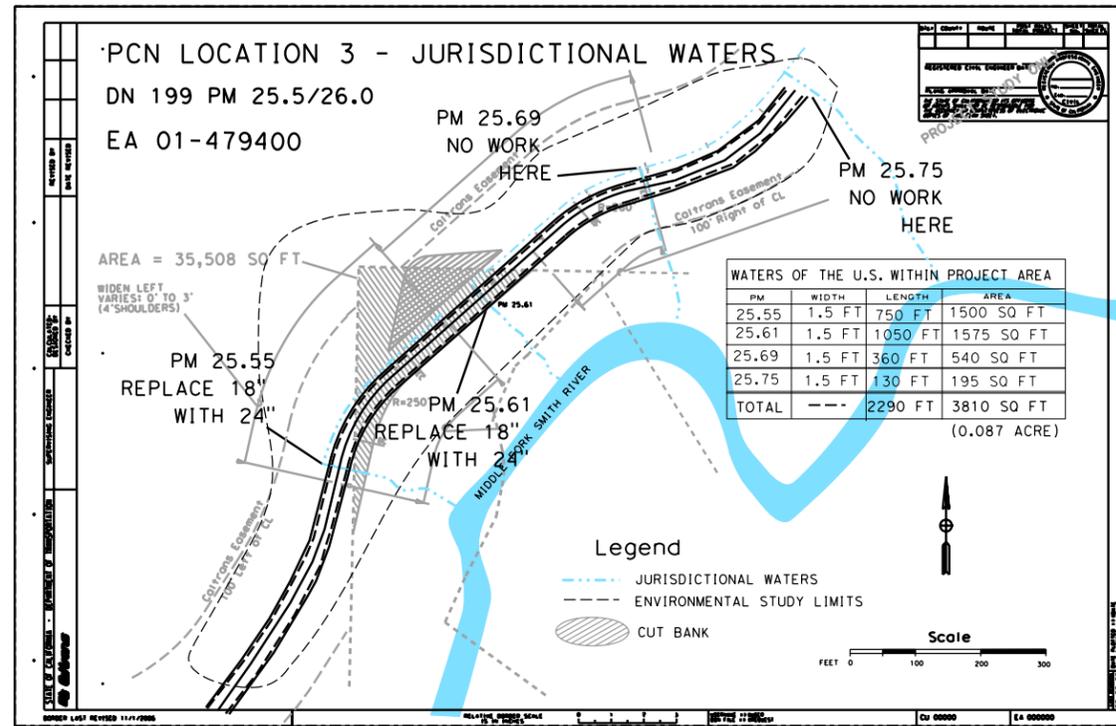


Appendix M Wetlands and Other Waters at the  
DN 197/199, STAA Locations

---







Appendix N Plants Observed in the Study Area  
and Results of CNDDDB and CNPS  
Inventory Records Search

---



**Appendix N. Plant Species Observed in the Study Area.**

Compiled from ICF Jones Stokes and Caltrans surveys; nomenclature follows *The Jepson Manual* (Hickman 1993) and online updates.

Scientific Name (* = non-native species)	Common Name	Family	Patrick Creek				The Narrows	Washing-ton Curve	Ruby 1	Ruby 2
			All	Loc. 1	Loc. 2	Loc. 3				
<b>Trees</b>										
<i>Acer macrophyllum</i>	bigleaf maple	Aceraceae		x	x	x	x		x	x
<i>Alnus rhombifolia</i>	white alder	Betulaceae		x	x			x		
<i>Alnus rubra</i>	red alder	Betulaceae				x	x		x	x
<i>Arbutus menziesii</i>	Pacific madrone	Ericaceae		x	x	x	x	x		
<i>Calocedrus decurrens</i>	incense cedar	Cupressaceae		x	x		x	x		
<i>Chamaecyparis lawsoniana</i> [ <i>Cupressus l.</i> ]	Port Orford cedar	Cupressaceae		x					x	
<i>Chrysolepis chrysolepis</i>	chinquapin	Fagaceae			x			x		
<i>Cornus nuttallii</i>	Pacific dogwood	Cupressaceae			x	x				
<i>Fraxinus latifolia</i>	Oregon ash	Oleaceae					x			
<i>Lithocarpus densiflorus</i> var. <i>densiflorus</i>	tanoak	Fagaceae		x	x	x	x	x		x
<i>Malus</i> sp. *	cultivated apple	Rosaceae								x
<i>Myrica californica</i> [ <i>Morella c.</i> ]	Pacific bayberry	Myricaceae		x						
<i>Picea sitchensis</i>	Sitka spruce	Pinaceae							x	
<i>Pinus attenuata</i>	knobcone pine	Pinaceae						x		
<i>Pinus jeffreyi</i> / <i>ponderosa</i>	yellow pine	Pinaceae						x		
<i>Pinus sabiniana</i>	foothill pine	Pinaceae					x			
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	black cottonwood	Salicaceae			x					
<i>Prunus</i> sp.	cherry	Rosaceae	x		x					x
<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	Douglas-fir	Pinaceae		x	x	x	x	x	x	x
<i>Quercus chrysolepis</i>	canyon live oak	Fagaceae		x	x	x	x	x		
<i>Quercus kelloggii</i>	black oak	Fagaceae					x			
<i>Salix lasiolepis</i>	arroyo willow	Salicaceae		x	x	x	x	x	x	
<i>Salix sitchensis</i>	Sitka willow	Salicaceae								x
<i>Sequoia sempervirens</i>	coast redwood	Taxodiaceae [Cupressaceae]			x				x	x
<i>Umbellularia californica</i>	California bay	Lauraceae		x	x	x	x	x	x	x
<b>Shrubs</b>										
<i>Acer circinatum</i>	vine maple	Aceraceae			x					
<i>Amelanchier alnifolia</i> var. <i>semiintegrifolia</i>	Pacific serviceberry	Rosaceae			x		x			
<i>Arctostaphylos columbiana</i>	hairy manzanita	Ericaceae					x	x		
<i>Arctostaphylos glandulosa</i> ssp. <i>glandulosa</i>	Eastwood manzanita	Ericaceae						x		
<i>Arctostaphylos</i> sp.	manzanita	Ericaceae		x	x		x	x		
<i>Baccharis pilularis</i>	coyote brush	Asteraceae		x	x		x			x
<i>Berberis aquifolium</i> var. <i>aquifolium</i>	Oregon grape	Berberidaceae			x					
<i>Berberis nervosa</i>	Oregon grape	Berberidaceae			x					
<i>Ceanothus integerrimus</i>	deer brush	Rhamnaceae		x	x	x	x	x		
<i>Ceanothus pumilus</i>	Siskiyou mat	Rhamnaceae		x						
<i>Ceanothus velutinus</i> var. <i>hookeri</i>	snowbrush	Rhamnaceae			x			x		
<i>Cercis occidentalis</i>	western redbud	Fabaceae		x						
<i>Chrysolepis chrysophylla</i> var. <i>chrysophylla</i>	giant chinquapin	Fagaceae			x			x		
<i>Cornus sericea</i> ssp. <i>sericea</i>	redosier dogwood	Cornaceae					x			
<i>Cornus</i> sp.	dogwood	Cornaceae			x					

**Appendix N. Plant Species Observed in the Study Area.**

Compiled from ICF Jones Stokes and Caltrans surveys; nomenclature follows *The Jepson Manual* (Hickman 1993) and online updates.

Scientific Name (* = non-native species)	Common Name	Family	Patrick Creek			The Narrows	Washing-ton Curve	Ruby 1	Ruby 2
			All	Loc. 1	Loc. 2				
<i>Corylus cornuta</i> var. <i>californica</i>	California hazelnut	Betulaceae			x		x	x	
<i>Cotoneaster pannosa</i> *	cotoneaster	Rosaceae					x	x	
<i>Cytisus scoparius</i> *	Scotch broom	Fabaceae			x		x		
<i>Eriodictyon californicum</i>	yerba santa	Hydrophyllaceae		x			x		
<i>Euonymus occidentalis</i> var. <i>occidentalis</i>	western burning bush	Celastraceae	x						
<i>Fuchsia magellanica</i> *	hardy fuchsia	Onagraceae					x		
<i>Garrya buxifolia/flavescens</i>	silk tassel bush	Garryaceae		x	x	x			
<i>Gaultheria shallon</i>	salal	Ericaceae		x	x		x	x	
<i>Genista monspessulana</i> *	French broom	Fabaceae			x	x	x		
<i>Holodiscus discolor</i>	oceanspray	Rosaceae		x	x	x	x	x	
<i>Ilex aquifolium</i> *	holly	Aquifoliaceae					x		
<i>Ledum glandulosum</i>	western Labrador tea	Ericaceae		x					
<i>Philadelphus lewisii</i>	Lewis' mock orange	Philadelphaceae [Hydrangeaceae]			x				
<i>Physocarpus capitatus</i>	Pacific ninebark	Rosaceae					x	x	
<i>Prunus laurocerasus</i> *	cherry laurel	Rosaceae					x	x	
<i>Quercus berberidifolia</i>	scrub oak	Fagaceae				x	x		
<i>Quercus durata</i>	leather oak	Fagaceae				x			
<i>Rhamnus californica</i>	California coffeeberry	Rhamnaceae		x	x		x	x	
<i>Rhamnus pushiana</i> [ <i>Frangula</i> p.]	casara buckthorn	Rhamnaceae		x					
<i>Rhododendron occidentale</i>	western azalea	Ericaceae		x	x				
<i>Ribes menziesii</i>	canyon gooseberry	Grossulariaceae		x	x	x			
<i>Ribes sanguineum</i>	red-flowering currant	Grossulariaceae			x				
<i>Ribes</i> sp.	gooseberry	Grossulariaceae			x				
<i>Rosa gymnocarpa</i>	wood rose	Rosaceae			x	x			
<i>Rosa</i> sp.	rose	Rosaceae				x	x		
<i>Rubus armeniacus</i> [ <i>R. discolor</i> ] *	Himalayan blackberry	Rosaceae		x	x	x	x	x	
<i>Rubus leucodermis</i>	black-cap raspberry	Rosaceae			x	x	x		
<i>Rubus parviflorus</i>	thimbleberry	Rosaceae		x	x	x	x	x	
<i>Rubus spectabilis</i>	salmonberry	Rosaceae			x		x	x	
<i>Rubus ursinus</i>	California blackberry	Rosaceae		x	x	x	x	x	
<b><i>Salix delnortensis</i></b>	<b>Del Norte willow</b>	Salicaceae		x			x		
<i>Salix sitchensis</i>	Sitka willow	Salicaceae			x		x		
<i>Salix</i> sp.	willow	Salicaceae		x	x	x			
<i>Sambucus racemosa</i> var. <i>racemosa</i>	Pacific red elderberry	Caprifoliaceae	x				x	x	
<i>Symphoricarpos albus</i> var. <i>laevigatus</i>	snowberry	Caprifoliaceae			x		x		
<i>Symphoricarpos mollis</i>	creeping snowberry	Caprifoliaceae			x				
<i>Toxicodendron diversilobum</i>	poison-oak	Anacardiaceae		x	x	x	x	x	
<i>Vaccinium ovatum</i>	black huckleberry	Ericaceae		x	x		x	x	
<i>Vaccinium parvifolium</i>	red huckleberry	Ericaceae		x	x		x	x	
<b>Herbaceous Plants: Ferns &amp; Relatives</b>									
<i>Adiantum aleuticum</i>	five fingered maidenhair fern	Pteridaceae		x	x		x	x	
<i>Aspidotis densa</i>	cliff brake, lace fern	Pteridaceae		x	x				
<i>Athyrium filix-femina</i> var. <i>cyclosorum</i>	lady fern	Dryopteridaceae						x	

**Appendix N. Plant Species Observed in the Study Area.**

Compiled from ICF Jones Stokes and Caltrans surveys; nomenclature follows *The Jepson Manual* (Hickman 1993) and online updates.

Scientific Name (* = non-native species)	Common Name	Family	Patrick Creek				The Narrows	Washing-ton Curve	Ruby 1	Ruby 2
			All	Loc. 1	Loc. 2	Loc. 3				
<i>Cheilanthes gracillima</i>	lip fern	Pteridaceae			x		x	x		
<i>Cystopteris fragilis</i>	Fragile fern	Dryopteridaceae			x					
<i>Dryopteris arguta</i>	coast wood fern	Dryopteridaceae			x				x	x
<i>Equisetum</i> sp.	common horsetail	Equisetaceae				x				
<i>Equisetum telmateia</i> ssp. <i>braunii</i>	giant horsetail	Equisetaceae				x			x	x
<i>Pentagramma triangularis</i>	gold-back fern	Pteridaceae			x	x	x			x
<i>Polypodium calirhiza</i>	licorice fern	Polypodiaceae				x				
<i>Polypodium glycyrrhiza</i>	licorice fern	Polypodiaceae			x					
<i>Polypodium</i> sp.	polypody fern	Polypodiaceae			x				x	
<i>Polystichum imbricans</i> ssp. <i>imbricans</i>	narrow-leaved sword fern	Dryopteridaceae			x		x			
<i>Polystichum munitum</i>	western sword fern	Dryopteridaceae		x	x	x		x	x	x
<i>Polystichum</i> sp.	Sword fern	Dryopteridaceae		x		x	x			
<i>Pteridium aquilinum</i> var. <i>pubescens</i>	bracken fern	Dennstaedtiaceae		x	x		x	x	x	x
<i>Selaginella wallacei</i>	Wallace's spikemoss	Selaginellaceae		x	x		x			
<i>Woodwardia fimbriata</i>	giant chainfern	Blechnaceae		x	x	x	x			
<b>Herbaceous Plants: Dicots</b>										
<i>Achillea millefolium</i>	yarrow	Asteraceae		x	x	x		x		
<i>Achlys californica</i>	deer's foot	Berberidaceae			x		x	x		
<i>Actaea rubra</i>	baneberry	Ranunculaceae	x					x		
<i>Adenocaulon bicolor</i>	trail plant	Asteraceae			x					
<i>Agoseris</i> sp.	mtn. dandelion	Asteraceae			x					
<i>Allotropa virgata</i>	sugar stick	Ericaceae					x	x		
<i>Anagallis arvensis</i>	scarlet pimpernel	Primulaceae		x						
<i>Anaphalis margaritacea</i>	pearly everlasting	Asteraceae		x	x	x	x	x	x	x
<i>Antirrhinum</i> sp.	snapdragon	Scrophulariaceae					x			
<i>Apocynum androsaemifolium</i>	dogbane	Apocynaceae			x			x	x	
<i>Aralia californica</i>	elk clover	Araliaceae			x					
<i>Arnica discoidea</i>	rayless arnica	Asteraceae			x			x		
<i>Artemisia douglasiana</i>	mugwort	Asteraceae					x			x
<i>Aruncus dioicus</i> var. <i>pubescens</i>	hairy goatsbeard	Rosaceae			x	x	x			
<i>Asarum hartwegii</i>	creeping wild ginger	Aristolochiaceae							x	
<i>Aster</i> [ <i>Eurybia</i> ] <i>radulinus</i>	roughleaf aster	Asteraceae			x	x				
<i>Aster</i> [ <i>Sericarpus</i> ] <i>oregonensis</i>	Oregon whitetop aster	Asteraceae			x		x			
<i>Aster</i> [ <i>Symphyotrichum</i> ] <i>chilensis</i>	California aster	Asteraceae	x							
<i>Bellis perennis</i> *	English daisy	Asteraceae				x				x
<i>Bidens</i> sp.	beggar's tickweed	Asteraceae		x						
<i>Boschniakia strobilacea</i>	California groundcone	Orobanchaceae			x		x	x		
<i>Boykinia occidentalis</i>	western boykinia	Saxifragaceae			x		x			
<i>Brassica nigra</i> *	black mustard	Brassicaceae		x		x				
<i>Brassica</i> sp.	wild mustard	Brassicaceae	x							
<i>Calaliopsis nardosmia</i>	silverbrown	Asteraceae			x					
<i>Calypso bulbosa</i>	fairy slipper orchid	Orchidaceae			x			x		
<i>Calystegia occidentalis</i> ssp. <i>occidentalis</i>	western morning glory	Convolvulaceae		x	x			x		

**Appendix N. Plant Species Observed in the Study Area.**

Compiled from ICF Jones Stokes and Caltrans surveys; nomenclature follows *The Jepson Manual* (Hickman 1993) and online updates.

Scientific Name (* = non-native species)	Common Name	Family	Patrick Creek				The Narrows	Washing-ton Curve	Ruby 1	Ruby 2
			All	Loc. 1	Loc. 2	Loc. 3				
<i>Campanula scouleri</i>	Scouler's bluebell	Campanulaceae			x			x		
<i>Campanula</i> sp.	bluebell	Campanulaceae					x			
<i>Capsella bursa-pastoris</i> *	shepherd's-purse	Brassicaceae	x							
<i>Cardamine californica</i>	California toothwort	Brassicaceae			x			x	x	x
<b><i>Cardamine nuttallii</i> var. <i>gemmata</i></b>	<b>yellow-tubered toothwort</b>	Brassicaceae		x	x	x				
<i>Cardamine oligosperma</i>	few-seed bitter-cress	Brassicaceae				x				x
<i>Cardaria draba</i> *	hoary cress	Brassicaceae			x					
<i>Castilleja affinis</i> ssp. <i>affinis</i>	coast paintbrush	Scrophulariaceae		x	x		x			
<i>Centaurea solstitialis</i> *	yellow star-thistle	Asteraceae			x					
<i>Centaurea maculosa</i>	spotted knapweed	Asteraceae		x	x			x		
<i>Centaurium erythraea</i> *	common centaurium	Gentianaceae			x					
<i>Centaurium muehlenbergii</i>	Monterey centaurium	Gentianaceae		x		x				
<i>Cerastium arvense</i>	meadow chickweed	Caryophyllaceae			x		x			
<i>Cerastium glomeratum</i> *	chickweed	Caryophyllaceae			x	x	x			x
<i>Chamaesyce</i> sp.	spurge	Euphorbiaceae								x
<i>Chamomilla suaveolens</i> [ <i>Matricaria matricarioides</i> ] *	pineapple weed	Asteraceae			x					
<i>Chimaphila menziesii</i>	little prince's pine, pipsissewa	Ericaceae			x			x		
<i>Cichorium intybus</i> *	chicory	Asteraceae		x	x	x	x	x		
<i>Cirsium vulgare</i> *	bull thistle	Asteraceae			x	x			x	x
<i>Claytonia perfoliata</i>	miner's lettuce	Portulacaceae			x				x	x
<i>Claytonia sibirica</i>	candy flower	Portulacaceae			x	x			x	x
<i>Collinsia parviflora</i>	small flowered collinsia	Scrophulariaceae			x		x			
<i>Collomia heterophylla</i>	variableleaf collomia	Polemoniaceae			x		x	x		
<i>Conium maculatum</i> *	poison hemlock	Apiaceae							x	x
<i>Conyza canadensis</i> *	sneezeweed	Asteraceae		x			x			
<i>Corallorhiza</i> sp.	coralroot	Orchidaceae			x		x			
<i>Crepis</i> sp.	hawksbeard	Asteraceae	x							
<i>Cryptantha</i> cf. <i>muricata</i>	prickly popcornflower	Boraginaceae			x					
<b><i>Cypripedium californicum</i></b>	<b>California lady's slipper</b>	Orchidaceae		x			x			
<b><i>Darlingtonia californica</i></b>	<b>California pitcherplant</b>	Sarraceniaceae		x						
<i>Daucus carota</i> *	Queen Anne's lace	Apiaceae		x	x	x	x	x	x	x
<i>Delphinium</i> cf. <i>hesperium</i>	western larkspur	Ranunculaceae		x						
<i>Delphinium nudicaule</i>	red larkspur	Ranunculaceae			x		x			
<i>Delphinium</i> sp.	larkspur	Ranunculaceae		x						
<i>Dianthus armeria</i> ssp. <i>armeria</i> *	Deptford pink	Caryophyllaceae				x				
<i>Digitalis purpurea</i> *	foxglove	Scrophulariaceae								x
<i>Draba verna</i>	Spring draba	Brassicaceae			x					
<i>Epilobium</i> [ <i>Boisduvalia</i> ] sp.	willowherb	Onagraceae					x			
<i>Epilobium angustifolium</i> ssp. <i>circumvagum</i>	fireweed	Onagraceae			x					x
<i>Epilobium canum</i> ssp. <i>latifolium</i>	California fuchsia	Onagraceae			x		x	x		
<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>	hairy willowherb	Onagraceae		x		x				
<i>Epilobium foliosum</i>	California willowherb	Onagraceae					x			
<i>Epilobium</i> sp.	willowherb	Onagraceae		x	x		x		x	
<i>Epipactis gigantea</i>	stream orchid	Orchidaceae		x						

**Appendix N. Plant Species Observed in the Study Area.**

Compiled from ICF Jones Stokes and Caltrans surveys; nomenclature follows *The Jepson Manual* (Hickman 1993) and online updates.

Scientific Name (* = non-native species)	Common Name	Family	Patrick Creek				The Narrows	Washing-ton Curve	Ruby 1	Ruby 2
			All	Loc. 1	Loc. 2	Loc. 3				
<i>Erechtites minima</i> *	fireweed	Asteraceae								x
<b><i>Erigeron cervinus</i></b>	<b>Siskiyou daisy</b>	Asteraceae			x					
<i>Erigeron foliosus</i> var. <i>confinis</i>	leafy fleabane	Asteraceae					x			
<i>Eriogonum compositum</i>	arrow-leaved buckwheat	Polygonaceae			x		x	x		
<i>Eriogonum nudum</i> var. <i>nudum</i>	naked buckwheat	Polygonaceae		x	x	x	x	x		
<i>Eriophyllum lanatum</i> var. <i>achilleoides</i>	woolly sunflower	Asteraceae		x	x	x	x	x		
<i>Erodium cicutarium</i> *	redstem filaree	Geraniaceae					x	x		
<i>Erodium</i> sp.	filaree/stork's bill	Geraniaceae	x							
<i>Erysimum capitatum</i> ssp. <i>capitatum</i>	western wallflower	Brassicaceae		x	x		x	x		
<i>Eschscholzia californica</i>	California poppy	Papaveraceae	x							x
<i>Euphorbia peplus</i> *	petty spurge	Euphorbiaceae								x
<i>Filago gallica</i>	filago	Asteraceae		x						
<i>Foeniculum vulgare</i> *	common fennel	Apiaceae					x			
<i>Fragaria vesca</i>	wood strawberry	Rosaceae			x	x				x
<i>Galium andrewsii</i>	bedstraw	Rubiaceae			x		x			
<i>Galium aparine</i> *	common bedstraw	Rubiaceae				x	x		x	x
<i>Galium parisiense</i> *	wall bedstraw	Rubiaceae				x		x		
<i>Galium</i> sp.	bedstraw	Rubiaceae			x		x			
<i>Gayophytum</i> sp.	groundsmoke	Onagraceae			x					
<i>Gentianella amarella</i> ssp. <i>acuta</i>	gentian	Gentianaceae					x			
<i>Geranium dissectum</i> *	cut-leaved geranium	Geraniaceae	x							x
<i>Geranium pusillum</i> *	small geranium	Geraniaceae							x	
<i>Gilia capitata</i> ssp. <i>capitata</i>	bluehead gilia	Polemoniaceae		x						
<i>Gilia</i> sp.	gilia	Polemoniaceae					x			
<i>Goodyera oblongifolia</i>	rattlesnake plantain	Orchidaceae	x					x		
<i>Hedera helix</i> *	English ivy	Araliaceae							x	x
<i>Herniaria hirsuta</i> ssp. <i>hirsuta</i> *	hairy rupturewort	Caryophyllaceae	x							
<i>Heuchera micrantha</i>	alumroot	Saxifragaceae			x		x			
<i>Hieracium albiflorum</i>	white hawkweed	Asteraceae			x		x	x		x
<i>Hirschfeldia incana</i> *	Mediterranean hoary mustard	Brassicaceae	x	x						
<i>Hydrophyllum occidentale</i>	western waterleaf	Hydrophyllaceae							x	x
<i>Hydrophyllum</i> sp.	waterleaf	Hydrophyllaceae					x			
<i>Hypericum perforatum</i> *	Klamathweed	Hypericaceae [Clusiaceae]		x	x	x	x	x		
<i>Hypochoeris radicata</i> *	rough cat's ear	Asteraceae		x	x	x	x	x	x	x
<i>Kickxia elatine</i> *	sharpsleaved fluellin	Scrophulariaceae		x	x		x	x		
<i>Lactuca saligna</i> *	prickly lettuce	Asteraceae		x						
<i>Lactuca serriola</i> *	prickly lettuce	Asteraceae		x		x	x			
<i>Lamium purpureum</i> *	henbit	Lamiaceae			x					
<i>Lapsana communis</i> *	common nipplewort	Asteraceae			x	x				x
<b><i>Lathyrus delnorticus</i></b>	<b>Del Norte pea</b>	Fabaceae				x				
<i>Lathyrus latifolius</i> *	perennial sweet pea	Fabaceae		x						
<i>Lathyrus polyphyllus</i>	leafy pea	Fabaceae						x		
<i>Lathyrus</i> sp.	wild pea	Fabaceae					x			
<i>Lathyrus vestitus</i>	Pacific pea	Fabaceae	x			x		x		

**Appendix N. Plant Species Observed in the Study Area.**

Compiled from ICF Jones Stokes and Caltrans surveys; nomenclature follows *The Jepson Manual* (Hickman 1993) and online updates.

Scientific Name (* = non-native species)	Common Name	Family	Patrick Creek				The Narrows	Washing-ton Curve	Ruby 1	Ruby 2
			All	Loc. 1	Loc. 2	Loc. 3				
<i>Lepidium latifolium</i>	broad-leaved peppergrass	Brassicaceae	x							
<i>Lepidium</i> sp.	peppergrass	Brassicaceae	x							
<i>Leucanthemum vulgare</i> *	ox-eye daisy	Asteraceae	x				x			x
<i>Lewisia cotyledon</i> var. <i>cotyledon</i>	cliff maids	Portulacaceae					x			
<i>Ligusticum californicum</i>	California lovage	Apiaceae			x					
<i>Linnaea borealis</i> ssp. <i>longiflora</i>	twinflower	Primulaceae			x					
<i>Linum</i> sp.	flax	Linaceae								x
<i>Lomatium californicum</i>	California lomatium	Apiaceae				25.15				
<b><i>Lomatium howellii</i></b>	<b>Howell's lomatium</b>	Apiaceae		x						
<i>Lomatium macrocarpum</i>	large fruited lomatium	Apiaceae	x							
<b><i>Lomatium martindalei</i></b>	<b>Coast Range lomatium</b>	Apiaceae			x					
<i>Lomatium vaginatum</i>	sheathed lomatium	Apiaceae			x					
<i>Lonicera hispidula</i> var. <i>vacillans</i>	hairy honeysuckle	Caprifoliaceae			x		x	x		
<i>Lotus corniculatus</i> *	birdfoot trefoil	Fabaceae		x	x	x		x		x
<i>Lotus crassifolius</i> var. <i>crassifolius</i>	buck lotus, big deervetch	Fabaceae						x		
<i>Lotus micranthus</i>	small-flowered lotus	Fabaceae		x			x	x		
<i>Lotus purshianus</i>	Spanish lotus	Fabaceae		x	x	x		x		
<i>Lotus</i> sp.	lotus	Fabaceae	x				x			
<i>Luina hypoleuca</i>	littleleaf silverback	Asteraceae			x		x	x		
<i>Lupinus bicolor</i>	miniature lupine	Fabaceae			x		x	x		
<i>Lupinus latifolius</i>	broadleaf lupine	Fabaceae						x		
<i>Lupinus rivularis</i>	riverbank upine	Fabaceae		x						
<i>Lupinus</i> sp.	lupine	Fabaceae				x	x			
<i>Lythrum hyssopifolia</i> *	hyssop loosestrife	Lythraceae								x
<i>Madia gracilis</i>	slender tarweed	Asteraceae			x					
<i>Madia madioides</i>	woodland madia	Asteraceae			x					
<i>Madia</i> sp.	madia	Asteraceae								x
<i>Marah oreganus</i>	coast manroot	Cucurbitaceae								x
<i>Medicago polymorpha</i> *	bur-clover	Fabaceae								x
<i>Medicago sativa</i> *	alfalfa	Fabaceae		x						
<i>Medicago</i> sp. *	bur-clover	Fabaceae	x							
<i>Melilotus alba</i> *	white sweetclover	Fabaceae		x				x		
<i>Melilotus</i> sp. *	sweetclover	Fabaceae			x					x
<i>Mentha pulegium</i> *	pennyroyal	Lamiaceae			x		x			
<i>Mentha spicata</i> var. <i>spicata</i> *	spearmint	Lamiaceae				x				
<i>Microseris laciniata/nutans</i>	microseris	Asteraceae			x					
<i>Mimulus alsinoides</i>	chickweed monkeyflower	Scrophulariaceae					x			
<i>Mimulus guttatus</i>	seep monkeyflower	Scrophulariaceae	x				x			
<i>Mimulus</i> sp.	monkeyflower	Scrophulariaceae			x		x			
<i>Minuartia douglasii</i>	Douglas sandwort	Caryophyllaceae			x					
<i>Montia parvifolia</i>	showy rock montia	Portulacaceae			x		x			
<i>Montia</i> sp.	miner's lettuce	Portulacaceae	x				x			
<i>Myosotis discolor</i> *	yellow-&-blue forget-me-not	Boraginaceae	x							
<i>Navarretia divaricata</i> ssp. <i>divaricata</i>	mountain navarretia	Polemoniaceae					x			

**Appendix N. Plant Species Observed in the Study Area.**

Compiled from ICF Jones Stokes and Caltrans surveys; nomenclature follows *The Jepson Manual* (Hickman 1993) and online updates.

Scientific Name (* = non-native species)	Common Name	Family	Patrick Creek				The Narrows	Washing-ton Curve	Ruby 1	Ruby 2
			All	Loc. 1	Loc. 2	Loc. 3				
<i>Navarretia</i> sp. (no flowers)	navarretia	Polemoniaceae					x	x		
<i>Navarretia squarrosa</i>	skunkweed	Polemoniaceae					x			
<i>Nemophila menziesii</i>	baby blue eyes	Hydrophyllaceae	x							
<i>Nemophila</i> sp.	baby blue eyes	Hydrophyllaceae			x	x				
<i>Oenanthe sarmentosa</i>	water dropwort	Apiaceae								x
<i>Osmorhiza purpurea</i>	purple sweet-cicely	Apiaceae	x							
<i>Osmorhiza chilensis</i> [O. berteroii]	mountain sweet-cicely	Apiaceae			x	x				x
<i>Oxalis oregona</i>	redwood sorrel	Oxalidaceae		x	x				x	x
<i>Oxalis</i> sp. *	sorrel	Oxalidaceae							x	
<i>Pedicularis</i> sp.	Indian warrior	Scrophulariaceae	x				x			
<i>Pedicularis densiflora</i>	Indian warrior	Scrophulariaceae	x							
<i>Penstemon</i> cf.	penstemon	Scrophulariaceae					x			
<i>Petasites frigidus</i> var. <i>palmatum</i>	sweet coltsfoot	Asteraceae			x				x	
<i>Petrorhagia dubia</i> *	grass pink	Caryophyllaceae		x						
<i>Phacelia</i> cf. <i>bolanderi</i>	phacelia	Hydrophyllaceae		x						
<i>Phacelia</i> cf. <i>hastata</i>	silverleaf phacelia	Hydrophyllaceae					x	x		
<i>Phacelia corymbosa</i>	serpentine phacelia	Hydrophyllaceae		x						
<i>Phacelia heterophylla</i> ssp. <i>virgata</i>	varied leaf phacelia	Hydrophyllaceae		x						
<i>Phlox gracilis</i>	slender phlox	Polemoniaceae			x		x			
<i>Phlox speciosa</i> ssp. <i>occidentalis</i>	showy phlox	Polemoniaceae			x					
<b><i>Pinguicula macroceras</i></b>	<b>horned butterwort</b>	Orobanchaceae		x						
<i>Piperia elongata</i>	dense-flowered rein orchid	Orchidaceae						x		
<i>Piperia transversa</i>	transverse rein orchid	Orchidaceae		x	x			x		
<i>Plagiobothrys</i> sp.	popcornflower	Boraginaceae	x							
<i>Plantago elongata</i>	slender plantain	Plantaginaceae					x	x		
<i>Plantago eriopoda</i>	saline plantain	Plantaginaceae				x				
<i>Plantago lanceolata</i> *	English plantain	Plantaginaceae		x	x	x	x	x		x
<i>Plantago major</i> *	common plantain	Plantaginaceae			x		x	x	x	
<i>Plantago</i> sp.	plantain	Plantaginaceae					x			
<i>Polygala californica</i>	California milkwort	Polygalaceae		x	x		x	x		
<i>Polygonum arenastrum</i> [P. <i>aviculare</i> ]	common knotweed	Polygonaceae			x				x	
<i>Polygonum douglasii</i> ssp. <i>spergulariiforme</i>	Douglas knotweed	Polygonaceae					x			
<i>Potentilla glandulosa</i> ssp. <i>globosa</i>	common cinquefoil	Rosaceae			x					
<i>Prunella vulgaris</i> ssp. <i>lanceolata</i>	self-heal	Lamiaceae			x	x				x
<i>Pyrola picta</i>	white-veined wintergreen	Ericaceae			x			x		
<i>Ranunculus repens</i> *	buttercup	Ranunculaceae				x			x	x
<i>Romanzoffia californica</i>	California mistmaiden	Hydrophyllaceae			x					
<i>Rumex acetosella</i> *	sheep sorrel	Polygonaceae		x				x		x
<i>Rumex crispus</i> *	curly dock	Polygonaceae			x	x	x		x	x
<i>Sagina decumbens</i> ssp. <i>occidentalis</i>	western pearlwort	Caryophyllaceae			x	x				
<i>Sanguisorba minor</i> ssp. <i>muricata</i> *	garden burnet	Rosaceae		x		x	x	x		
<i>Sanicula crassicaulis</i>	Pacific snakeroot	Apiaceae			x	x				x
<i>Satureja douglasii</i>	yerba buena	Lamiaceae			x					
<b><i>Saxifraga howellii</i></b>	<b>Howell's saxifrage</b>	Saxifragaceae		x						

**Appendix N. Plant Species Observed in the Study Area.**

Compiled from ICF Jones Stokes and Caltrans surveys; nomenclature follows *The Jepson Manual* (Hickman 1993) and online updates.

Scientific Name (* = non-native species)	Common Name	Family	Patrick Creek				The Narrows	Washing-ton Curve	Ruby 1	Ruby 2
			All	Loc. 1	Loc. 2	Loc. 3				
<i>Saxifraga mertensiana</i>	wood saxifrage	Saxifragaceae			x					
<i>Scrophularia californica</i>	California bee plant	Scrophulariaceae		x					x	x
<i>Scutellaria antirrhinoides</i>	snapdragon skullcap	Scrophulariaceae		x			x			
<i>Sedum laxum</i> ssp. <i>laxum</i>	roseflower stonecrop	Crassulaceae			x					
<i>Sedum spathulifolium</i>	broadleaf stonecrop	Crassulaceae		x	x		x	x		
<i>Sedum</i> sp.	stoncrop	Crassulaceae					x			
<i>Senecio vulgaris</i> *	common groundsel	Asteraceae								x
<i>Soliva sessilis</i> *	lawn burrweed	Asteraceae			x					
<i>Sonchus asper</i> ssp. <i>asper</i> *	prickly sowthistle	Asteraceae				x			x	x
<i>Sonchus oleraceus</i> *	common sowthistle	Asteraceae			x					x
<i>Sonchus</i> sp.	Sow thistle	Asteraceae								
<i>Spergula</i> sp.	spurry	Caryophyllaceae					x			
<i>Spergularia rubra</i> *	purple sand-spurrey	Caryophyllaceae		x						
<i>Stachys ajugoides</i> var. <i>rigida</i>	hedge nettle	Lamiaceae		x		x			x	x
<i>Stellaria media</i> *	common chickweed	Caryophyllaceae	x							
<i>Stellaria nitens</i>	shining chickweed	Caryophyllaceae			x					
<i>Synthyris reniformis</i>	snow queen	Scrophulariaceae			x					
<i>Taraxacum officinale</i> *	dandelion	Asteraceae			x	x		x		x
<i>Tellima grandiflora</i>	fringe cups	Saxifragaceae								x
<i>Thalictrum occidentale</i>	western meadow rue	Ranunculaceae					x			
<b><i>Thermopsis gracilis</i> var. <i>gracilis</i></b>	<b>slender false lupine</b>	Fabaceae						x		
<i>Thlaspi</i> sp.	pennycress	Brassicaceae	x							
<i>Thysanocarpus curvipes</i>	common fringe pod	Brassicaceae			x		x	x		
<i>Tolmiea menziesii</i>	piggy-back plant	Saxifragaceae			x					x
<i>Tonella tenella</i>	small-flowered tonella	Scrophulariaceae			x					
<i>Torilis arvensis</i> *	hedge parsley	Apiaceae				x			x	x
<i>Trientalis latifolius</i>	Pacific star-flower	Primulaceae			x		x	x		x
<i>Trifolium arvense</i> *	rabbitfoot clover	Fabaceae		x				x		
<i>Trifolium cyathiferum</i>	bowl clover	Fabaceae			x					
<i>Trifolium dubium</i> *	suckling clover	Fabaceae		x	x	x		x		
<i>Trifolium hirtum</i> *	rose clover	Fabaceae		x	x	x		x		
<i>Trifolium oliganthum</i>	few-flowered clover	Fabaceae			x					
<i>Trifolium pratense</i> *	red clover	Fabaceae		x	x	x		x	x	x
<i>Trifolium repens</i> *	white clover	Fabaceae		x	x	x		x	x	x
<i>Trifolium</i> sp.	clover	Fabaceae	x							
<i>Trifolium subterraneum</i> *	subterranean clover	Fabaceae	x							
<i>Trifolium willdenovii</i>	tomcat clover	Fabaceae			x			x		
<i>Urtica dioica</i>	stinging nettle	Urticaceae							x	x
<i>Valeriana sitchensis</i> ssp. <i>scouleri</i>	Sitka valerian	Valerianaceae		x	x					
<i>Vancouveria hexandra</i>	inside-out flower	Berberidaceae			x		x	x		x
<i>Vancouveria planipetala</i>	inside-out flower	Berberidaceae		x	x			x		
<i>Verbascum thapsus</i> *	common mullein	Scrophulariaceae		x						
<i>Veronica</i> cf. <i>americana</i>	American speedwell	Scrophulariaceae	x							
<i>Veronica serpyllifolia</i> ssp. <i>serpyllifolia</i>	thyme-leaved speedwell	Scrophulariaceae			x					x

**Appendix N. Plant Species Observed in the Study Area.**

Compiled from ICF Jones Stokes and Caltrans surveys; nomenclature follows *The Jepson Manual* (Hickman 1993) and online updates.

Scientific Name (* = non-native species)	Common Name	Family	Patrick Creek				The Narrows	Washing-ton Curve	Ruby 1	Ruby 2
			All	Loc. 1	Loc. 2	Loc. 3				
<i>Vicia gigantea</i>	giant vetch	Fabaceae								x
<i>Vicia hirsuta</i> *	tiny vetch	Fabaceae							x	
<i>Vicia sativa</i> *	spring vetch	Fabaceae				x	x		x	x
<i>Vicia</i> sp. 1	vetch	Fabaceae		x			x			
<i>Vicia</i> sp. 2	vetch	Fabaceae	x							
<i>Vinca major</i> *	periwinkle	Apocynaceae							x	x
<i>Viola sempervirens</i>	evergreen violet	Violaceae			x			x	x	
<i>Viola</i> sp. 1	violet	Violaceae	x							
<i>Viola</i> sp. 2	violet	Violaceae	x							
<i>Whipplea modesta</i>	yerba de selva	Philadelphaceae [Hydrangeaceae]		x	x	x	x	x		
<b>Herbaceous Plants: Monocots</b>										
<i>Achnatherum lemmonii</i>	Lemmon's needlegrass	Poaceae			x					
<i>Agrostis</i> sp.	bent grass	Poaceae		x	x	x	x	x	x	
<i>Agrostis stolonifera</i>	creeping bent	Poaceae		x		x				
<i>Aira caryophylla</i> *	silver European hairgrass	Poaceae		x	x	x	x	x		x
<i>Aira praecox</i> *	yellow hairgrass	Poaceae					x	x		
<i>Allium amplexans</i>	narrowleaf onion	Liliaceae					x			
<i>Anthoxanthum odoratum</i> *	sweet vernal grass	Poaceae		x		x		x	x	x
<i>Avena barbata</i> *	slender wild oat	Poaceae		x	x	x		x		
<i>Avena fatua</i> *	wild oat	Poaceae				x				
<i>Avena</i> sp. *	wild oat	Poaceae					x			x
<i>Briza maxima</i> *	quaking grass	Poaceae		x	x	x	x	x		x
<i>Bromus carinatus</i>	California brome	Poaceae								x
<i>Bromus diandrus</i> *	ripgut brome	Poaceae		x	x	x	x	x	x	x
<i>Bromus hordeaceus</i> *	soft chess	Poaceae		x	x	x		x		x
<i>Bromus laevipes</i>	chinook brome	Poaceae				x		x		
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	red brome	Poaceae				x		x		
<i>Bromus</i> sp.	brome	Poaceae	x				x			
<i>Bromus tectorum</i> *	cheatgrass	Poaceae				x				x
<i>Calochortus amabilis</i>	golden globelily	Liliaceae					x			
<i>Calochortus</i> sp.	mariposa lily	Liliaceae			x					
<i>Carex bolanderi</i>	Bolander's sedge	Cyperaceae	x							
<i>Carex harfordii</i>	Harford's sedge	Cyperaceae	x							
<i>Carex mendocinoensis</i>	Mendocino sedge	Cyperaceae		x						
<i>Carex mendocinoensis</i> x <i>C. gynodynamis</i>	carex hybrid	Cyperaceae	x							
<i>Carex multicaulis</i>	forest sedge	Cyperaceae						x		
<i>Carex nudata</i>	torrent sedge	Cyperaceae			x				x	
<i>Carex obnupta</i>	slough sedge	Cyperaceae							x	
<i>Carex rossii</i>	sedge	Cyperaceae			x					
<i>Carex</i> sp.	nutsedge	Cyperaceae			x	x	x		x	
<i>Chlorogalum pomeridianum</i> ssp. <i>p.</i>	wavyleaf soaproot	Liliaceae					x			
<i>Cortaderia jubata</i> *	pampas grass	Poaceae	x							
<i>Cortaderia seloana</i> *	pampas grass	Poaceae								x

**Appendix N. Plant Species Observed in the Study Area.**

Compiled from ICF Jones Stokes and Caltrans surveys; nomenclature follows *The Jepson Manual* (Hickman 1993) and online updates.

Scientific Name (* = non-native species)	Common Name	Family	Patrick Creek			The Narrows	Washing-ton Curve	Ruby 1	Ruby 2
			All	Loc. 1	Loc. 2				
<i>Cynodon dactylon</i> *	Bermuda grass	Poaceae		x		x	x		
<i>Cynosurus echinatus</i> *	hedgehog dog-tail grass	Poaceae		x	x	x	x	x	
<i>Cyperus eragrostis</i>	umbrella sedge	Cyperaceae		x		x		x	x
<i>Dactylis glomerata</i> *	orchard grass	Poaceae			x	x	x	x	x
<i>Deschampsia</i> sp.	hairgrass	Poaceae	x						
<i>Dichelostemma capitatum</i>	blue dicks	Liliaceae					x		
<i>Disporum hookeri</i>	Hooker's fairy bells	Liliaceae	x						
<i>Disporum smithii</i>	coast fairy bells	Liliaceae	x			x		x	x
<i>Echinochloa crus-galli</i> *	barnyard grass	Poaceae		x					
<i>Eleocharis macrostachya</i>	common spikerush	Cyperaceae		x			x		
<i>Eleocharis pachycarpa</i> *	black sand spikerush	Cyperaceae					x		
<i>Elymus elymoides</i>	squirrel-tail grass	Poaceae						x	
<i>Elymus glaucus</i> ssp. <i>glaucus</i> .	blue wildrye	Poaceae		x	x		x	x	x
<i>Festuca arundinacea</i> *	tall fescue	Poaceae		x	x	x	x	x	x
<i>Festuca californica</i> ssp. <i>californica</i>	California fescue	Poaceae		x	x				
<i>Festuca idahoensis</i>	Idaho fescue	Poaceae			x		x		
<i>Festuca rubra</i>	red fescue	Poaceae					x		
<i>Festuca</i> sp.	fescue	Poaceae		x	x		x	x	x
<i>Fritillaria affinis</i> var. <i>affinis</i>	checker lily	Liliaceae			x		x		
<i>Gastridium ventricosum</i>	nitgrass	Poaceae		x			x		
<i>Glyceria elata</i>	tall manna grass	Poaceae							x
<i>Glyceria occidentalis</i>	manna grass	Poaceae							x
<i>Hierochloa occidentalis</i>	vanilla grass	Poaceae	x				x		
<i>Holcus lanatus</i> *	common velvet grass	Poaceae			x	x	x	x	x
<i>Hordeum marinum</i> ssp. <i>gussoneanum</i> *	Mediterranean barley	Poaceae		x			x		
<i>Hordeum</i> sp.	wild barley	Poaceae	x						
<i>Iris</i> cf. <i>hartwegii</i>	Hartweg's iris	Iridaceae					x		
<i>Iris douglasiana</i>	Douglas iris	Iridaceae			x				
<i>Iris</i> sp.	Iris	Iridaceae		x			x	x	
<i>Juncus balticus</i>	Baltic rush	Juncaceae			x				
<i>Juncus bolanderi</i>	Bolander's rush	Juncaceae		x		x	x	x	
<i>Juncus bufonius</i>	toad rush	Juncaceae		x			x		
<i>Juncus effusus</i>	soft rush	Juncaceae			x	x	x		x
<i>Juncus ensifolius</i>	three-stemmed rush	Juncaceae		x		x			
<i>Juncus</i> sp.	rush	Juncaceae				x	x		
<i>Kniphofia uvaria</i> *	redhot poker	Liliaceae						x	
<i>Lolium multiflorum</i> *	Italian ryegrass	Poaceae					x		
<i>Luzula comosa</i>	hairy woodrush	Juncaceae			x				
<i>Lysichiton americanus</i>	yellow skunk cabbage	Araceae							x
<i>Maianthemum dilatatum</i>	false lily of the valley	Liliaceae						x	
<i>Melica bulbosa</i>	oniongrass	Poaceae	x				x		
<i>Melica harfordii</i>	Harford's melic	Poaceae					x		
<i>Melica</i> sp.	melic	Poaceae			x		x	x	
<i>Panicum capillare</i>	panic grass	Poaceae		x		x			

**Appendix N. Plant Species Observed in the Study Area.**

Compiled from ICF Jones Stokes and Caltrans surveys; nomenclature follows *The Jepson Manual* (Hickman 1993) and online updates.

Scientific Name (* = non-native species)	Common Name	Family	Patrick Creek				The Narrows	Washing-ton Curve	Ruby 1	Ruby 2
			All	Loc. 1	Loc. 2	Loc. 3				
<i>Phalaris aquatica</i>	canary grass	Poaceae					x			
<i>Phalaris arundinacea</i> *	reed canary grass	Poaceae					x			
<i>Phleum pratense</i> *	meadow timothy	Poaceae				x				
<i>Poa annua</i> *	annual bluegrass	Poaceae				x		x		x
<i>Poa bulbosa</i> *	bulbous bluegrass	Poaceae			x			x		
<b><i>Poa piperi</i></b>	<b>Piper's bluegrass</b>	Poaceae		x				x		
<i>Poa pratensis</i> ssp. <i>pratensis</i>	Kentucky bluegrass	Poaceae	x							
<i>Poa trivialis</i> *	rough bluegrass	Poaceae								x
<i>Polypogon monspeliensis</i> *	rabbitsfoot grass	Poaceae		x			x			
<i>Scirpus microcarpus</i>	small-flowered bulrush	Cyperaceae		x					x	x
<i>Sisyrinchium bellum</i>	blue-eyed grass	Iridaceae					x			
<i>Smilacina racemosa</i>	false Solomon's seal	Liliaceae			x					
<i>Smilacina stellata</i>	false Solomon's seal	Liliaceae			x					
<i>Triteleia bridgesii</i>	Bridges' brodiaea	Liliaceae		x	x					
<i>Vulpia bromoides</i> *	foxtail fescue	Poaceae			x	x				x
<i>Vulpia myuros</i> ssp. <i>myuros</i> *	rattail fescue	Poaceae			x	x		x		
<i>Vulpia</i> sp.	rattail fescue	Poaceae					x			
<i>Xerophyllum tenax</i>	bear grass	Liliaceae						x		
<i>Zigadenus</i> sp.	deathcamas	Liliaceae		x						
<b>Number of taxa at site</b>				<b>136</b>	<b>212</b>	<b>105</b>	<b>165</b>	<b>128</b>	<b>83</b>	<b>112</b>
<b>% of non-native taxa</b>				<b>32</b>	<b>23</b>	<b>49</b>	<b>30</b>	<b>19</b>	<b>37</b>	<b>40</b>
<b>Total Number of Plant Taxa = 449</b>		<b>Non-native = 23%</b>								



## Introduction

This appendix provides the lists of special-status plants and sensitive natural communities generated by querying the California Natural Diversity Database (CNDDDB) (California Natural Diversity Database 2009), and the California Native Plant Society's (CNPS's) online *Inventory of Rare and Endangered Plants* (California Native Plant Society 2009). These databases provide information on known occurrences of state and federal listed plants, and CNPS Lists 1B, 2, and 3 plants, and were queried by USGS 7.5-minute quadrangle to generate a list of sensitive plant species with known occurrences in the project region (*region* is conventionally defined as quadrangle within which the project site is located and the surrounding nine quadrangles).

For the SR 197 project sites (Ruby 1 and Ruby 2) the Hiouchi USGS 7.5-minute quadrangle and eight surrounding quadrangles: Childs Hill, Sister Rocks, High Plateau Mountain, Gasquet, Cant Hook Mountain, High Divide, Smith River, and Crescent City were queried.

For the US 199 sites (Patrick Creek Locations 1, 2, and 3, The Narrows, and Washington Curve), the Hurdygurdy Butte and Shelly Creek Ridge quadrangles and surrounding quadrangles: Ship Mountain, Cant Hook Mountain, Broken Rib Mountain, Devils Punchbowl, Prescott Mountain, High Plateau Mountain, and Gasquet were queried.

## Explanation of Columns and Codes

### Federal Status

- E = listed as endangered under the federal Endangered Species Act.
- T = listed as threatened under the federal Endangered Species Act.
- = no listing.

### State Status

- E = listed as endangered under the California Endangered Species Act.
- R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
- = no listing.

### GRank and SRank: Global and State Rank System

The CNDDDB is a "natural heritage program" and is part of a nationwide network of similar programs overseen by NatureServe (formerly part of The Nature Conservancy). The goal of the CNDDDB is to provide the most current information available on the state's most imperiled elements of natural diversity and to provide tools to analyze these data. The data help drive conservation decisions, aid in the environmental review of projects and land use changes, and provide baseline data helpful in recovering endangered species and for research projects.

The Global and State Rank provides a coded rank of the conservation status of plants, animals, and natural communities that considers not just number of occurrences but other factors including the pattern of distribution, fragmentation of the population/stands, condition of the individual populations, and historical extent as compared to the plant's modern range.

**The global rank (GRank)** is a reflection of the overall condition of an element (species or natural community) throughout its global range<sup>1</sup>.

- G1 = Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres.
- G2 = 6-20 viable occurrences or 1,000-3,000 individuals or 2,000-10,000 acres
- G3 = 21-80 viable occurrences or 3,000-10,000 individuals or 10,000-50,000 acres.
- G4 = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.
- G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world.

**Subspecies receive a T-rank** attached to the G-rank. With the subspecies, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety. For example for *Cardamine nuttallii* var. *gemmata*, which is ranked G5T3, the G-rank refers to the whole species range i.e., *Cardamine nuttallii*. The T-rank refers only to the global condition of var. *gemmata*.

**The state rank (S-rank)** is assigned much the same way as the global rank<sup>1</sup>:

- S1 = Extremely endangered: <6 viable occurrences (EOs) or < 1,000 individuals, or 2,000 acres of occupied habitat.
- S2 = Endangered: about 6-20 EOs or 1-3,000 individuals, or 2-10,000 acres of occupied habitat.
- S3 = Restricted Range, rare: about 21-100 EOs or 3-10,000 individuals, or 10-50,000 acres of occupied habitat.
- S4 = Apparently Secure: some factors exist to cause some concern such as narrow habitat or continuing threats.
- S5 = Demonstrably Secure to ineradicable in California: commonly found throughout its historic range. No threat rank.

State ranks in California often also contain a threat designation attached to the S-rank

- .1 = very threatened
- .2 = threatened
- .3 = no current threats known

Uncertainty about the rank of an element is expressed in two major ways: by expressing the rank as a range of values: e.g., S2S3 means the rank is somewhere between S2 and S3; and by adding a ? to the rank: e.g., S2? - this represents more certainty than S2S3, but less than S2.

### **California Native Plant Society (CNPS)**

- 1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
- 2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.
- 3 = List 3 species: plants about which more information is needed to determine their status.
- .1 = seriously endangered in California.
- .2 = fairly endangered in California.
- .3 = not very endangered in California.

---

<sup>1</sup> See: Department Of Fish And Game, Biogeographic Data Branch. California Natural Diversity Database. *How to read RareFind 3 Reports*. The Resources Agency, State of California. Available: < [http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/RF3\\_Reports.pdf](http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/RF3_Reports.pdf)>

California Department of Fish and Game  
 Natural Diversity Database  
 Selected Elements by Scientific Name - Portrait  
 Hiouchi & surrounding quads

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 <i>Abronia umbellata</i> ssp. <i>breviflora</i> pink sand-verbena	PDNYC010N2			G4G5T2	S2.1	1B.1
2 <i>Arabis aculeolata</i> Waldo rock-cress	PDBRA06010			G4	S2.2	2.2
3 <i>Arabis koehleri</i> var. <i>stipitata</i> Koehler's stipitate rock-cress	PDBRA060Z2			G3T3	S1.3	1B.3
4 <i>Arabis macdonaldiana</i> Mcdonald's rock-cress	PDBRA06150	Endangered	Endangered	G2	S2.1	1B.1
5 <i>Asplenium trichomanes</i> ssp. <i>trichomanes</i> maidenhair spleenwort	PPASP021K2			G5T5	S2.3	2.3
6 <i>Boschniakia hookeri</i> small groundcone	PDORO01010			G5	S1S2	2.3
7 <i>Calamagrostis crassiglumis</i> Thurber's reed grass	PMPOA17070			G3Q	S1.2	2.1
8 <i>Calystegia atriplicifolia</i> ssp. <i>buttensis</i> Butte County morning-glory	PDCON04012			G5T3	S3	4.2
9 <i>Cardamine nuttallii</i> var. <i>gemmata</i> yellow-tubered toothwort	PDBRA0K0R3			G5T3	S2.2	1B.3
10 <i>Carex lenticularis</i> var. <i>limnophila</i> lagoon sedge	PMCYP037A7			G5T5	S1S2.2	2.2
11 <i>Carex leptalea</i> bristle-stalked sedge	PMCYP037E0			G5	S2?	2.2
12 <i>Carex lyngbyei</i> Lyngbye's sedge	PMCYP037Y0			G5	S2.2	2.2
13 <i>Carex praticola</i> northern meadow sedge	PMCYP03B20			G5	S2S3	2.2
14 <i>Carex serpenticola</i> serpentine sedge	PMCYP03KM0			G4	S2.3	2.3
15 <i>Carex viridula</i> var. <i>viridula</i> green yellow sedge	PMCYP03EM3			G5T5	S1.3	2.3
16 <i>Castilleja affinis</i> ssp. <i>litoralis</i> Oregon coast paintbrush	PDSCR0D012			G4G5T4	S2.2	2.2
17 <i>Castilleja miniata</i> ssp. <i>elata</i> Siskiyou paintbrush	PDSCR0D213			G5T3	S2.2	2.2
18 <i>Cochlearia officinalis</i> var. <i>arctica</i> arctic spoonwort	PDBRA0S032			G5T3T4	S1.3	2.3
19 <i>Coptis laciniata</i> Oregon goldthread	PDRAN0A020			G4G5	S2.2	2.2
20 <i>Empetrum nigrum</i> ssp. <i>hermaphroditum</i> mountain crowberry	PDEMP03021			G5T5	S2?	2.2
21 <i>Eriogonum nudum</i> var. <i>paralinum</i> Del Norte buckwheat	PDPGN08498			G5T2T4	S2?	2.2
22 <i>Eriogonum pendulum</i> Waldo wild buckwheat	PDPGN084Q0			G4	S2.2	2.2
23 <i>Erythronium hendersonii</i> Henderson's fawn lily	PMLIL0U070			G4	S1.3	2.3

California Department of Fish and Game  
 Natural Diversity Database  
 Selected Elements by Scientific Name - Portrait  
 Hiouchi & surrounding quads

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24 Erythronium howellii Howell's fawn lily	PMLIL0U080			G3G4	S2.3	1B.3
25 Erythronium oregonum giant fawn lily	PMLIL0U0C0			G5	S2.2	2.2
26 Erythronium revolutum coast fawn lily	PMLIL0U0F0			G4	S3	2.2
27 Fissidens pauperculus minute pocket moss	NBMUS2W0U0			G3?	S1.2	1B.2
28 Gentiana setigera Mendocino gentian	PDGEN060S0			G2	S1	1B.2
29 Gilia capitata ssp. pacifica Pacific gilia	PDPLM040B6			G5T3T4	S2.2?	1B.2
30 Gilia millefoliata dark-eyed gilia	PDPLM04130			G2	S2.2	1B.2
31 Hesperevax sparsiflora var. brevifolia short-leaved evax	PDASTE5011			G4T2T3	S2S3	1B.2
32 Hierochloa odorata nodding vanilla-grass	PMPOA35040			G5	S1.3?	2.3
33 Lathyrus japonicus seaside pea	PDFAB250C0			G5	S1.1	2.1
34 Lathyrus palustris marsh pea	PDFAB250P0			G5	S2S3	2.2
35 Lewisia oppositifolia opposite-leaved lewisia	PDPOR040B0			G4	S2.2	2.2
36 Lilium occidentale western lily	PMLIL1A0G0	Endangered	Endangered	G1	S1.2	1B.1
37 Lomatium martindalei Coast Range lomatium	PDAPI1B140			G5	S2.3	2.3
38 Minuartia howellii Howell's sandwort	PDCAR0G0F0			G4	S3.2	1B.3
39 Mitella caulescens leafy-stemmed mitrewort	PDSAX0N020			G5	S4.2	4.2
40 Monotropa uniflora ghost-pipe	PDMON03030			G5	S2S3	2.2
41 Oenothera wolfii Wolf's evening-primrose	PDONA0C1K0			G1	S1.1	1B.1
42 Packera bolanderi var. bolanderi seacoast ragwort	PDAST8H0H1			G4T4	S1.2	2.2
43 Packera hesperia western ragwort	PDAST8H1L0			G3	S1.2	2.2
44 Phacelia argentea sand dune phacelia	PDHYD0C070			G2	S1.1	1B.1
45 Pinguicula macroceras horned butterwort	PDLNT01040			G5	S3.2	2.2
46 Piperia candida white-flowered rein orchid	PMORC1X050			G3	S3.2	1B.2

California Department of Fish and Game  
 Natural Diversity Database  
 Selected Elements by Scientific Name - Portrait  
 Hiouchi & surrounding quads

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47 Polemonium carneum Oregon polemonium	PDPLM0E050			G4	S1	2.2
48 Potamogeton foliosus var. fibrillosus fibrous pondweed	PMPOT030B1			G5T2T4	S1S2	2.3
49 Pyrrocoma racemosa var. congesta Del Norte pyrrocoma	PDASTDT0F4			G5T4	S2.3	2.3
50 Romanzoffia tracyi Tracy's romanzoffia	PDHYD0E030			G4	S1.3	2.3
51 Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0			G3	S3.2	1B.2
52 Sanguisorba officinalis great burnet	PDR0S1L060			G5?	S2.2	2.2
53 Saxifraga nuttallii Nuttall's saxifrage	PDSAX0U160			G4?	S1.1	2.1
54 Sidalcea malachroides maple-leaved checkerbloom	PDMAL110E0			G3G4	S3S4.2	4.2
55 Sidalcea malviflora ssp. patula Siskiyou checkerbloom	PDMAL110F9			G5T1	S1.1	1B.2
56 Sidalcea oregana ssp. eximia coast sidalcea	PDMAL110K9			G5T1	S1.2	1B.2
57 Silene serpentinicola serpentine catchfly	PDCAR0U2B0			G2	S2.2	1B.2
58 Streptanthus howellii Howell's jewel-flower	PDBRA2G0N0			G2	S1.2	1B.2
59 Trientalis arctica arctic starflower	PDPRI0A030			G5	S1.2	2.2
60 Usnea longissima long-beard lichen	NLLEC5P420			G4	S4.2	
61 Vaccinium scoparium little-leaved huckleberry	PDERI180Y0			G5	S2.2?	2.2
62 Viola langsdorfii Langsdorf's violet	PDVIO04100			G4	S1.1	2.1
63 Viola palustris alpine marsh violet	PDVIO041G0			G5	S1S2	2.2
64 Viola primulifolia ssp. occidentalis western white bog violet	PDVIO040Y2			G5T2	S2.2	1B.2

California Department of Fish and Game  
Natural Diversity Database  
Selected Elements by Common Name - Portrait  
Hiouchi & surrounding quads

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
2 Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
3 Darlingtonia Seep	CTT51120CA			G4	S3.2	
4 Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	

California Department of Fish and Game  
 Natural Diversity Database  
 Selected Elements by Scientific Name - Portrait  
 Shelly Creek Ridge + Hurdygurdy Butte & surrounding quads

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 Arabis aculeolata Waldo rock-cress	PDBRA06010			G4	S2.2	2.2
2 Arabis koehleri var. stipitata Koehler's stipitate rock-cress	PDBRA060Z2			G3T3	S1.3	1B.3
3 Arabis macdonaldiana Mcdonald's rock-cress	PDBRA06150	Endangered	Endangered	G2	S2.1	1B.1
4 Asarum marmoratum marbled wild-ginger	PDARI02070			G3G4	S1.3	2.3
5 Cardamine nuttallii var. gemmata yellow-tubered toothwort	PDBRA0K0R3			G5T3	S2.2	1B.3
6 Carex leptalea bristle-stalked sedge	PMCYP037E0			G5	S2?	2.2
7 Carex serpenticola serpentine sedge	PMCYP03KM0			G4	S2.3	2.3
8 Carex viridula var. viridula green yellow sedge	PMCYP03EM3			G5T5	S1.3	2.3
9 Castilleja miniata ssp. elata Siskiyou paintbrush	PDSCR0D213			G5T3	S2.2	2.2
10 Coptis laciniata Oregon goldthread	PDRAN0A020			G4G5	S2.2	2.2
11 Draba carnosula Mt. Eddy draba	PDBRA112T0			G2	S2.2	1B.3
12 Epilobium oregonum Oregon fireweed	PDONA060P0			G2	S2.2	1B.2
13 Erigeron bloomeri var. nudatus Waldo daisy	PDAST3M0M2			G5T4	S2?	2.3
14 Eriogonum pendulum Waldo wild buckwheat	PDPGN084Q0			G4	S2.2	2.2
15 Erythronium howellii Howell's fawn lily	PMLIL0U080			G3G4	S2.3	1B.3
16 Erythronium oregonum giant fawn lily	PMLIL0U0C0			G5	S2.2	2.2
17 Erythronium revolutum coast fawn lily	PMLIL0U0F0			G4	S3	2.2
18 Gentiana setigera Mendocino gentian	PDGEN060S0			G2	S1	1B.2
19 Gilia capitata ssp. pacifica Pacific gilia	PDPLM040B6			G5T3T4	S2.2?	1B.2
20 Horkelia congesta ssp. nemorosa Josephine horkelia	PDROS0W032			G4T4?	S1.1	2.1
21 Juncus regelii Regel's rush	PMJUN012D0			G4?	S1.3?	2.3
22 Lewisia oppositifolia opposite-leaved lewisia	PDPOR040B0			G4	S2.2	2.2
23 Lomatium martindalei Coast Range lomatium	PDAPI1B140			G5	S2.3	2.3

California Department of Fish and Game  
 Natural Diversity Database  
 Selected Elements by Scientific Name - Portrait  
 Shelly Creek Ridge + Hurdygurdy Butte & surrounding quads

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24 <i>Mertensia bella</i> Oregon lungwort	PDBOR0N040			G4	S2S3	2.2
25 <i>Minuartia howellii</i> Howell's sandwort	PDCAR0G0F0			G4	S3.2	1B.3
26 <i>Packera bolanderi</i> var. <i>bolanderi</i> seacoast ragwort	PDAST8H0H1			G4T4	S1.2	2.2
27 <i>Packera hesperia</i> western ragwort	PDAST8H1L0			G3	S1.2	2.2
28 <i>Phacelia leonis</i> Siskiyou phacelia	PDHYD0C2N0			G2	S2.2	1B.3
29 <i>Pinguicula macroceras</i> horned butterwort	PDLNT01040			G5	S3.2	2.2
30 <i>Piperia candida</i> white-flowered rein orchid	PMORC1X050			G3	S3.2	1B.2
31 <i>Pyrrocoma racemosa</i> var. <i>congesta</i> Del Norte pyrrocoma	PDASTD0F4			G5T4	S2.3	2.3
32 <i>Rubus nivalis</i> snow dwarf bramble	PDROS1K4S0			G4?	S1.3?	2.3
33 <i>Sanguisorba officinalis</i> great burnet	PDROS1L060			G5?	S2.2	2.2
34 <i>Schoenoplectus subterminalis</i> water bulrush	PMCYP0Q1G0			G4G5	S2S3	2.3
35 <i>Sedum divergens</i> Cascade stonecrop	PDCRA0A0B0			G5?	S1.3	2.3
36 <i>Sedum laxum</i> ssp. <i>flavidum</i> pale yellow stonecrop	PDCRA0A0L2			G5T3Q	S3.3	4.3
37 <i>Silene serpentinicola</i> serpentine catchfly	PDCAR0U2B0			G2	S2.2	1B.2
38 <i>Streptanthus howellii</i> Howell's jewel-flower	PDBRA2G0N0			G2	S1.2	1B.2
39 <i>Usnea longissima</i> long-beard lichen	NLLEC5P420			G4	S4.2	
40 <i>Vaccinium scoparium</i> little-leaved huckleberry	PDERI180Y0			G5	S2.2?	2.2
41 <i>Viola primulifolia</i> ssp. <i>occidentalis</i> western white bog violet	PDVIO040Y2			G5T2	S2.2	1B.2

California Department of Fish and Game  
Natural Diversity Database  
Selected Elements by Common Name - Portrait  
Shelly Creek + Hurdygurdy Butte & surrounding quads

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 Darlingtonia Seep	CTT51120CA			G4	S3.2	
2 Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	



## CNPS Inventory of Rare and Endangered Plants

**Status:** Plant Press Manager window with 39 items - Fri, Jul. 31, 2009 14:40 c

- During each visit, we provide you with an empty "Plant Press" for collecting items of interest.
- Several report formats are available. Use the CSV and XML options to download raw data.

Reformat list as:

Standard List - with Plant Press controls

DELETE unchecked items

check all

check none

open	save	scientific	common	family	CNPS
	<input checked="" type="checkbox"/>	<b><u>Arabis aculeolata</u></b> 	Waldo rock cress	Brassicaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Arabis koehleri</u> var. <u>stipitata</u></b> 	Koehler's stipitate rock cress	Brassicaceae	List 1B.3
	<input checked="" type="checkbox"/>	<b><u>Arabis macdonaldiana</u></b> 	McDonald's rock cress	Brassicaceae	List 1B.1
	<input checked="" type="checkbox"/>	<b><u>Asarum marmoratum</u></b> 	marbled wild-ginger	Aristolochiaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Cardamine nuttallii</u> var. <u>gemmata</u></b> 	yellow-tubered toothwort	Brassicaceae	List 1B.3
	<input checked="" type="checkbox"/>	<b><u>Carex leptalea</u></b> 	bristle-stalked sedge	Cyperaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Carex serpenticola</u></b> 	serpentine sedge	Cyperaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Carex viridula</u> var. <u>viridula</u></b> 	green yellow sedge	Cyperaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Castilleja miniata</u> ssp. <u>elata</u></b> 	Siskiyou paintbrush	Scrophulariaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Coptis laciniata</u></b> 	Oregon goldthread	Ranunculaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Draba carnosula</u></b> 	Mt. Eddy draba	Brassicaceae	List 1B.3
	<input checked="" type="checkbox"/>	<b><u>Epilobium oreganum</u></b> 	Oregon fireweed	Onagraceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Erigeron bloomeri</u> var. <u>nudatus</u></b> 	Waldo daisy	Asteraceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Eriogonum pendulum</u></b> 	Waldo wild buckwheat	Polygonaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Erythronium howellii</u></b> 	Howell's fawn lily	Liliaceae	List 1B.3

	<input checked="" type="checkbox"/>	<b><u>Erythronium oregonum</u></b> 	giant fawn lily	Liliaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Erythronium revolutum</u></b> 	coast fawn lily	Liliaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Gentiana setigera</u></b> 	Mendocino gentian	Gentianaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Gilia capitata</u> ssp. <u>pacifica</u></b> 	Pacific gilia	Polemoniaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Horkelia congesta</u> ssp. <u>nemorosa</u></b> 	Josephine horkelia	Rosaceae	List 2.1
	<input checked="" type="checkbox"/>	<b><u>Iris bracteata</u></b> 	Siskiyou iris	Iridaceae	List 3.3
	<input checked="" type="checkbox"/>	<b><u>Juncus regelii</u></b>	Regel's rush	Juncaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Lewisia oppositifolia</u></b> 	opposite-leaved lewisia	Portulacaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Lomatium martindalei</u></b> 	Coast Range lomatium	Apiaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Mertensia bella</u></b> 	Oregon lungwort	Boraginaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Minuartia howellii</u></b> 	Howell's sandwort	Caryophyllaceae	List 1B.3
	<input checked="" type="checkbox"/>	<b><u>Packera bolanderi</u> var. <u>bolanderi</u></b> 	seacoast ragwort	Asteraceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Packera hesperia</u></b>	western ragwort	Asteraceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Pinguicula macroceras</u></b> 	horned butterwort	Lentibulariaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Piperia candida</u></b> 	white-flowered rein orchid	Orchidaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Pyrrocoma racemosa</u> var. <u>congesta</u></b> 	Del Norte pyrrocoma	Asteraceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Rubus nivalis</u></b>	snow dwarf bramble	Rosaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Sanguisorba officinalis</u></b> 	great burnet	Rosaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Schoenoplectus subterminalis</u></b> 	water bulrush	Cyperaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Silene serpentinicola</u></b> 	serpentine catchfly	Caryophyllaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Streptanthus howellii</u></b> 	Howell's jewel-flower	Brassicaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Vaccinium coccineum</u></b> 	Siskiyou Mountains huckleberry	Ericaceae	List 3.3

	<input checked="" type="checkbox"/>	<b>Vaccinium scoparium</b> 	little-leaved huckleberry	Ericaceae	List 2.2
	<input checked="" type="checkbox"/>	<b>Viola primulifolia ssp. occidentalis</b> 	western white bog violet	Violaceae	List 1B.2

DELETE unchecked items

check all

check none



## CNPS Inventory of Rare and Endangered Plants

**Status:** Plant Press Manager window with 61 items - Fri, Jul. 31, 2009 14:36 c



- During each visit, we provide you with an empty "Plant Press" for collecting items of interest.
- Several report formats are available. Use the CSV or XML options to download raw data.

Reformat list as:

Standard List - with Plant Press controls

DELETE unchecked items

check all

check none

open	save	scientific	common	family	CNPS
	<input checked="" type="checkbox"/>	<b><u>Abronia umbellata</u> ssp. <u>breviflora</u></b>	pink sand-verbena	Nyctaginaceae	List 1B.1
	<input checked="" type="checkbox"/>	<b><u>Arabis aculeolata</u></b>	Waldo rock cress	Brassicaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Arabis koehleri</u> var. <u>stipitata</u></b>	Koehler's stipitate rock cress	Brassicaceae	List 1B.3
	<input checked="" type="checkbox"/>	<b><u>Arabis macdonaldiana</u></b>	McDonald's rock cress	Brassicaceae	List 1B.1
	<input checked="" type="checkbox"/>	<b><u>Asplenium trichomanes</u> ssp. <u>trichomanes</u></b>	maidenhair spleenwort	Aspleniaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Boschniakia hookeri</u></b>	small groundcone	Orobanchaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Calamagrostis crassiglumis</u></b>	Thurber's reed grass	Poaceae	List 2.1
	<input checked="" type="checkbox"/>	<b><u>Cardamine nuttallii</u> var. <u>gemmata</u></b>	yellow-tubered toothwort	Brassicaceae	List 1B.3
	<input checked="" type="checkbox"/>	<b><u>Carex lenticularis</u> var. <u>limnophila</u></b>	lagoon sedge	Cyperaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Carex leptalea</u></b>	bristle-stalked sedge	Cyperaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Carex lyngbyei</u></b>	Lyngbye's sedge	Cyperaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Carex praticola</u></b>	northern meadow sedge	Cyperaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Carex serpenticola</u></b>	serpentine sedge	Cyperaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Carex viridula</u> var. <u>viridula</u></b>	green yellow sedge	Cyperaceae	List 2.3

	<input checked="" type="checkbox"/>	<b><u>Castilleja affinis ssp. litoralis</u></b> 	Oregon coast paintbrush	Scrophulariaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Castilleja miniata ssp. elata</u></b> 	Siskiyou paintbrush	Scrophulariaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Cochlearia officinalis var. arctica</u></b>	arctic spoonwort	Brassicaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Coptis laciniata</u></b> 	Oregon goldthread	Ranunculaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Empetrum nigrum ssp. hermaphroditum</u></b>	mountain crowberry	Empetraceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Eriogonum nudum var. paralinum</u></b>	Del Norte buckwheat	Polygonaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Eriogonum pendulum</u></b> 	Waldo wild buckwheat	Polygonaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Erythronium hendersonii</u></b> 	Henderson's fawn lily	Liliaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Erythronium howellii</u></b> 	Howell's fawn lily	Liliaceae	List 1B.3
	<input checked="" type="checkbox"/>	<b><u>Erythronium oregonum</u></b> 	giant fawn lily	Liliaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Erythronium revolutum</u></b> 	coast fawn lily	Liliaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Fissidens pauperculus</u></b>	minute pocket moss	Fissidentaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Gentiana setigera</u></b> 	Mendocino gentian	Gentianaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Gilia capitata ssp. pacifica</u></b> 	Pacific gilia	Polemoniaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Gilia millefoliata</u></b> 	dark-eyed gilia	Polemoniaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Hesperevax sparsiflora var. brevifolia</u></b> 	short-leaved evax	Asteraceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Hierochloe odorata</u></b> 	vanilla-grass	Poaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Iris bracteata</u></b> 	Siskiyou iris	Iridaceae	List 3.3
	<input checked="" type="checkbox"/>	<b><u>Lathyrus japonicus</u></b> 	seaside pea	Fabaceae	List 2.1
	<input checked="" type="checkbox"/>	<b><u>Lathyrus palustris</u></b> 	marsh pea	Fabaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Lewisia oppositifolia</u></b> 	opposite-leaved lewisia	Portulacaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Lilium occidentale</u></b>	western lily	Liliaceae	List 1B.1

	<input checked="" type="checkbox"/>	<b><u>Lomatium martindalei</u></b> 	Coast Range lomatium	Apiaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Minuartia howellii</u></b> 	Howell's sandwort	Caryophyllaceae	List 1B.3
	<input checked="" type="checkbox"/>	<b><u>Monotropa uniflora</u></b> 	ghost-pipe	Ericaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Oenothera wolfii</u></b> 	Wolf's evening- primrose	Onagraceae	List 1B.1
	<input checked="" type="checkbox"/>	<b><u>Packera bolanderi</u> var. <u>bolanderi</u></b> 	seacoast ragwort	Asteraceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Packera hesperia</u></b>	western ragwort	Asteraceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Phacelia argentea</u></b> 	sand dune phacelia	Hydrophyllaceae	List 1B.1
	<input checked="" type="checkbox"/>	<b><u>Pinguicula macroceras</u></b> 	horned butterwort	Lentibulariaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Piperia candida</u></b> 	white-flowered rein orchid	Orchidaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Polemonium carneum</u></b> 	Oregon polemonium	Polemoniaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Potamogeton foliosus</u> var. <u>fibrillosus</u></b>	fibrous pondweed	Potamogetonaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Pyrrocoma racemosa</u> var. <u>congesta</u></b> 	Del Norte pyrrocoma	Asteraceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Romanzoffia tracyi</u></b>	Tracy's romanzoffia	Hydrophyllaceae	List 2.3
	<input checked="" type="checkbox"/>	<b><u>Sagittaria sanfordii</u></b> 	Sanford's arrowhead	Alismataceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Sanguisorba officinalis</u></b> 	great burnet	Rosaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Saxifraga nuttallii</u></b>	Nuttall's saxifrage	Saxifragaceae	List 2.1
	<input checked="" type="checkbox"/>	<b><u>Sidalcea malviflora</u> ssp. <u>patula</u></b> 	Siskiyou checkerbloom	Malvaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Sidalcea oregana</u> ssp. <u>eximia</u></b>	coast checkerbloom	Malvaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Silene serpentinicola</u></b> 	serpentine catchfly	Caryophyllaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Streptanthus howellii</u></b> 	Howell's jewel-flower	Brassicaceae	List 1B.2
	<input checked="" type="checkbox"/>	<b><u>Trientalis arctica</u></b> 	arctic starflower	Primulaceae	List 2.2
	<input checked="" type="checkbox"/>	<b><u>Vaccinium scoparium</u></b> 	little-leaved huckleberry	Ericaceae	List 2.2

	<input checked="" type="checkbox"/>	<b>Viola langsdorfii</b>	Langsdorf's violet	Violaceae	List 2.1
	<input checked="" type="checkbox"/>	<b>Viola palustris</b> 	alpine marsh violet	Violaceae	List 2.2
	<input checked="" type="checkbox"/>	<b>Viola primulifolia ssp. occidentalis</b> 	western white bog violet	Violaceae	List 1B.2

DELETE unchecked items

check all

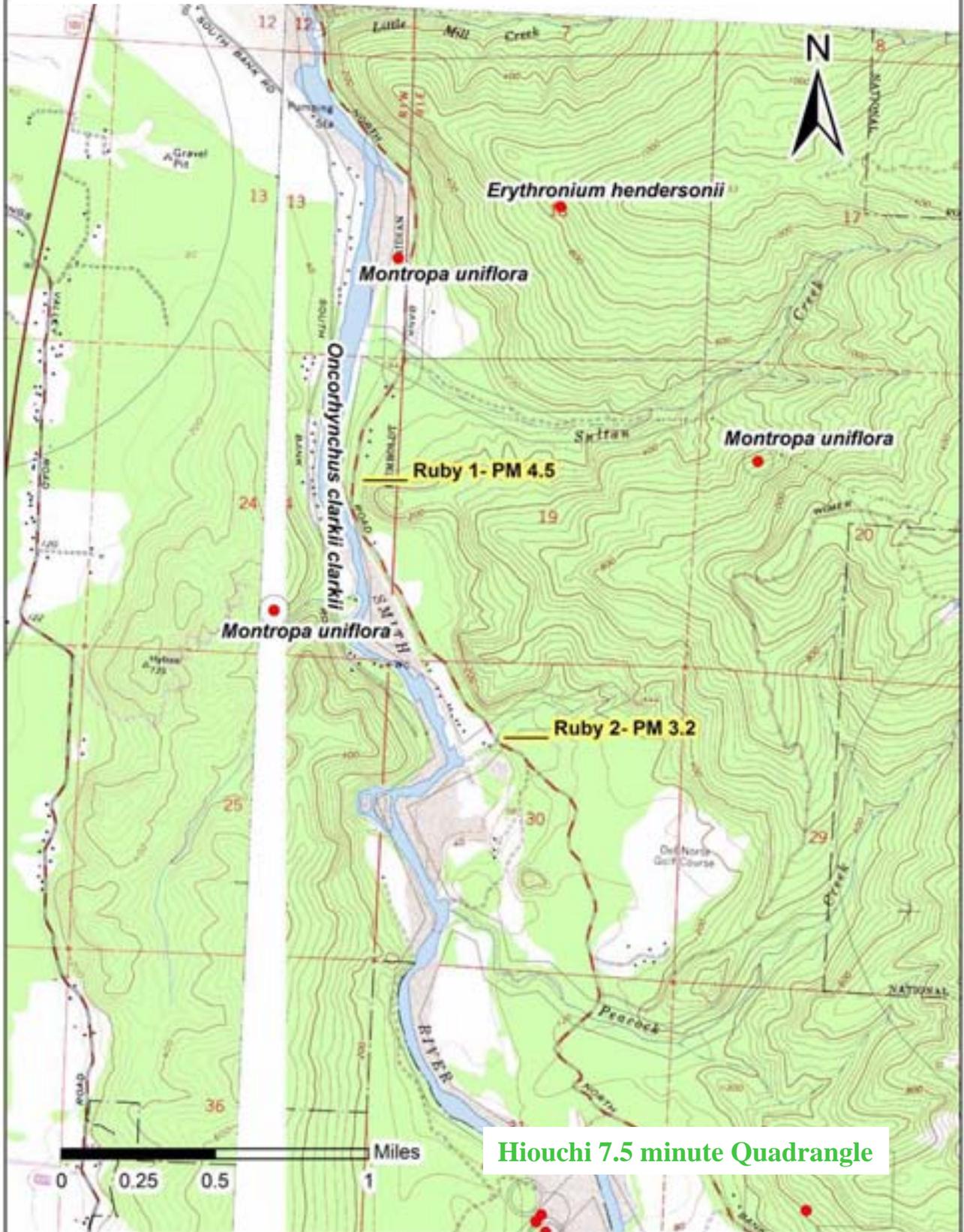
check none

## Appendix O CNDBB Quad Maps

---

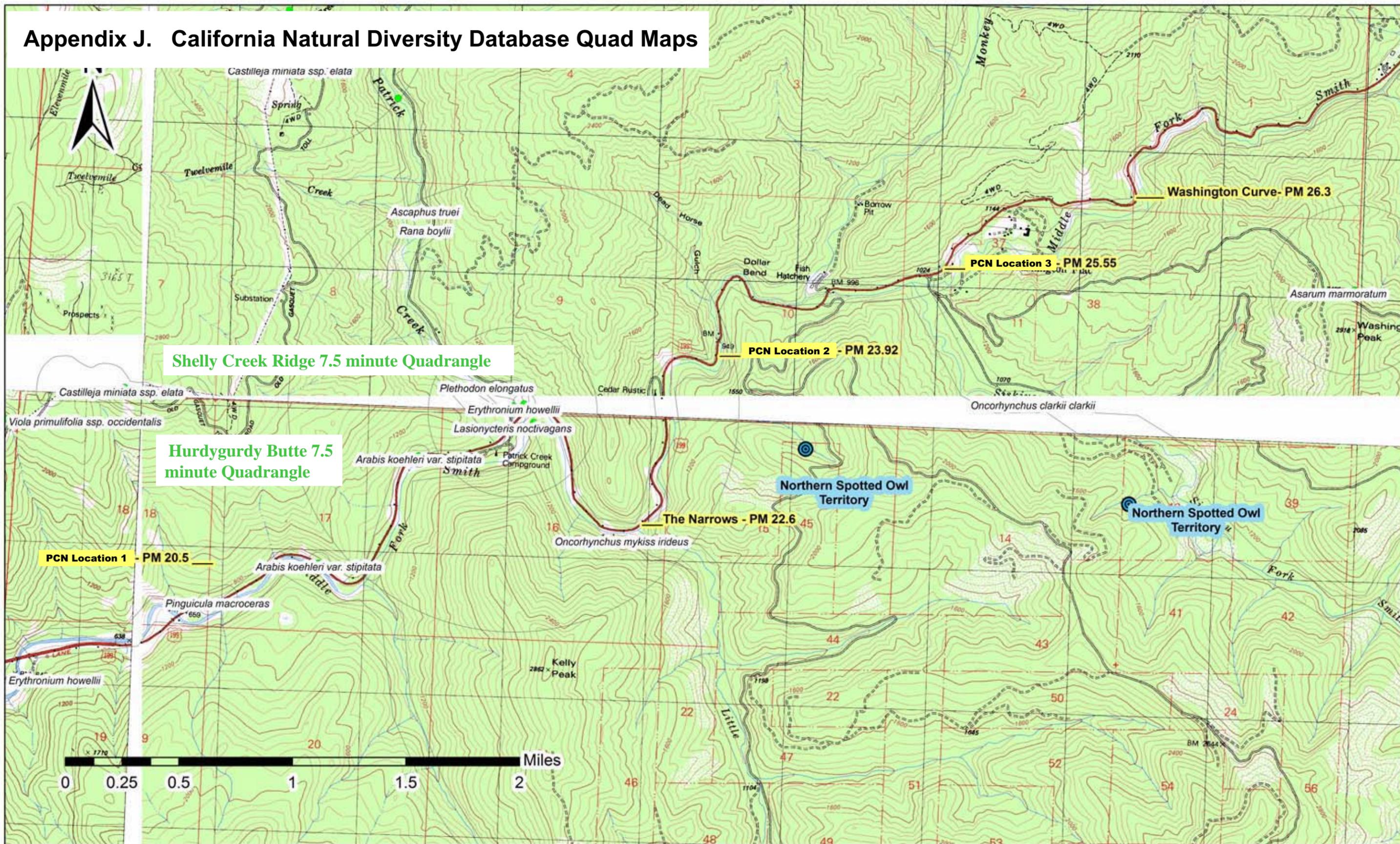


# Appendix J. California Natural Diversity Database Quad Maps





# Appendix J. California Natural Diversity Database Quad Maps





Appendix P USFWS Special-Status Species List  
for Del Norte County

---



# Listed/Proposed Threatened and Endangered Species for Del Norte County (Candidates Included)

March 3, 2010

Document number: 916092820-143056

TYPE	SCIENTIFIC NAME	COMMON NAME	CATEGORY	CRITICAL HABITAT
<b>Plants</b>				
	<i>Arabis macdonaldiana</i>	McDonald's rock-cress	E	N
	<i>Lilium occidentale</i>	western lily	E	N
<b>Invertebrates</b>				
*	<i>Haliotis cracherodii</i>	black abalone	PE	N
	<i>Polites mardon</i>	mardon skipper	C	N
	<i>Speyeria zerene hippolyta</i>	Oregon silverspot butterfly	T	Y
<b>Fish</b>				
*	<i>Acipenser medirostris</i>	green sturgeon	T	Y
	<i>Eucyclogobius newberryi</i>	tidewater goby	E	Y
*	<i>Oncorhynchus kisutch</i>	S. OR/N. CA coho salmon	T	Y
*	<i>Oncorhynchus tshawytscha</i>	CA coastal chinook salmon	T	Y
*	<i>Thaleichthys pacificus</i>	Southern eulachon DPS	PT	N
<b>Reptiles</b>				
*	<i>Caretta caretta</i>	loggerhead turtle	T	N
*	<i>Chelonia mydas (incl. agassizi)</i>	green turtle	T	N
*	<i>Dermochelys coriacea</i>	leatherback turtle	E	Y
*	<i>Lepidochelys olivacea</i>	olive (=Pacific) ridley sea turtle	T	N
<b>Birds</b>				
	<i>Brachyramphus marmoratus</i>	marbled murrelet	T	Y
	<i>Charadrius alexandrinus nivosus</i>	western snowy plover	T	Y
	<i>Coccyzus americanus</i>	Western yellow-billed cuckoo	C	N
	<i>Phoebastris albatrus</i>	short-tailed albatross	E	N
	<i>Strix occidentalis caurina</i>	northern spotted owl	T	Y
<b>Mammals</b>				
*	<i>Balaenoptera borealis</i>	sei whale	E	N
*	<i>Balaenoptera musculus</i>	blue whale	E	N
*	<i>Balaenoptera physalus</i>	fin whale	E	N
*	<i>Eumetopias jubatus</i>	Steller (=northern) sea-lion	T	Y
	<i>Martes pennanti</i>	fisher, West Coast DPS	C	N
*	<i>Megaptera novaengliae</i>	humpback whale	E	N
*	<i>Physeter macrocephalus</i>	sperm whale	E	N

**KEY:**

(PE) Proposed Endangered Proposed in the Federal Register as being in danger of extinction
(PT) Proposed Threatened Proposed as likely to become endangered within the foreseeable future
(E) Endangered Listed in the Federal Register as being in danger of extinction
(T) Threatened Listed as likely to become endangered within the foreseeable future
(C) Candidate Candidate which may become a proposed species Habitat Y = Designated, P = Proposed, N = None Designated
* Denotes a species Listed by the National Marine Fisheries Service



Appendix Q Cross Sections of the Proposed  
Project, Bridge Profile Drawings,  
and Artist Renderings

---



# Cross Sections of the Proposed Project

---



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**

**NOTES:**  
 1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.  
 2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.  
 3. MILL 0.15' INTO DGAC AND PLACE GEOSYNTHETIC PAVEMENT INTERLAYER.

**LEGEND**  
 OGFC = OPEN GRADED FRICTION COURSE  
 SR = SUPERELEVATION RATE

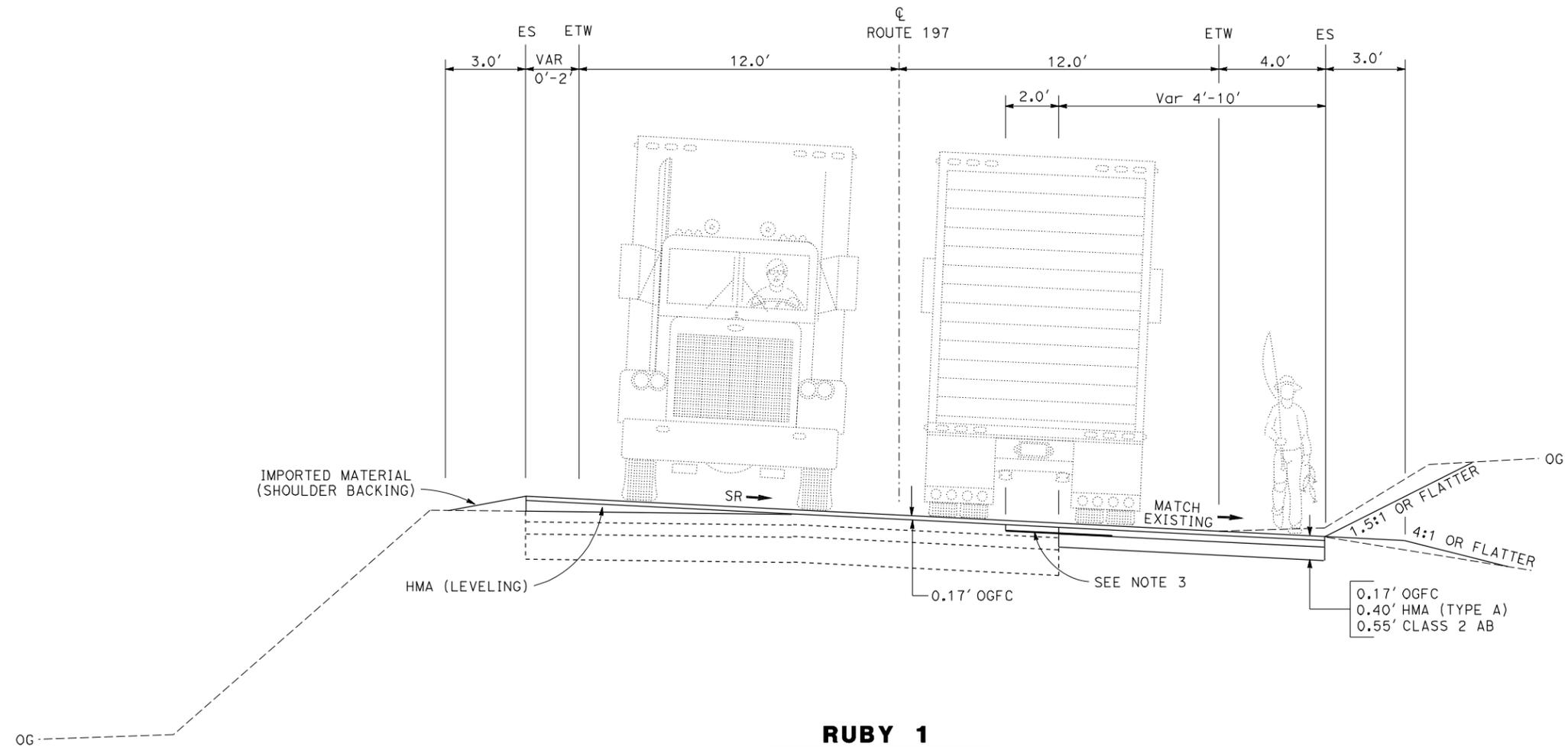
**DESIGN DESIGNATION (ROUTE 197)**  
 2013 AADT=1,870 D=60%  
 2033 AADT=2,550 T=8.0%  
 YEAR 2033 DHV=360 V= 40 MPH (DESIGN SPEED)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS
01	DN	197	4.5	

REGISTERED CIVIL ENGINEER DATE  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA

*THE ENGINEER OR ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.*



**RUBY 1**  
 ROUTE 197  
 PM 4.5

**TYPICAL CROSS SECTION  
 FOUR-FOOT SHOULDER  
 EAST SIDE**

NO SCALE





DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	DN	197	3.2/4.0		

REGISTERED CIVIL ENGINEER

PLANS APPROVED

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENCIES SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

DESIGN STUDY ONLY

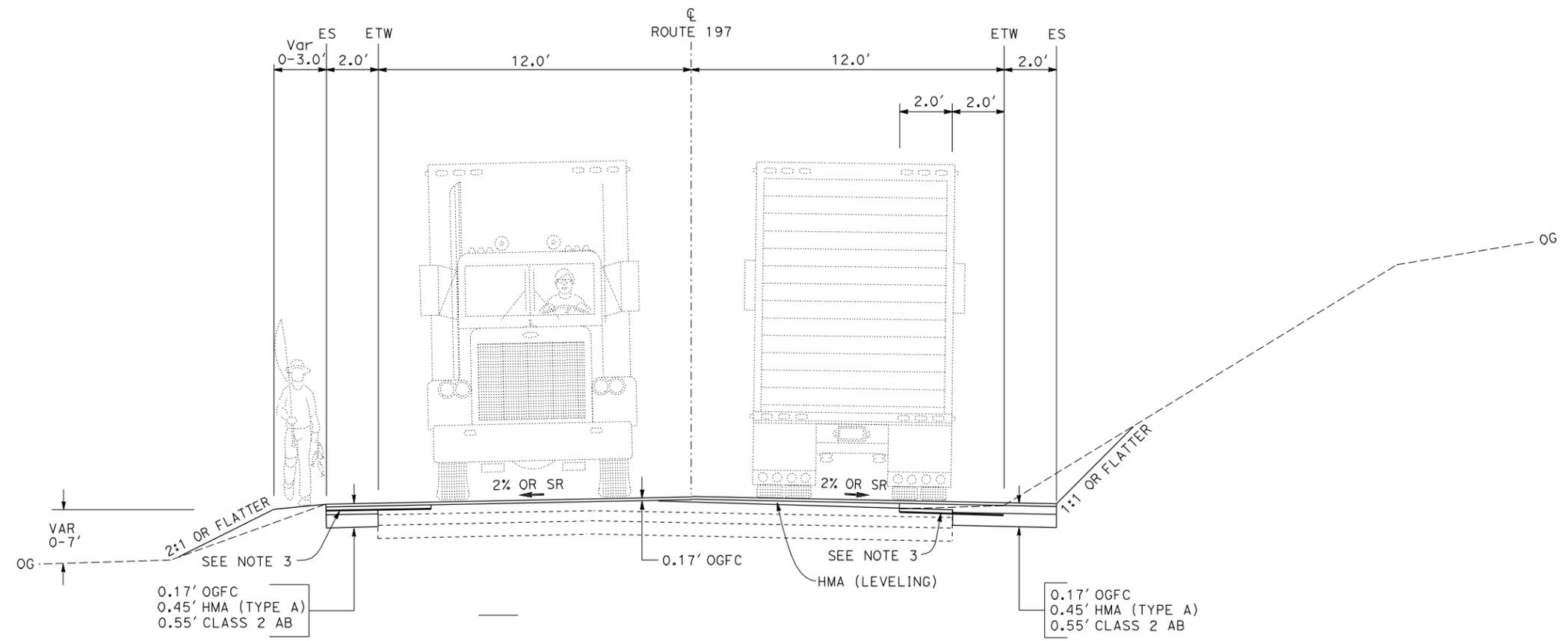
- NOTES:
- DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
  - SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.
  - MILL 0.15' INTO DGAC AND PLACE GEOSYNTHETIC PAVEMENT INTERLAYER.

LEGEND

OGFC = OPEN GRADED FRICTION COURSE  
SR = SUPERELEVATION RATE

DESIGN DESIGNATION (ROUTE 197)

2013 AADT=1,870 D=60%  
2033 AADT=2,550 T=8.0%  
YEAR 2033 DHV=360 V= 40 MPH (DESIGN SPEED)



**RUBY 2**

ROUTE 197  
PM 3.2/4.0

**TYPICAL CROSS SECTION  
TWO-FOOT SHOULDERS  
IN SPOT LOCATIONS  
ALTERNATIVE 3**

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

REVISOR BY  
DATE REVISED

CALCULATED-DESIGNED BY  
CHECKED BY

FUNCTIONAL SUPERVISOR

BORDER LAST REVISED 3/1/2007



USERNAME => s133450  
DGN FILE => Ruby2TypSec.dgn

CU 00000

EA 000000

LAST REVISION: 00-00-00  
DATE PLOTTED => 17-JUN-2010  
TIME PLOTTED => 09:13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Stantec**  
 FUNCTIONAL SUPERVISOR  
 CALCULATED-DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

- NOTES:
1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
  2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.
  3. MILL 0.15' INTO DGAC AND PLACE GEOSYNTHETIC PAVEMENT INTERLAYER.

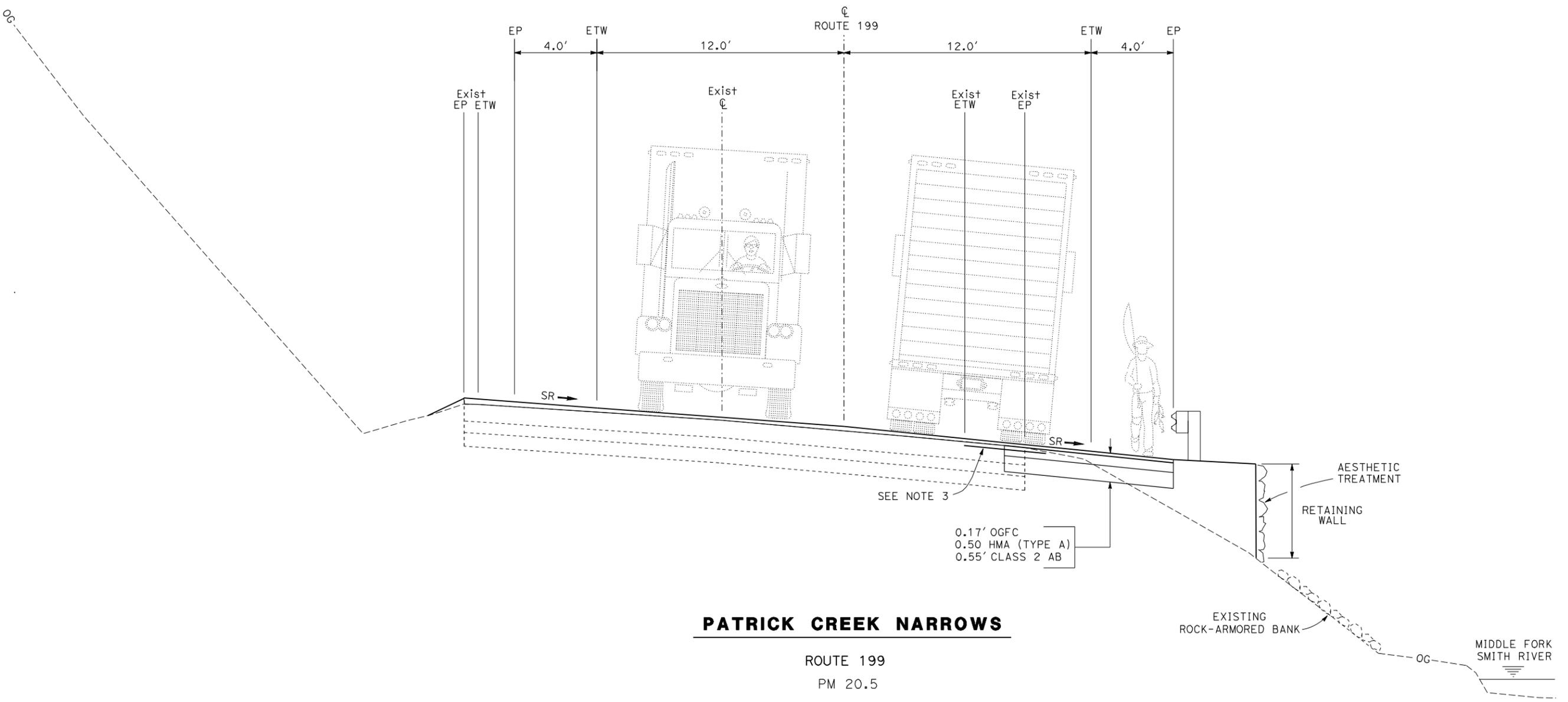
LEGEND  
 OGFC = OPEN GRADED FRICTION COURSE  
 SR = SUPERELEVATION RATE

DESIGN DESIGNATION (ROUTE 199)  
 2013 AADT=3,000 D=60%  
 2033 AADT=3,750 T=12%  
 YEAR 2033 DHV=510 V=40 MPH (DESIGN SPEED)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
01	DN	199	20.5/25.7	

REGISTERED CIVIL ENGINEER DATE  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR EMPLOYEES SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA



**PATRICK CREEK NARROWS**  
 ROUTE 199  
 PM 20.5

**TYPICAL CROSS SECTION  
 LOCATION 1**  
 NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR  
 CALCULATED-DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

NOTES:  
 1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.  
 2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.  
 3. MILL 0.15' INTO DGAC AND PLACE GEOSYNTHETIC PAVEMENT INTERLAYER.

LEGEND  
 OGFC = OPEN GRADED FRICTION COURSE  
 SR = SUPERELEVATION RATE

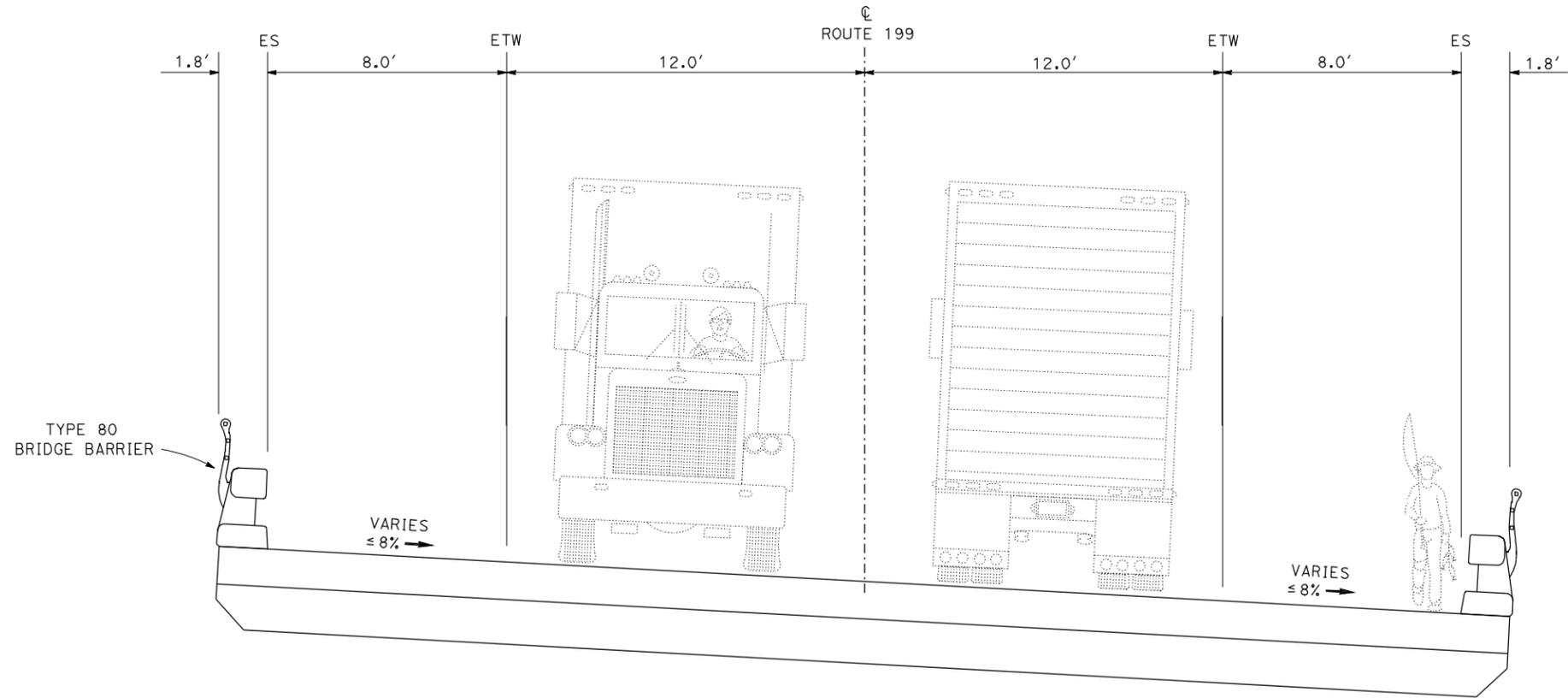
DESIGN DESIGNATION (ROUTE 199)  
 2013 AADT=3,000 D=60%  
 2033 AADT=3,750 T=12%  
 YEAR 2033 DHV=510 V=40 MPH (DESIGN SPEED)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
01	DN	199	20.5/25.7	

REGISTERED CIVIL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA

DESIGN STUDY ONLY

THE STATE OF CALIFORNIA OR ITS OFFICERS OR EMPLOYEES SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



**PATRICK CREEK NARROWS**

ROUTE 199  
 PM 23.9/24.2

**TYPICAL CROSS SECTION  
 LOCATION 2  
 NEW BRIDGE ALTERNATIVES**  
 NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR  
 CALCULATED-DESIGNED BY  
 CHECKED BY  
 REVISOR BY  
 DATE REVISOR

- NOTES:  
 1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.  
 2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.  
 3. MILL 0.15' INTO DGAC AND PLACE GEOSYNTHETIC PAVEMENT INTERLAYER.

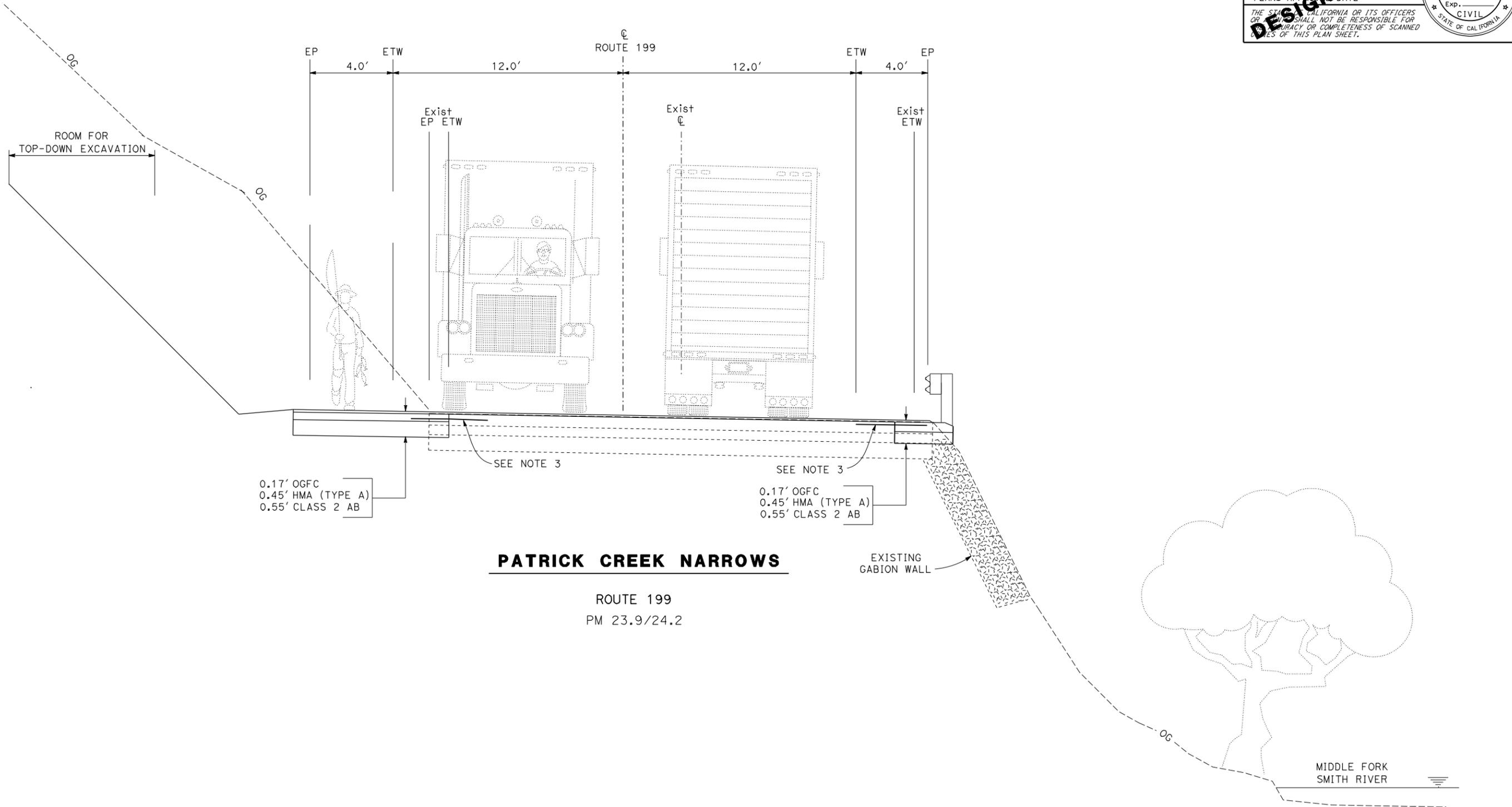
LEGEND  
 OGFC = OPEN GRADED FRICTION COURSE  
 SR = SUPERELEVATION RATE

DESIGN DESIGNATION (ROUTE 199)  
 2013 AADT=3,000 D=60%  
 2033 AADT=3,750 T=12%  
 YEAR 2033 DHV=510 V=40 MPH (DESIGN SPEED)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
01	DN	199	20.5/25.7	

REGISTERED CIVIL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA

DESIGN STUDY ONLY



**TYPICAL CROSS SECTION  
 LOCATION 2  
 UPSTREAM BRIDGE  
 REPLACEMENT**

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**

- NOTES:
1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
  2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.
  3. MILL 0.15' INTO DGAC AND PLACE GEOSYNTHETIC PAVEMENT INTERLAYER.

LEGEND  
 OGFC = OPEN GRADED FRICTION COURSE  
 SR = SUPERELEVATION RATE

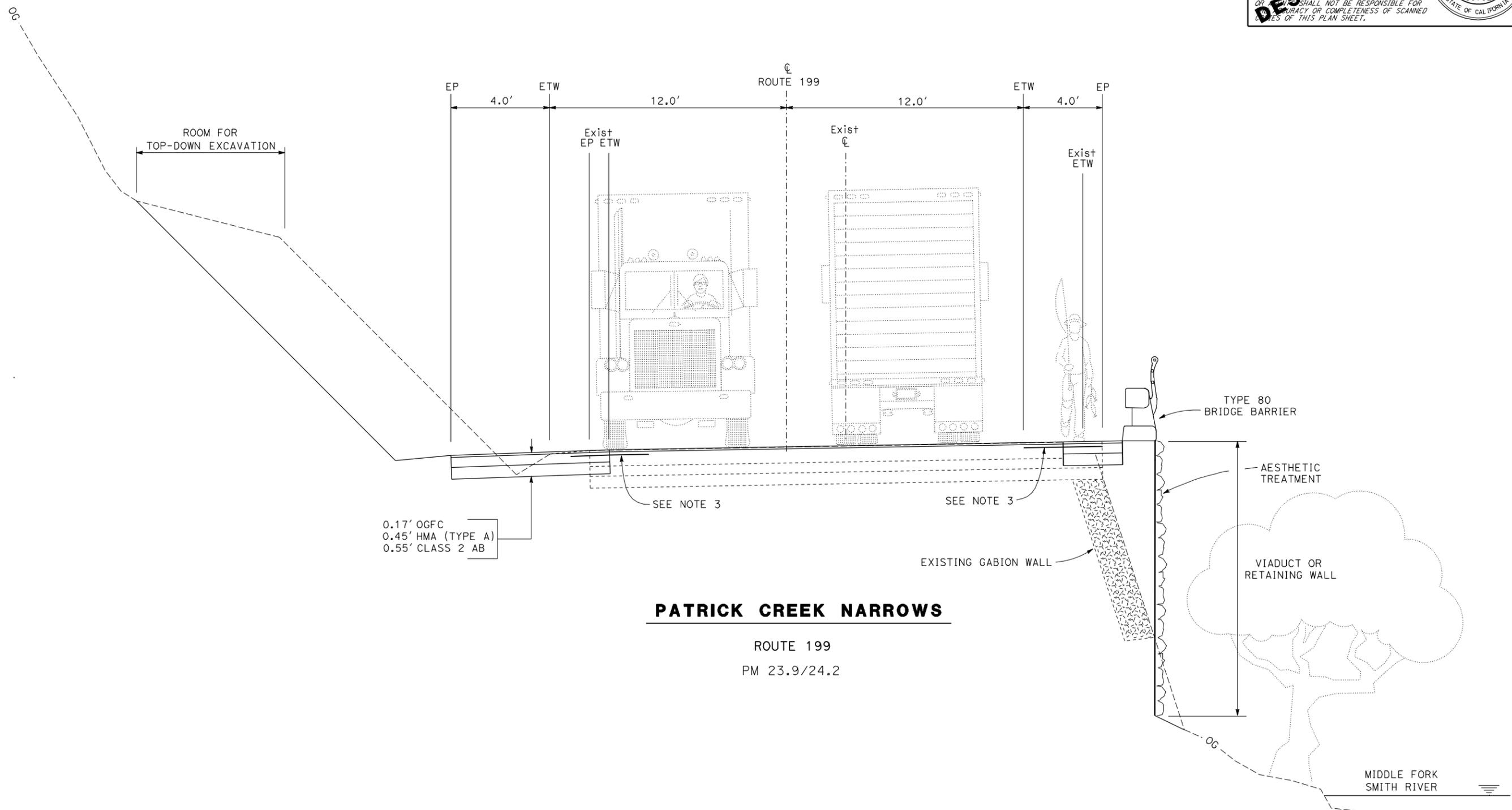
DESIGN DESIGNATION (ROUTE 199)  
 2013 AADT=3,000 D=60%  
 2033 AADT=3,750 T=12%  
 YEAR 2033 DHV=510 V=40 MPH (DESIGN SPEED)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
01	DN	199	20.5/25.7	

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVED DATE \_\_\_\_\_  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR EMPLOYEES SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**DESIGN STUDY ONLY**

REGISTERED PROFESSIONAL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA



**PATRICK CREEK NARROWS**

ROUTE 199  
 PM 23.9/24.2

**TYPICAL CROSS SECTION  
 LOCATION 2  
 DOWNSTREAM BRIDGE  
 REPLACEMENT ALTERNATIVE**

NO SCALE



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR  
 CALCULATED-DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

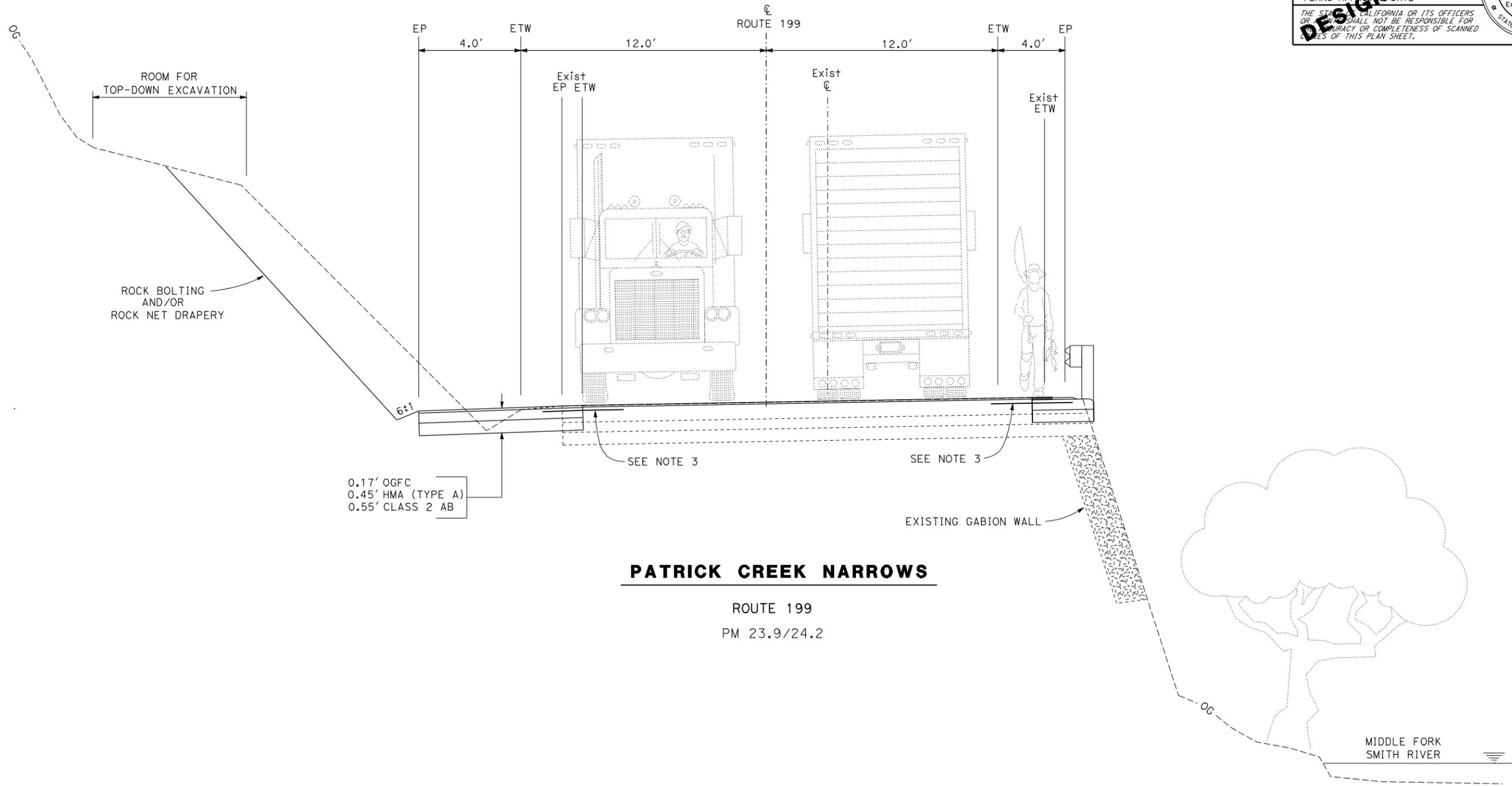
- NOTES:  
 1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.  
 2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.  
 3. MILL 0.15' INTO DGAC AND PLACE GEOSYNTHETIC PAVEMENT INTERLAYER.

LEGEND  
 OGFC = OPEN GRADED FRICTION COURSE  
 SR = SUPERELEVATION RATE

DESIGN DESIGNATION (ROUTE 199)  
 2013 AADT=3,000 D=60%  
 2033 AADT=3,750 T=12%  
 YEAR 2033 DHV=510 V=40 MPH (DESIGN SPEED)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
01	DN	199	20.5/25.7	

REGISTERED CIVIL ENGINEER DATE  
 PLANS APPROVAL DATE  
 REGISTERED PROFESSIONAL ENGINEER  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR EMPLOYEES SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



**PATRICK CREEK NARROWS**

ROUTE 199  
 PM 23.9/24.2

**TYPICAL CROSS SECTION  
 LOCATION 2  
 BRIDGE PRESERVATION WITH  
 UPSLOPE RETAINING WALL  
 ALTERNATIVE**

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**

- NOTES:
1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
  2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.
  3. MILL 0.15' INTO DGAC AND PLACE GEOSYNTHETIC PAVEMENT INTERLAYER.

LEGEND  
 OGFC = OPEN GRADED FRICTION COURSE  
 SR = SUPERELEVATION RATE

DESIGN DESIGNATION (ROUTE 199)  
 2013 AADT=3,000 D=60%  
 2033 AADT=3,750 T=12%  
 YEAR 2033 DHV=510 V=40 MPH (DESIGN SPEED)

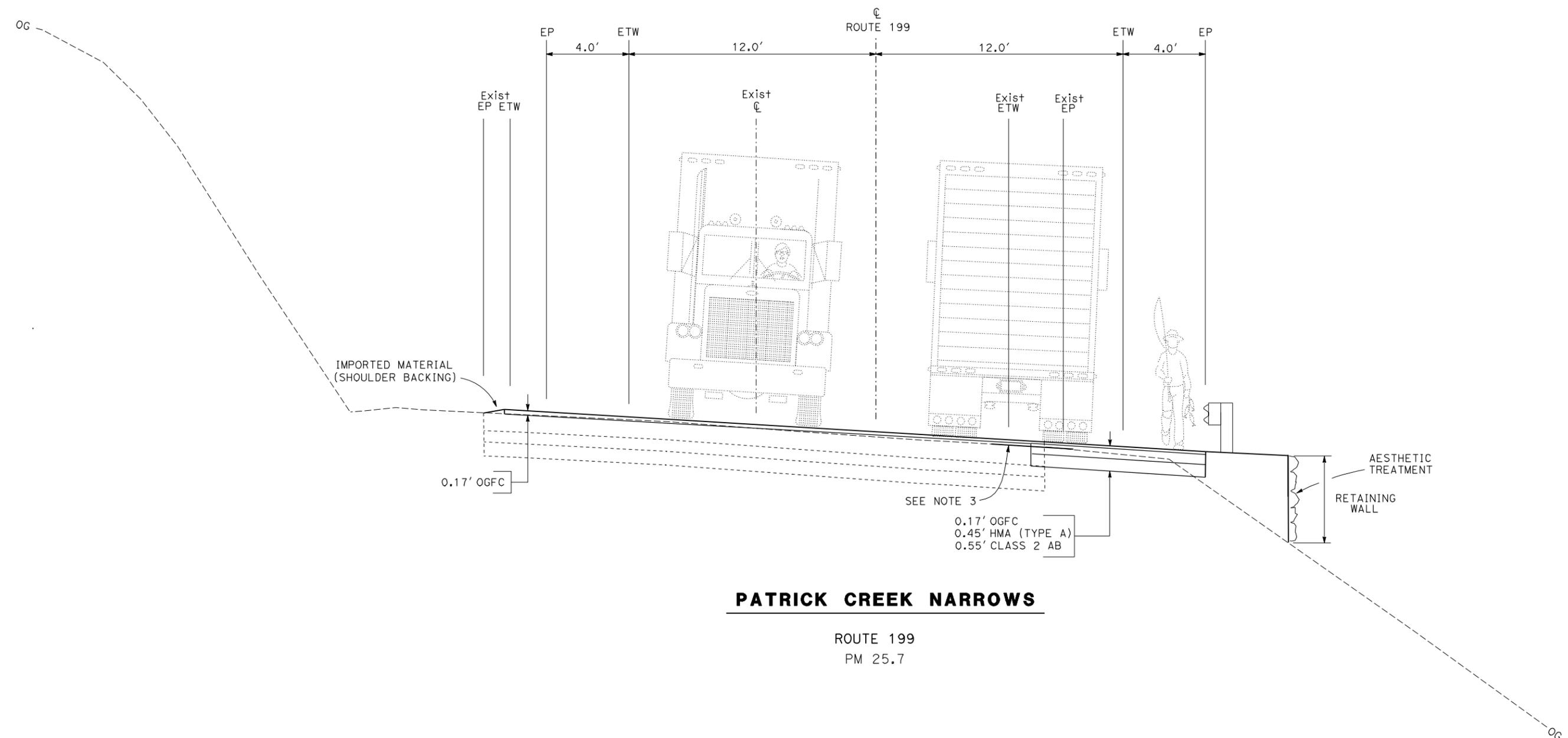
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER [NAME]  
 PLANS APPROVAL DATE [DATE]

REGISTERED PROFESSIONAL ENGINEER  
 No. [ ]  
 Exp. [ ]  
 CIVIL  
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL BE RESPONSIBLE FOR THE ACCURACY AND COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**DESIGN STUDY ONLY**



**PATRICK CREEK NARROWS**

ROUTE 199  
 PM 25.7

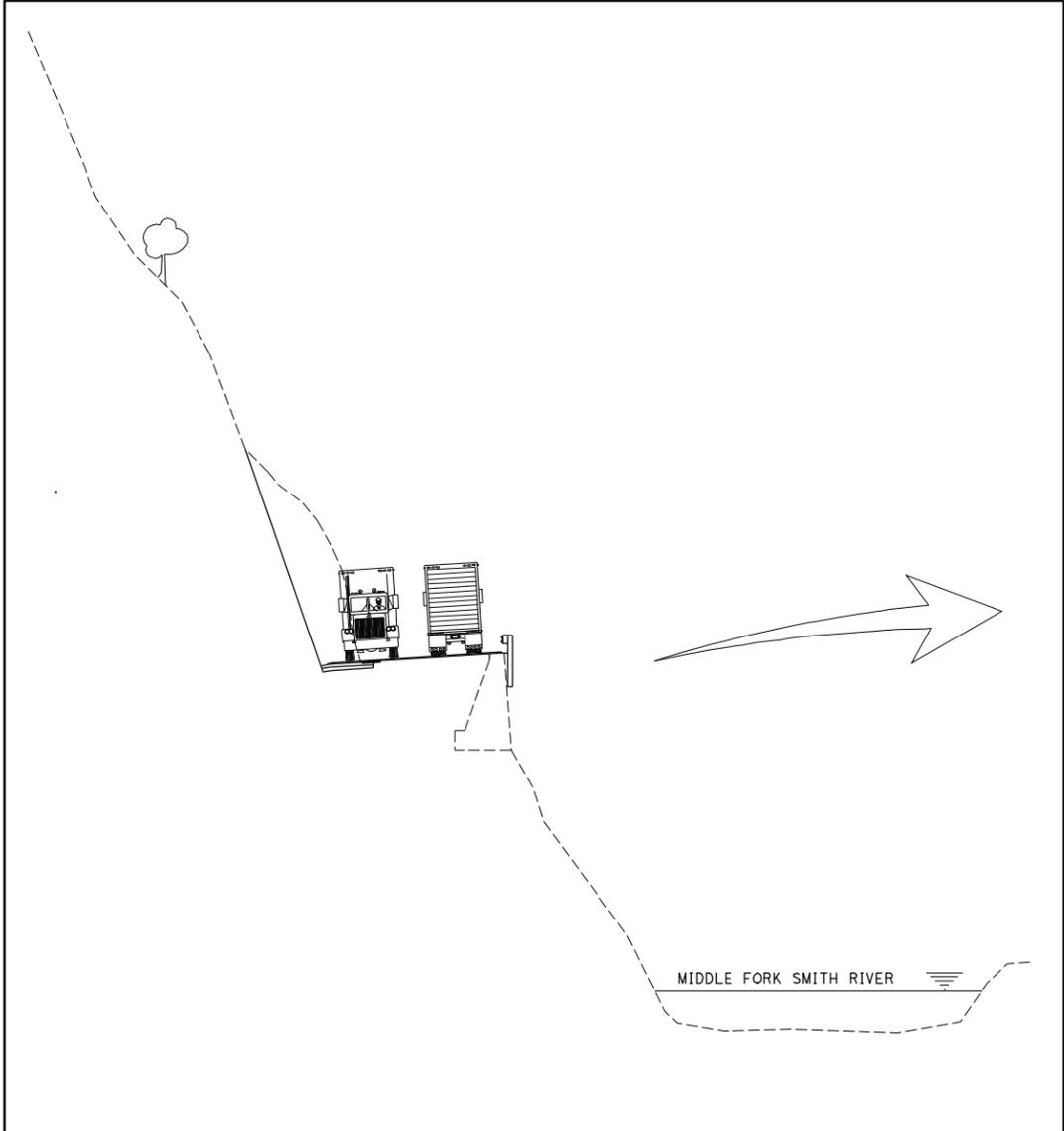
**TYPICAL CROSS SECTION  
 LOCATION 3**

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**

- NOTES:**
1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
  2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.
  3. MILL 0.15' INTO DGAC AND PLACE GEOSYNTHETIC PAVEMENT INTERLAYER.

**LEGEND**  
 OGFC = OPEN GRADED FRICTION COURSE



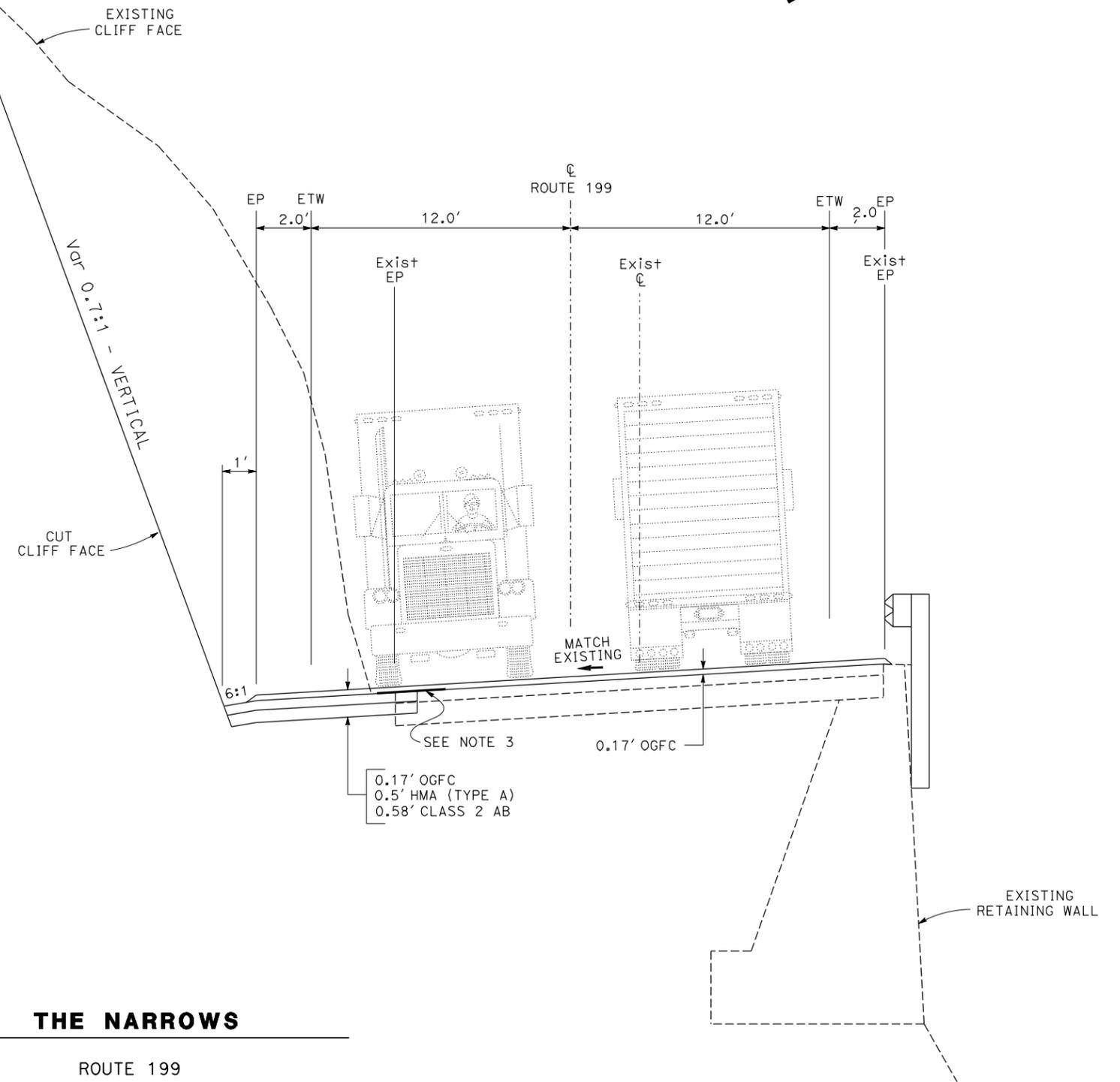
**DESIGN DESIGNATION (ROUTE 199)**  
 2008 AADT=3,000 D=60%  
 2033 AADT=3,750 T=12%  
 YEAR 2033 DHV=510  
 V=40 MPH (DESIGN SPEED)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER  
 PLANS APPROVAL DATE  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA

**DESIGN STUDY ONLY**

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



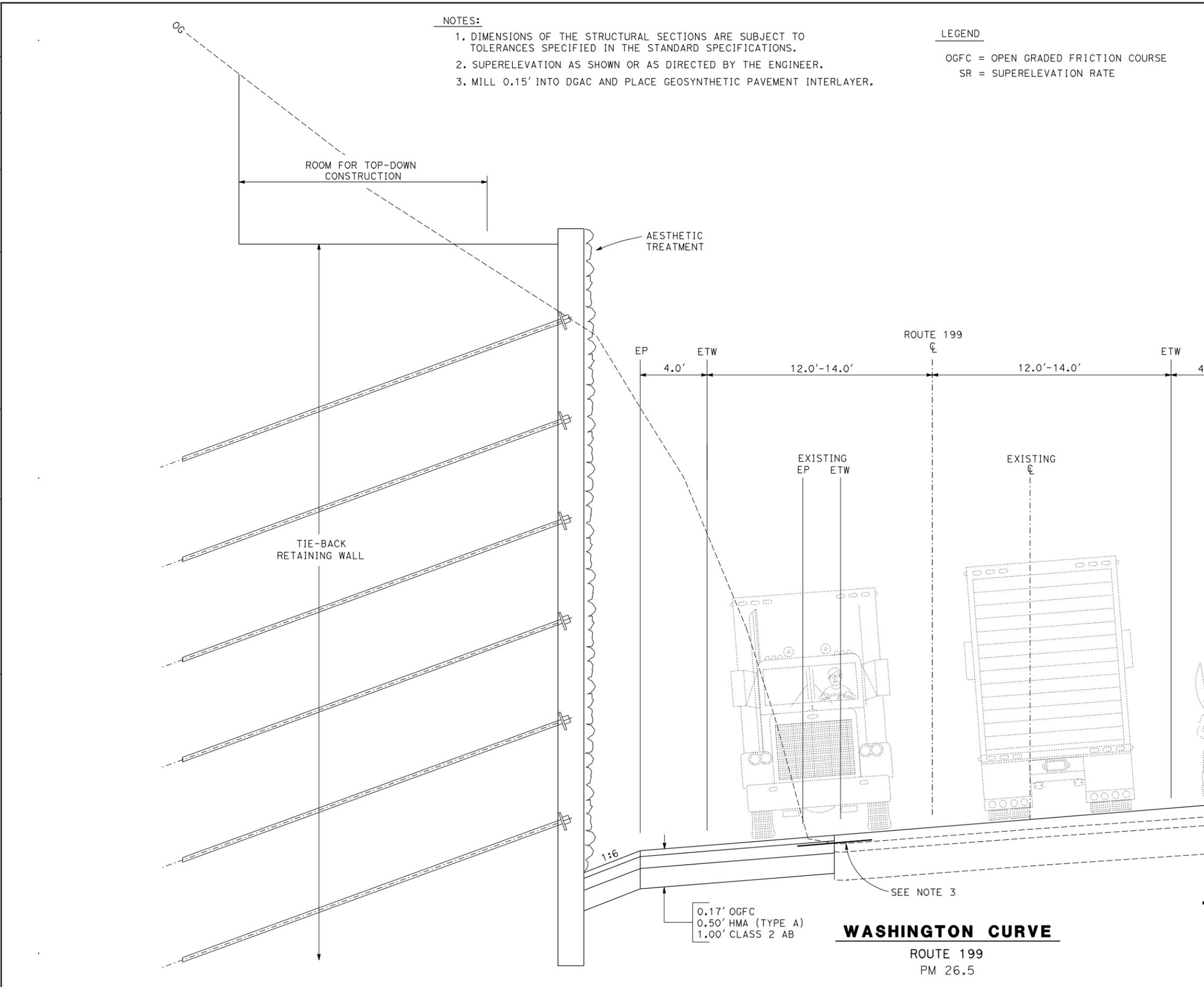
**THE NARROWS**

ROUTE 199  
 PM 22.7/23.0

**TYPICAL CROSS SECTION**  
 NO SCALE



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**



- NOTES:**
1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
  2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.
  3. MILL 0.15' INTO DGAC AND PLACE GEOSYNTHETIC PAVEMENT INTERLAYER.

**LEGEND**

OGFC = OPEN GRADED FRICTION COURSE  
 SR = SUPERELEVATION RATE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE \_\_\_\_\_  
 PLANS APPROVAL DATE \_\_\_\_\_  
 No. \_\_\_\_\_  
 Exp. \_\_\_\_\_  
 CIVIL  
 STATE OF CALIFORNIA

**DESIGN DESIGNATION (ROUTE 199)**

2008 AADT=3,000 D=60%  
 2035 AADT=3,810 T=12%  
 YEAR 2035 DHV=520  
 V= 40 MPH (DESIGN SPEED)

**TYPICAL CROSS SECTION  
 RETAINING WALL  
 ALTERNATIVE**

NO SCALE

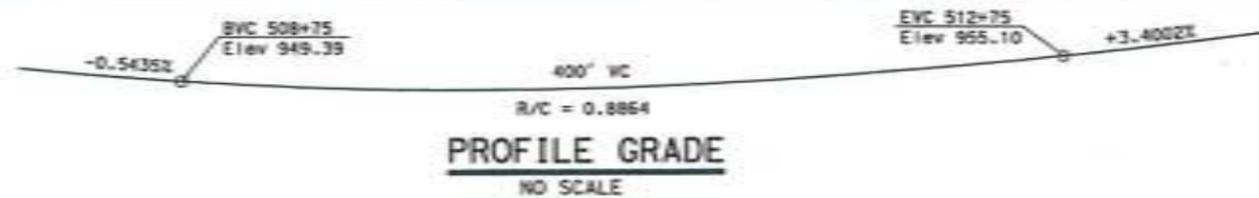


# Bridge Profile Drawings for Patrick Creek Location 2

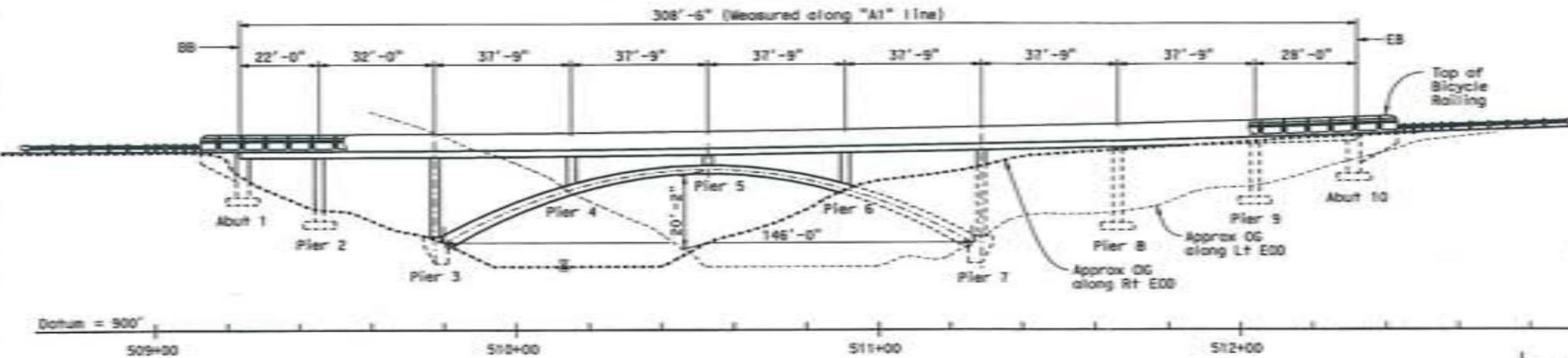


DISC	COUNTY	ROUTE	POST MILE
01	DN	199	24.08

To get to the Caltrans web site, go for <http://www.dot.ca.gov>



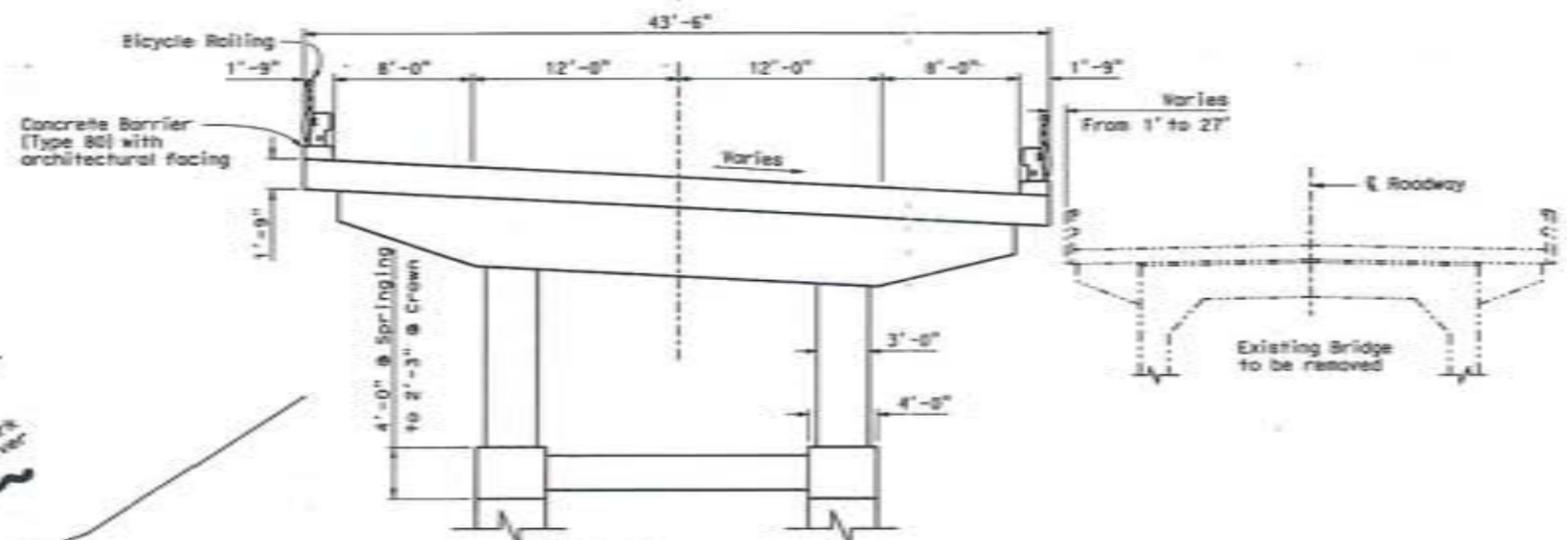
**PROFILE GRADE**  
NO SCALE



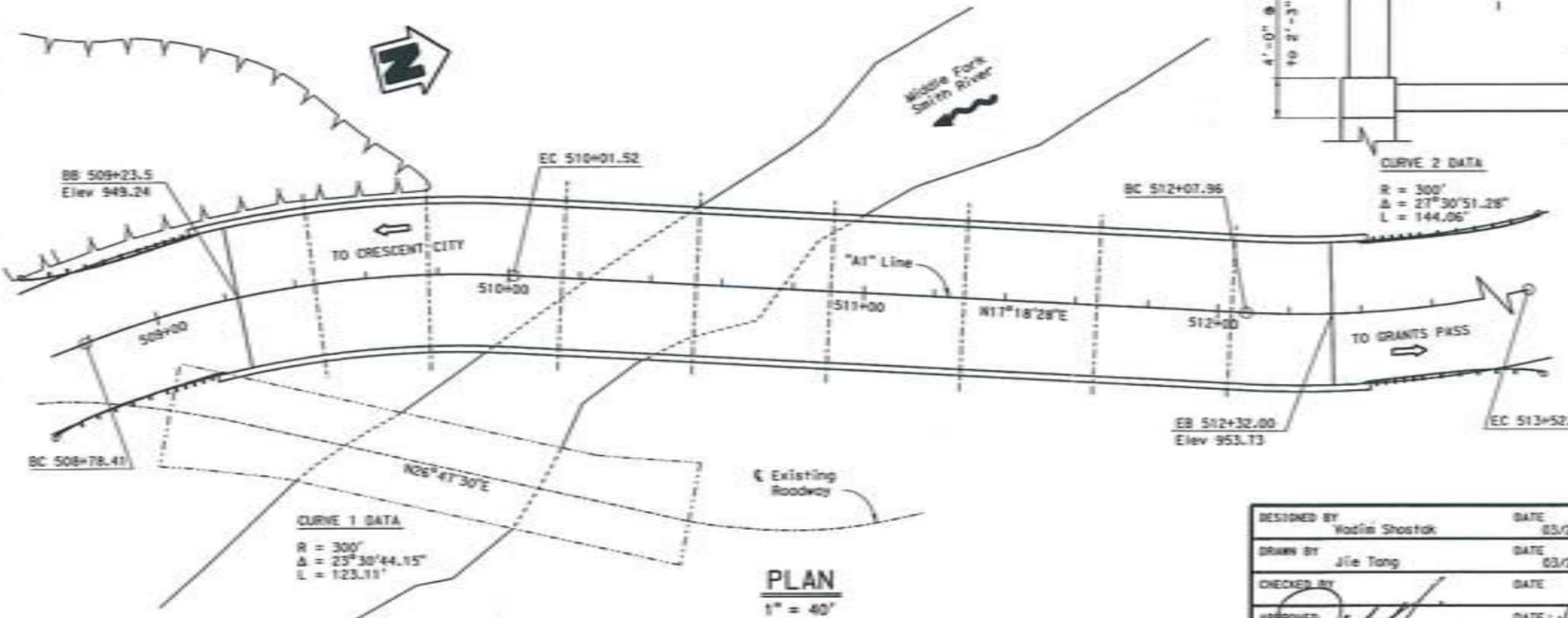
**DEVELOPED ELEVATION**  
1" = 40"

**Notes:**

1. Assumed spread footing at abutments and piers.
2. Assumed short sect abutments 1 & 10 with wingwalls.



**TYPICAL SECTION**  
1/2" = 1'-0"



**PLAN**  
1" = 40"

Date of Estimate	5/20/09
Str. Depth	1'-9"
Length	308'-6"
Width	43'-6"
Area	13,420 ft <sup>2</sup>
Cost/sq ft including 10% Mobilization & 25% Contingency	\$240/ft <sup>2</sup>
Total Cost	3,220,800
Working Days	PRO

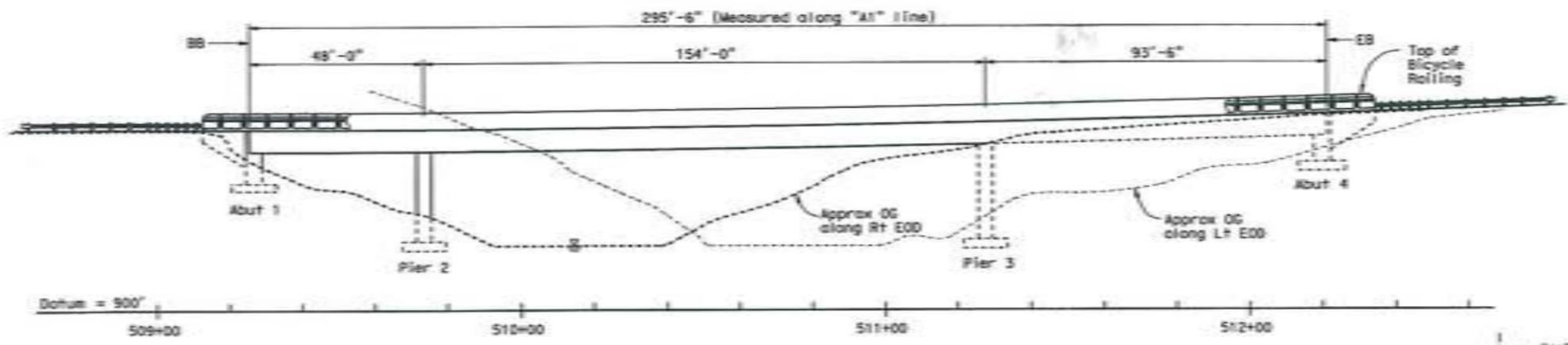
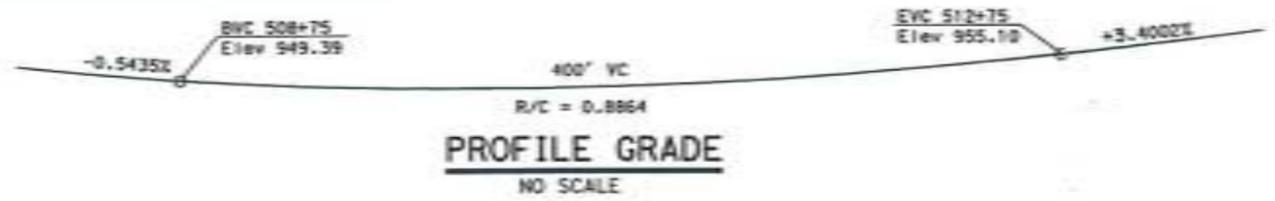
DESIGNED BY	Yadiri Shostak	DATE	03/25/09
DRAWN BY	Jie Tang	DATE	03/25/09
CHECKED BY		DATE	
APPROVED	<i>[Signature]</i>	DATE	4/17/09

**STRUCTURE DESIGN BRANCH**  
**1**

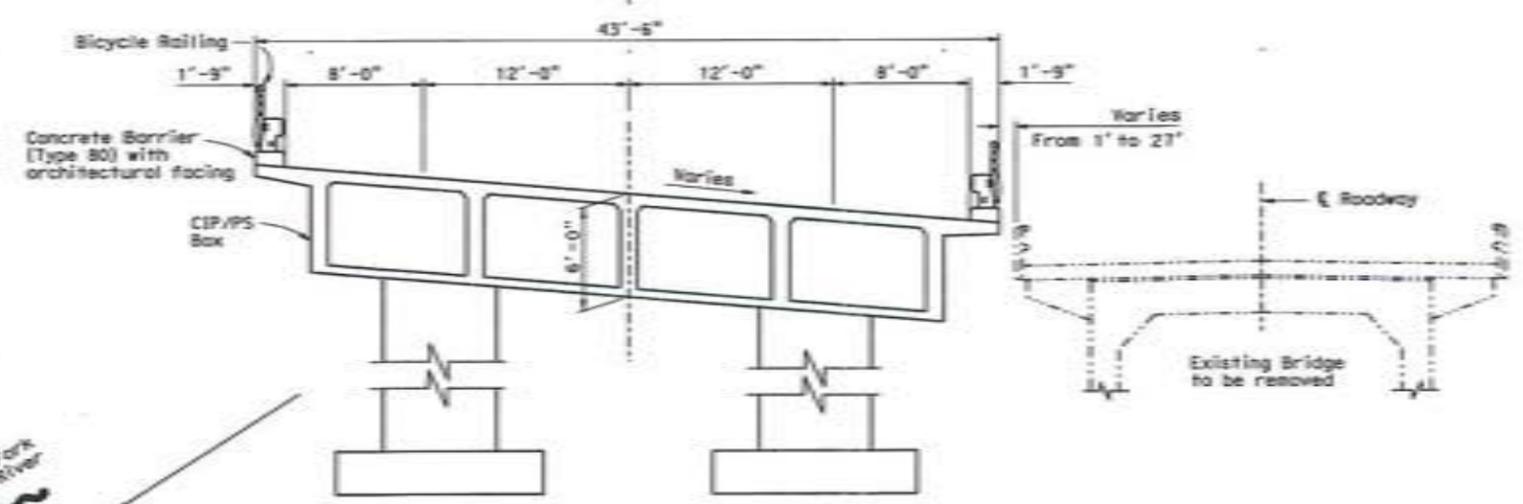
<b>ALTERNATIVE 1A</b>	
<b>PLANNING STUDY</b>	
<b>SMITH RIVER BRIDGE</b>	
BRIDGE NO. XX	cu 01
SCALE: AS SHOWN	EX 479400

DIST.	COUNTY	ROUTE	POST MILE
01	DN	199	24.08

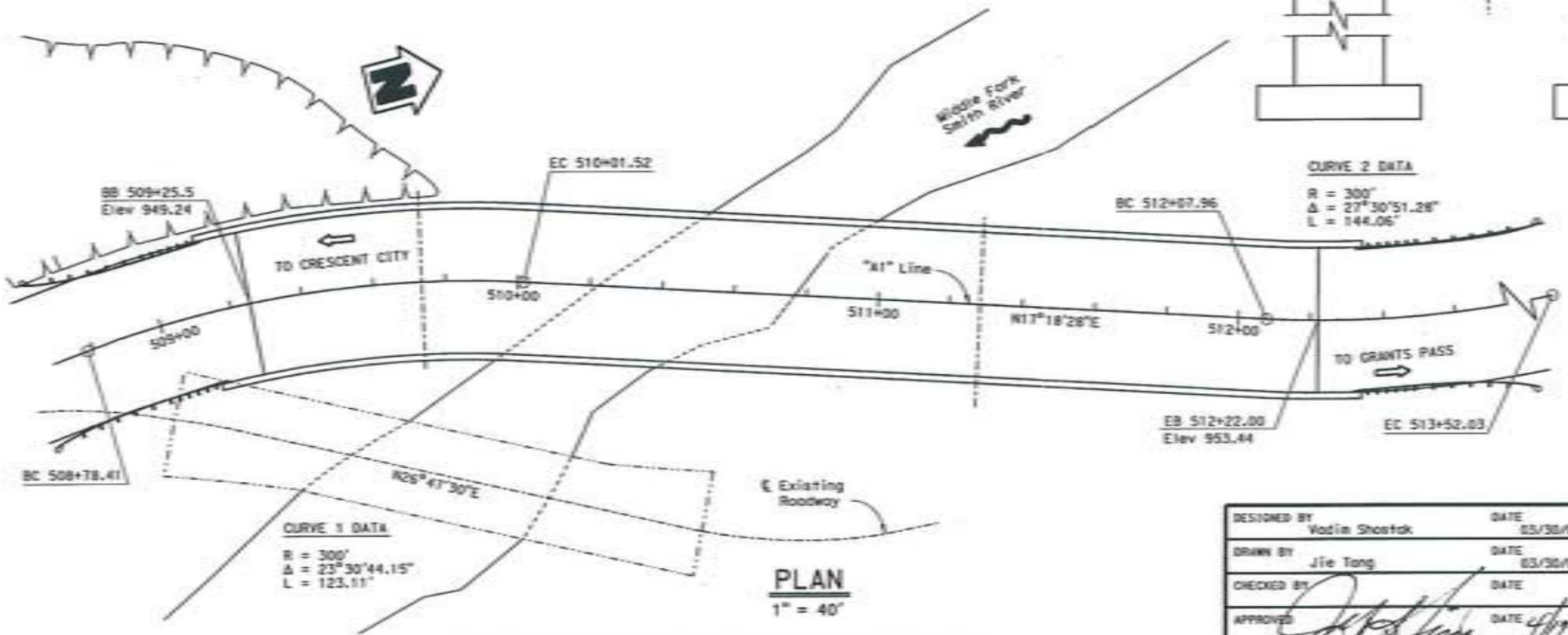
To get to the Caltrans web site, go to <http://www.dot.ca.gov>



- Notes:
1. Assumed spread footing of abutments and piers.
  2. Assumed short seat abutments 1 & 4 with wingwalls.



CURVE 2 DATA  
 R = 300'  
 Δ = 27°30'51.28"  
 L = 144.05'



Date of Estimate	5/20/09
Str. Depth	5'-0"
Length	295'-6"
Width	43'-6"
Area	12,854 ft <sup>2</sup>
Cost/sq ft including 10% Mobilization & 25% Contingency	\$231/sq ft
Total Cost	\$3,071,000
Working Days	170

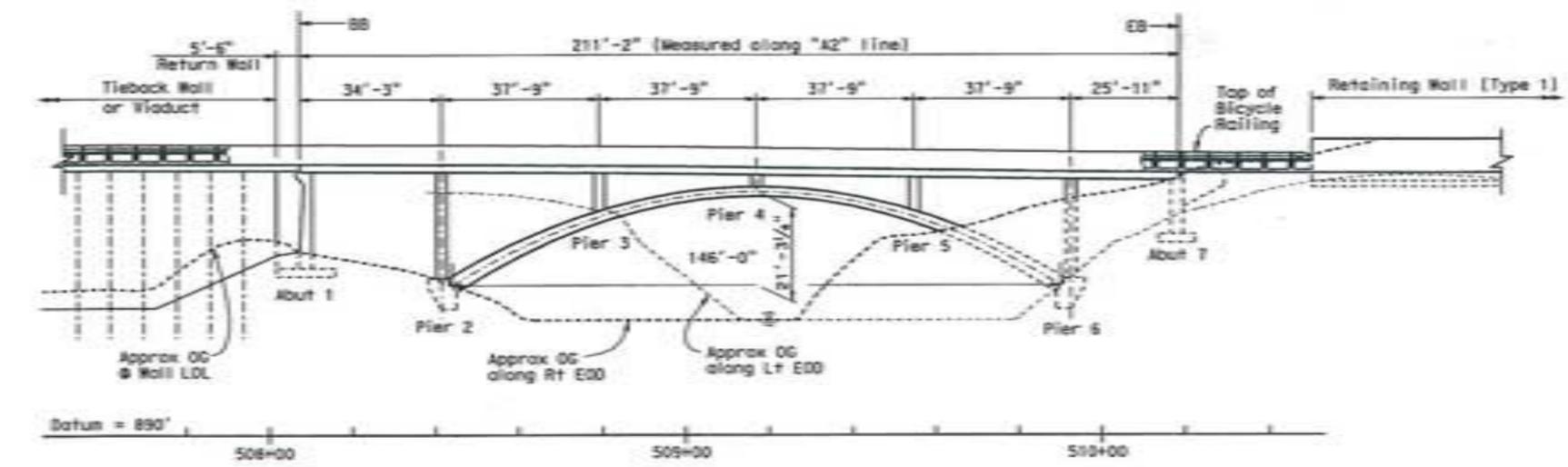
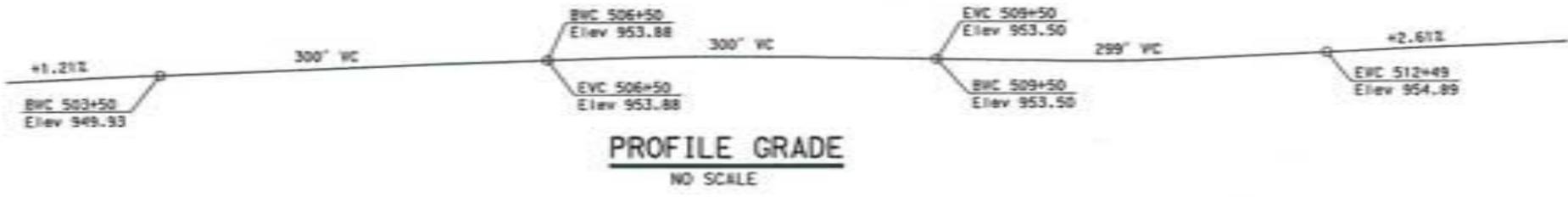
DESIGNED BY	Vadim Shostak	DATE	03/30/09
DRAWN BY	Jie Tang	DATE	03/30/09
CHECKED BY		DATE	
APPROVED	<i>[Signature]</i>	DATE	4/19/09

STRUCTURE DESIGN BRANCH  
**1**

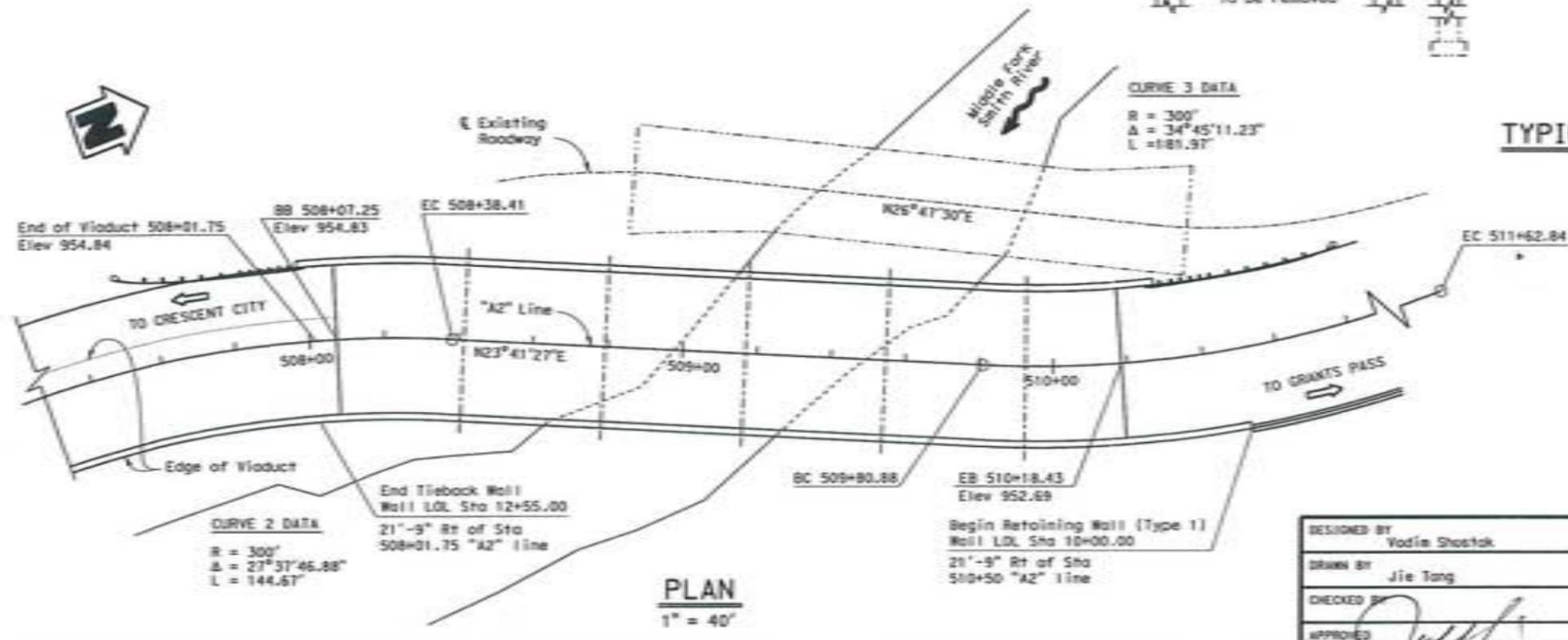
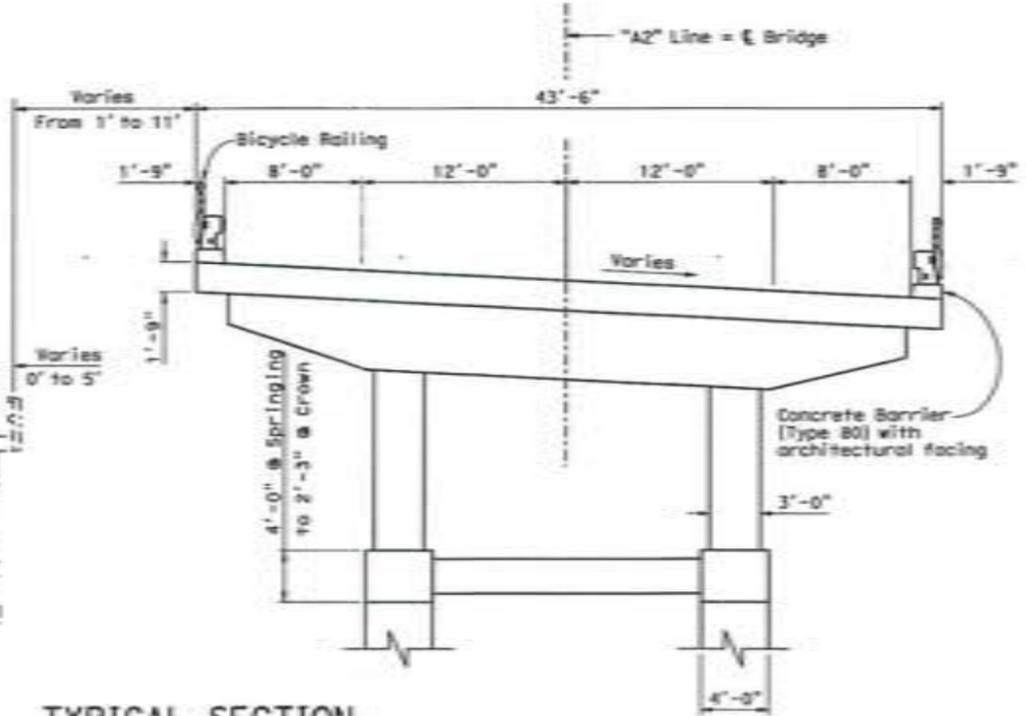
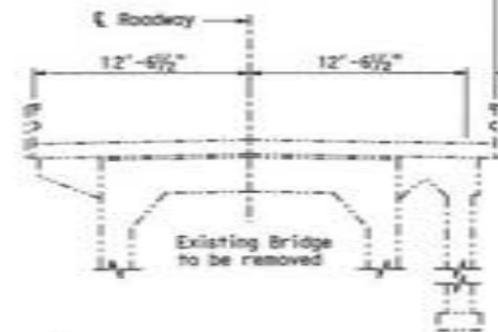
ALTERNATIVE 1B	
PLANNING STUDY	
SMITH RIVER BRIDGE	
BRIDGE NO. XX	cu 01
SCALE: AS SHOWN	EA 479400

DIST.	COUNTY	ROUTE	POST MILE
01	DN	199	24.08

To get to the Caltrans web site, go to: <http://www.dot.ca.gov>



- Notes:
1. Assumed spread footing at abutments and piers.
  2. Assumed high cantilever abutment 1 and short seat abutment 7 with wingwalls.



Date of Estimate	5/22/08
Str. Depth	1'-9"
Length	211'-2"
Width	43'-6"
Area	9,186 ft <sup>2</sup>
Cost/sq ft including 10% Mobilization & 25% Contingency	\$280/sq ft
Total Cost	\$2,665,000
Working Days	175

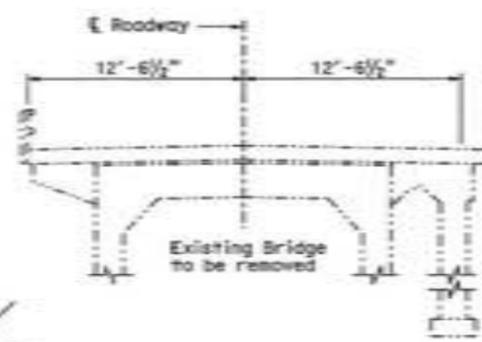
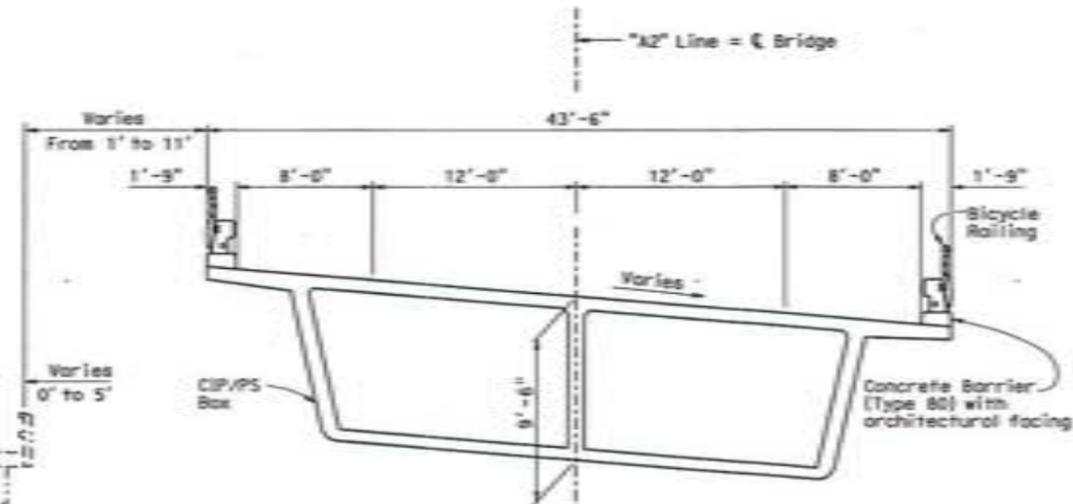
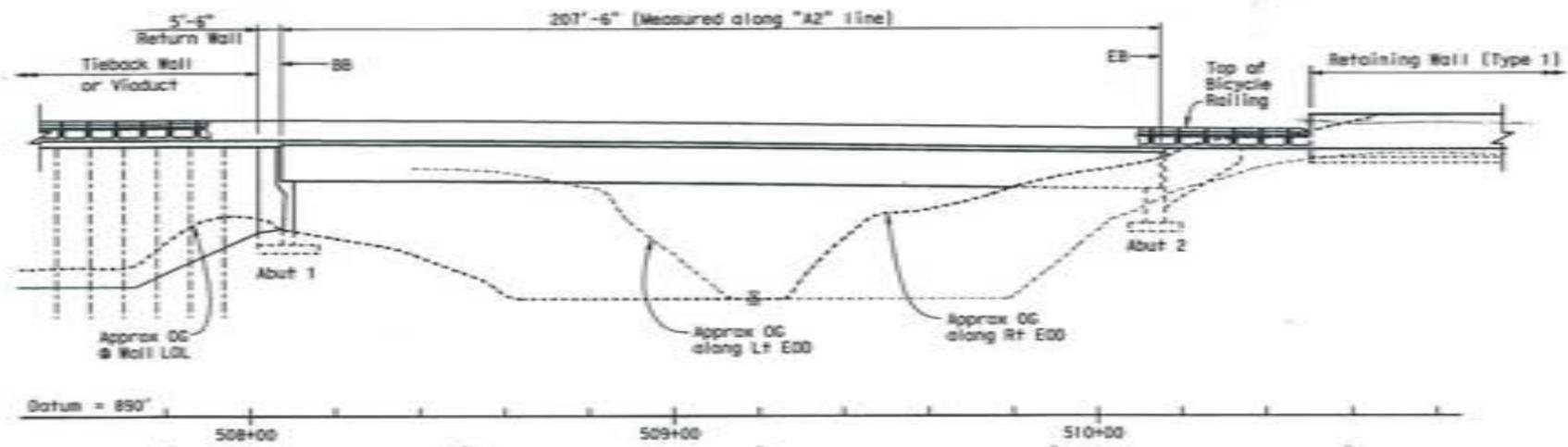
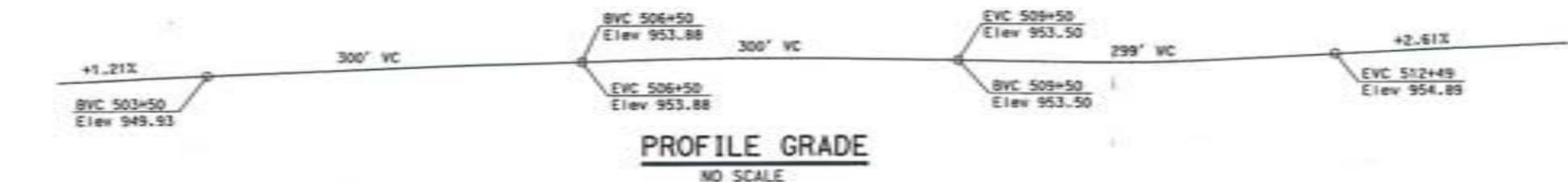
DESIGNED BY	Vodie Shestak	DATE	03/19/09
DRAWN BY	Jie Tang	DATE	03/19/09
CHECKED BY		DATE	
APPROVED	<i>[Signature]</i>	DATE	4/1/09

STRUCTURE DESIGN BRANCH  
**1**

ALTERNATIVE 2A	
PLANNING STUDY	
SMITH RIVER BRIDGE	
BRIDGE NO. XX	CU 01
SCALE: AS SHOWN	EA 479400

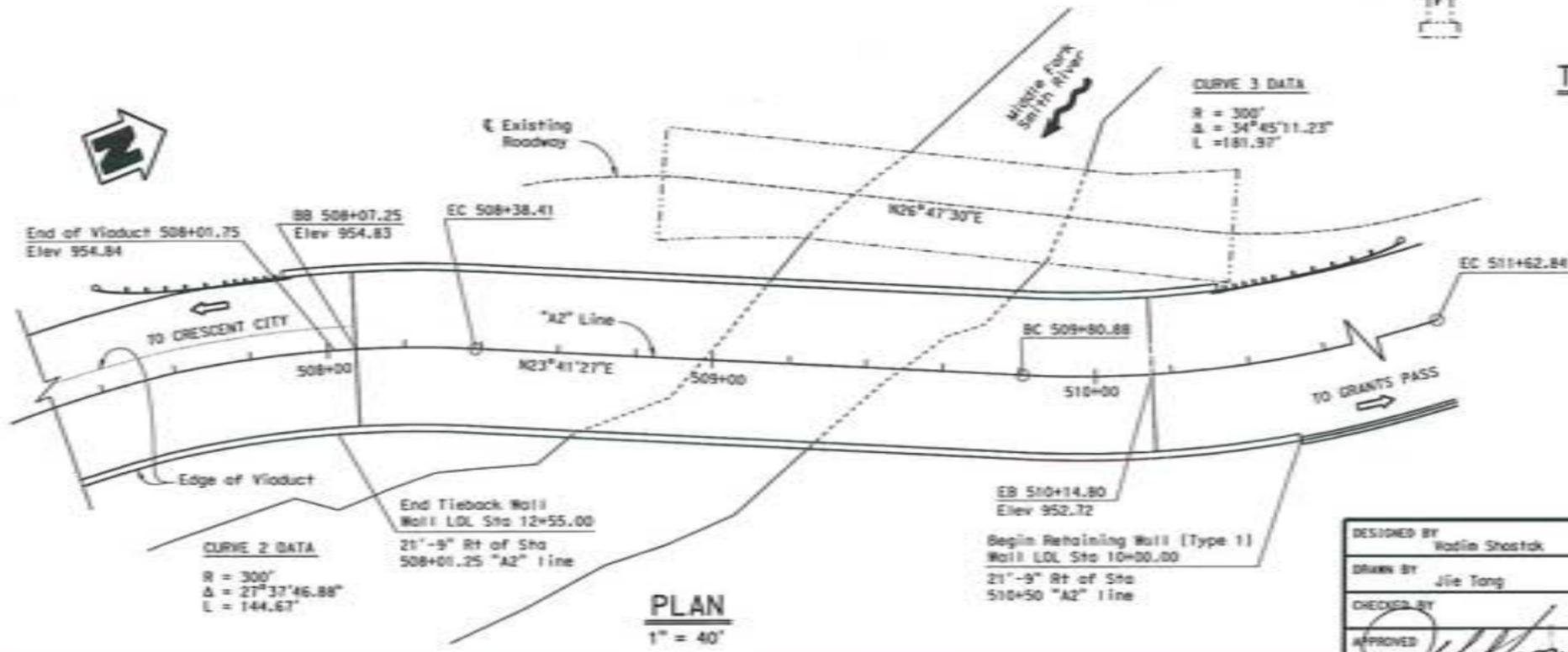
DIST.	COUNTY	ROUTE	POST MILE
01	DN	199	24.08

To get to the Caltrans web site, go to <http://www.dot.ca.gov>



- Notes:
1. Assumed spread footing at abutments.
  2. Assumed high cantilever abutment 1 and short seat abutment 2 with wingwalls.

CURVE 3 DATA  
 R = 300'  
 $\Delta = 34^\circ 45' 11.25''$   
 L = 181.97'



TYPICAL SECTION  
 1/2" = 1'-0"

Date of Estimate	5/22/2009
Str. Depth	9'-6"
Length	201'-6"
Width	43'-6"
Area	9,026 ft <sup>2</sup>
Cost/sq ft including 10% Mobilization & 25% Contingency	\$255/ft <sup>2</sup>
Total Cost	\$2,402,000
Working Days	155

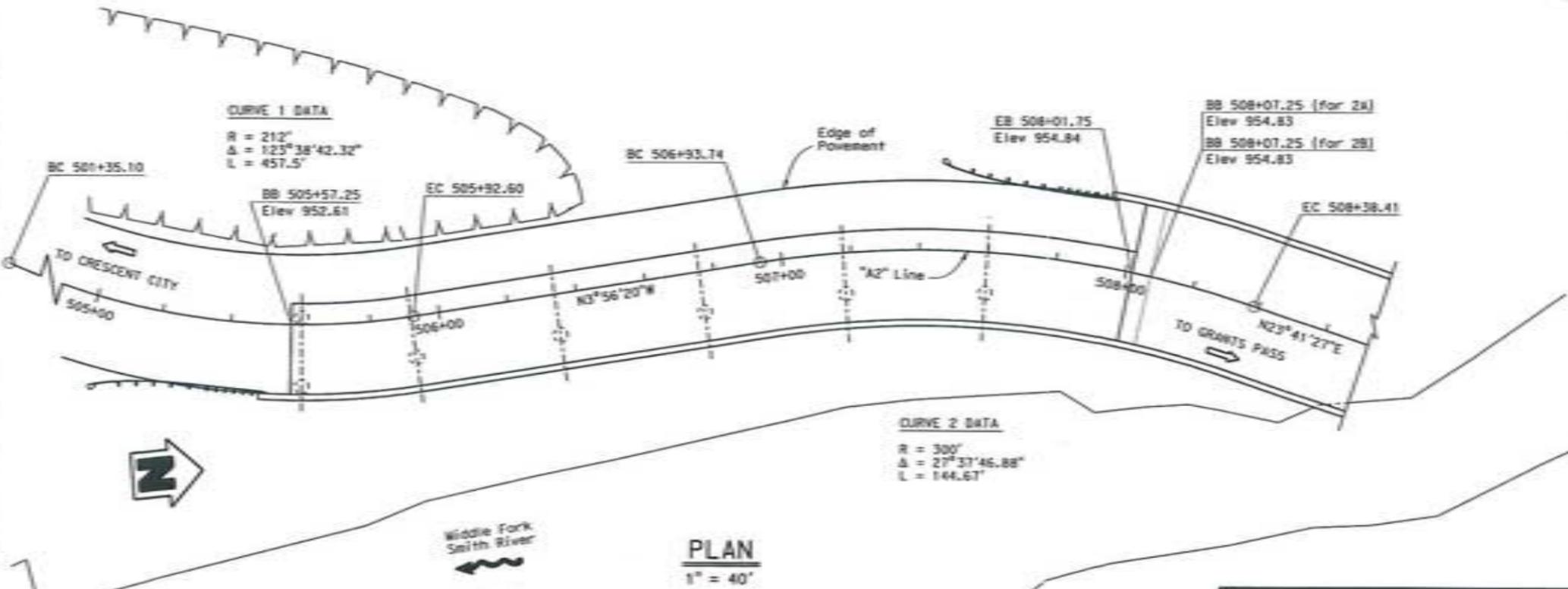
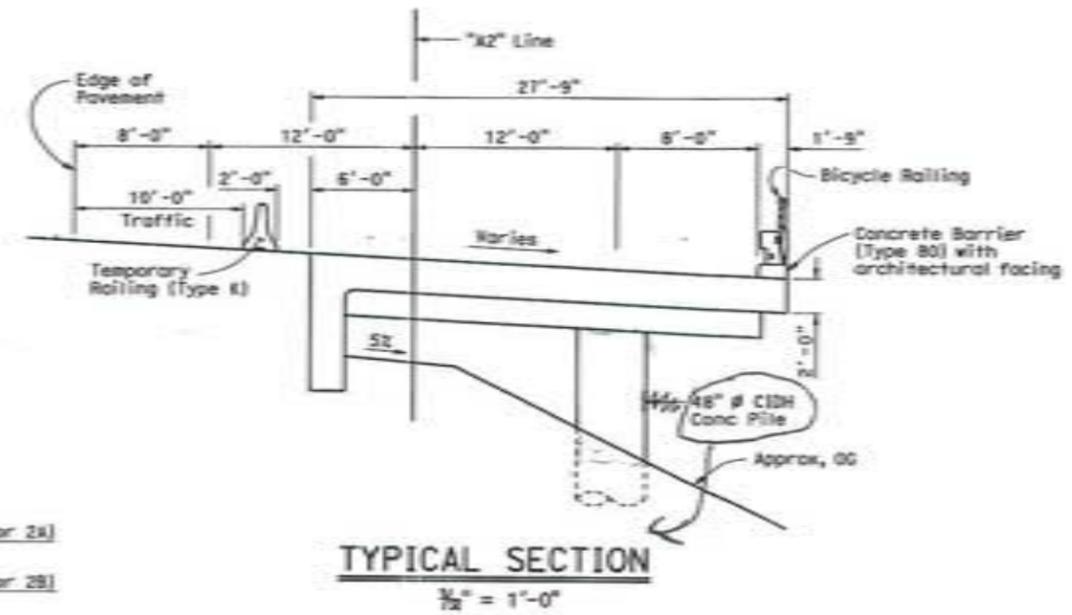
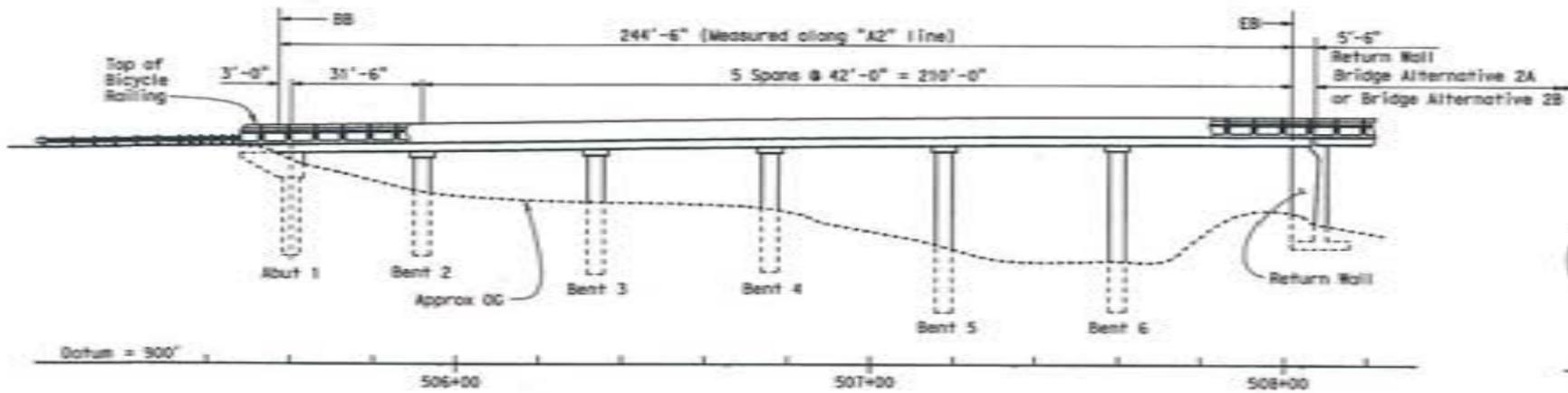
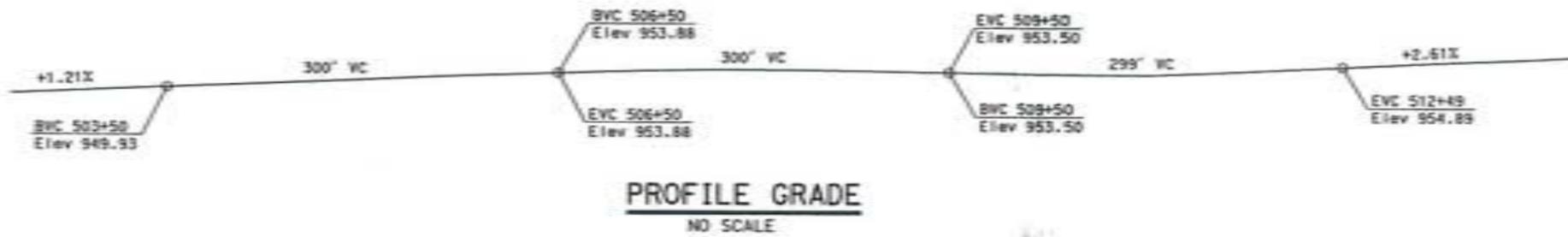
DESIGNED BY	Wladimir Shostak	DATE	03/24/09
DRAWN BY	Jie Tong	DATE	03/24/09
CHECKED BY		DATE	
APPROVED	<i>[Signature]</i>	DATE	4/1/09

STRUCTURE DESIGN BRANCH  
**1**

ALTERNATIVE 2B	
PLANNING STUDY	
SMITH RIVER BRIDGE	
BRIDGE NO. XX	01
SCALE: AS SHOWN	EA 479400

DIST.	COUNTY	ROUTE	POST MILE
01	DM	199	24.08

To get to the Caltrans web site, go to <http://www.dot.ca.gov>

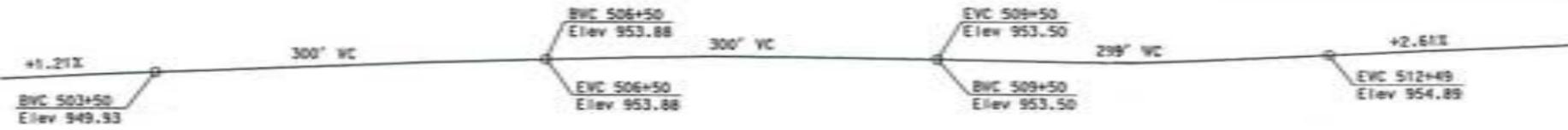


Date of Estimate	5/20/2009
Str. Depth	2'-0"
Length	244'-6"
Width	27'-9"
Area	6,785 ft <sup>2</sup>
Cost/sq ft including 10% Mobilization & 25% Contingency	\$267/ft <sup>2</sup>
Total Cost	\$1,808,000
Working Days	135

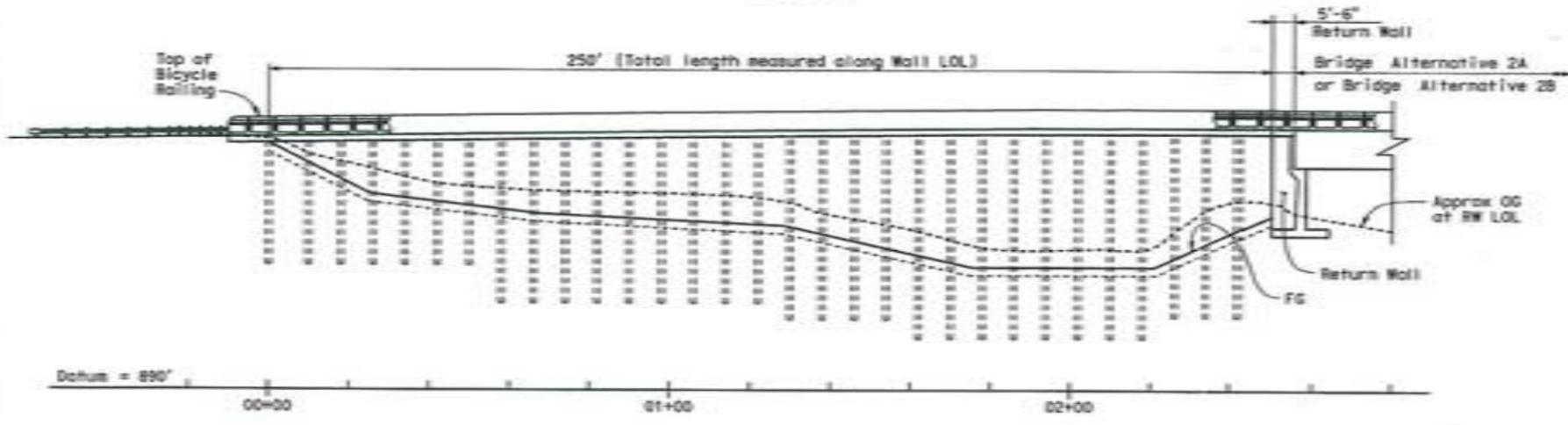
DESIGNED BY	Yodan Shostak	DATE	04/08/09
DRAWN BY	Jie Tang	DATE	04/08/09
CHECKED BY		DATE	
APPROVED		DATE	4/17/09

**STRUCTURE DESIGN BRANCH 1**

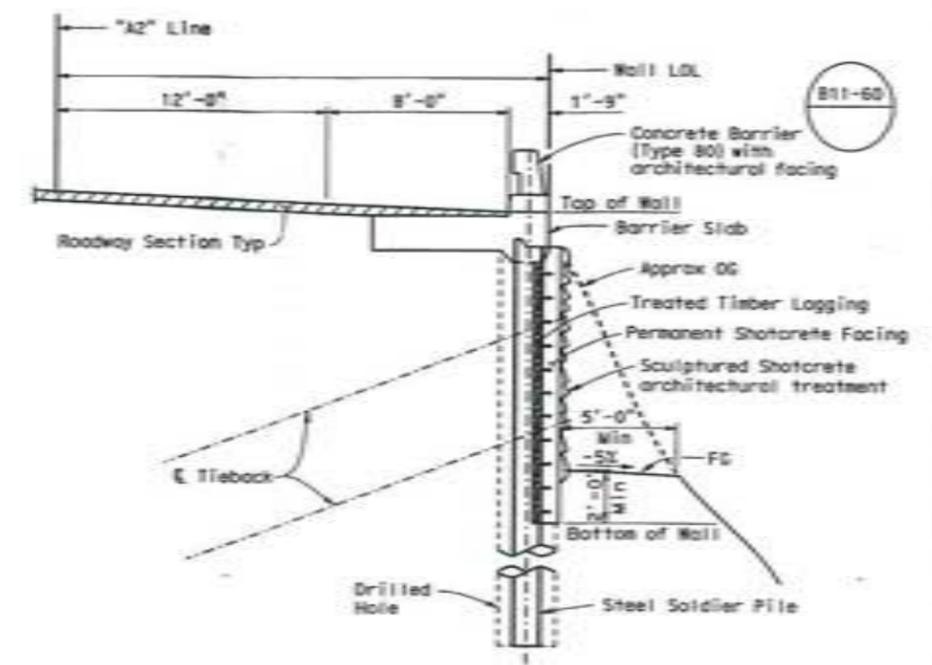
ALTERNATIVE VIADUCT FOR 2A & 2B	
<b>PLANNING STUDY</b>	
<b>SMITH RIVER BRIDGE</b>	
BRIDGE NO. XX	CU 01
SCALE: AS SHOWN	EA 479-400



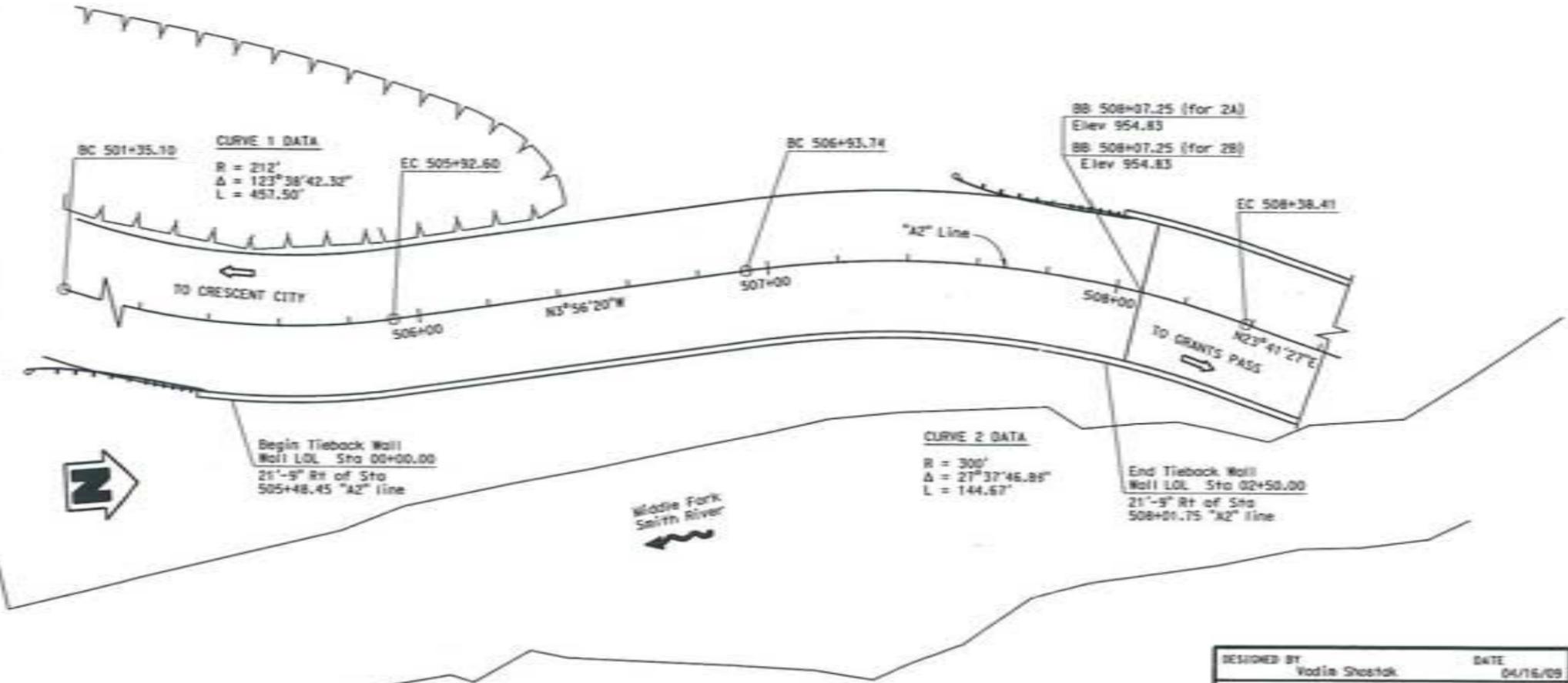
**PROFILE GRADE**  
NO SCALE



**DEVELOPED ELEVATION**  
1" = 40'



**TYPICAL SECTION**  
1/4" = 1'



**PLAN**  
1" = 40'

DIST.	COUNTY	ROUTE	POST MILE
01	DM	199	24.08

To get to the Caltrans web site, go to <http://www.dot.ca.gov>

Date of Estimate	5/20/2009
Str. Depth	N/A
Length	250'-0"
Width	N/A
Area	N/A
Cost/sq ft including	
10% Mobilization &	
25% Contingency	N/A
Total Cost	\$1,628,000
Working Days	85

DESIGNED BY	Vadja Shostak	DATE	04/16/09
DRAWN BY	Jie Tang	DATE	04/16/09
CHECKED BY		DATE	
APPROVED	<i>[Signature]</i>	DATE	4/17/09

**STRUCTURE DESIGN BRANCH**  
**1**

ALTERNATIVE TIEBACK WALL FOR 2A & 2B	
<b>PLANNING STUDY</b>	
<b>SMITH RIVER BRIDGE</b>	
BRIDGE NO. XX	CU 01
SCALE: AS SHOWN	EA 479400

# Artist Renderings for Bridge at Patrick Creek Location 2

---

\* Artist renderings of the bridge will be inserted for public review.



## **Artist Renderings of Patrick Creek Narrows, Location 2 – View of the Existing Bridge, Middle Fork Smith River**

Many bridge options are possible at this location. For full descriptions of all alternatives, please see Chapter 1 of this draft environmental document. The following renderings depict different bridge replacement options downstream of the existing bridge. The same bridge types could be built upstream of the existing bridge with the addition of a retaining wall. Another option includes preservation of the existing bridge with the addition of a retaining wall. The renderings also depict potential appearances of bridge options; final appearance may vary after consideration of public comments and design requirements.



*Proposed 197/199 Safe STAA Access Project*

## **Artist Renderings of Patrick Creek Narrows, Location 2 – Potential Arch Bridge with Retaining Wall**

Many bridge options are possible at this location. For full descriptions of all alternatives, please see Chapter 1 of this draft environmental document. These renderings depict different bridge replacement options downstream of the existing bridge. The same bridge types could be built upstream of the existing bridge with the addition of a retaining wall. Another option includes preservation of the existing bridge with the addition of a retaining wall. These renderings also depict potential appearances of bridge options; final appearance may vary after consideration of public comments and design requirements.



## **Artist Renderings of Patrick Creek Narrows, Location 2 – Potential Arch Bridge with Viaduct**

Many bridge options are possible at this location. For full descriptions of all alternatives, please see Chapter 1 of this draft environmental document. These renderings depict different bridge replacement options downstream of the existing bridge. The same bridge types could be built upstream of the existing bridge with the addition of a retaining wall. Another option includes preservation of the existing bridge with the addition of a retaining wall. These renderings also depict potential appearances of bridge options; final appearance may vary after consideration of public comments and design requirements.



*Proposed 197/199 Safe STAA Access Project*

## **Artist Renderings of Patrick Creek Narrows, Location 2 – Potential Box Girder Bridge with Retaining Wall**

Many bridge options are possible at this location. For full descriptions of all alternatives, please see Chapter 1 of this draft environmental document. These renderings depict different bridge replacement options downstream of the existing bridge. The same bridge types could be built upstream of the existing bridge with the addition of a retaining wall. Another option includes preservation of the existing bridge with the addition of a retaining wall. These renderings also depict potential appearances of bridge options; final appearance may vary after consideration of public comments and design requirements.



## **Artist Renderings of Patrick Creek Narrows, Location 2 – Potential Box Girder Bridge with Viaduct**

Many bridge options are possible at this location. For full descriptions of all alternatives, please see Chapter 1 of this draft environmental document. These renderings depict different bridge replacement options downstream of the existing bridge. The same bridge types could be built upstream of the existing bridge with the addition of a retaining wall. Another option includes preservation of the existing bridge with the addition of a retaining wall. These renderings also depict potential appearances of bridge options; final appearance may vary after consideration of public comments and design requirements.



*Proposed 197/199 Safe STAA Access Project*



Appendix R Draft Enhanced Erosion Control  
Seeding and Revegetation Plan

---



# Appendix R Draft Enhanced Erosion Control Seeding and Revegetation Plan for the 197/199 Safe STAA Access Project

---

The Department, or its contractor, would adhere to the following measures to implement the permanent enhanced erosion control seeding and revegetation for the proposed project.

Enhanced erosion control seeding would be implemented at all project locations after construction is complete. For the purposes of this project, enhanced erosion control seeding refers to using a more diverse species selection in the seed mix, including a variety of regionally appropriate native trees, shrubs, and herbs. The purpose of using enhanced erosion control seeding is to help re-establish the local natural communities in areas that are difficult to plant and maintain due to extreme conditions (e.g., dry soils, sometimes steep soil and rock slopes, nutrient-poor soils), while also meeting the goals of minimizing soil erosion and discharge of sediments to receiving waters. It would also minimize open ground available for establishment of invasive plant species, in compliance with Presidential Executive Order 13112 on Invasive Species (February 3, 1999), and it would help maintain natural ecological processes and minimize habitat fragmentation and loss.

Permanent erosion control will be applied to all disturbed soils consistent with the North Coast Regional Water Quality Control Board 401 Certification for the project and the Department’s current *Storm Water Quality Handbook Construction Site Best Management Practices Manual*. Seed mixes would be customized to address habitat variation at the different project sites and to be ecologically suitable for the site conditions after soil disturbance from construction activities. Following are anticipated customized seed mixes.

**Anticipated customized seed mixes for each location in the 197/199 Safe STAA Access project**

Project Location	Habitat for which the Customized Seed Mix will be developed
SR 197 Locations	Coast redwood forest understory and openings
US 199 Locations	Douglas-fir/ponderosa pine forest openings, including rocky, steep, dry habitats

- Seed Collection**—Seeds will be collected in the vicinity of each project location within the highway corridor, or on adjacent property with landowner permission. Seeds will be gathered from natural communities having similar plant species composition and abiotic characteristics (e.g., similar soil type, canopy cover, moisture regime, aspect, etc.) within Del Norte County. Species to be included in a seed mix and quantity of each species would be determined by what was available (under collection guidelines) within the area at the time of collection. Seed collection will focus on collecting seed of early successional or pioneer native species but will also include some slower growing and/or later successional species. The potential seeding species to be collected are the native species listed by occurrence at each location, in Appendix N. A botanist, plant ecologist, or qualified staff with knowledge of flora of the SR 197 and US 199 region will oversee the collection activities. Seed

collection would occur several times during the growing season to capture seeds from early to late blooming species prior to the anticipated completion of construction at a given location. Seed collection would be conducted in accordance with the *General Seed Collection Guidelines For California Native Plant Species* developed by the Rancho Santa Ana Botanic Garden (<http://www.rsabg.org/>)

- **Collection Permit**—An encroachment permit for the seed collection in the Caltrans right-of-way may be needed if collection is not done with in-house staff. A collection permit would be needed from the US Forest Service for any seed collection on US Forest Service property. In addition, any seed collection on private property would require approval by the property owner.
- **Preparation for Seed Collection**—During the year that seed will be collected for a given location or seed mix, a botanist, plant ecologist, or qualified staff with knowledge of flora of the SR 197 and US 199 region will conduct site visits to determine species maturity, availability, and abundance. Presence of available species for seed collection will be recorded in field notes and by photograph, and the general location of species will be mapped to a level of detail to allow future collectors to relocate the species.
- **Supplemental Seed**—In case seed collection does not provide enough seed for each location, an adequate quantity of a regional native grass species (Northwest California), such as wildrye (*Elymus glaucus*) or Idaho fescue (*Festuca idahoensis*) will supplement collected seed and ensure short-term soil stabilization during establishment of long-term native revegetation. Alternatively, depending on the quantity of native seed collected, the botanist, revegetation specialist, landscape architect, or staff with similar qualifications may reduce the amount of ordered seed based on collection results.
- **Revegetation**—Revegetation, for the purposes of this project, refers to the planting of containerized native trees, shrubs, and/or herbs in disturbed soil areas. This is proposed at Ruby 2 in front of private parcels as a visual screen, with permission from property owners, and it would also likely occur at Patrick Creek Narrows Location 2. The revegetation species list would include regionally appropriate (inland Del Norte County) trees, shrubs, and herbs that are suited to the habitats of the project area. Planting would reflect natural vegetation patterns, groupings, strata, and species diversity. The species selection and quantity will be determined based on habitat, disturbance tolerance, and desired spacing, without over-planting, and as evaluated by a qualified botanist, plant ecologist, or similarly qualified staff. The potential container plants that would be used are the native plants listed by occurrence at each location, in Appendix N.
- **Site Preparation**—On-site topsoil and/or duff (i.e., leaf litter and small branches) will be collected prior to construction whenever feasible, stockpiled, then reapplied in disturbed soils in project areas, such as along the old highway alignment that would be decommissioned if a bridge replacement alternative is selected at Patrick Creek Narrows Location 2. Off-highway staging and old highway alignment areas, where seeding or revegetation is anticipated, will require approximately 18 to 24 inches of ripping, if feasible, to de-compact soils and facilitate revegetation prior to topsoil/duff application and seeding/revegetation.
- **Invasives**—No invasive plant species would be used at any location. During the three-year revegetation monitoring period, invasive species such as Himalayan blackberry (*Rubus*

*armeniacus*, formerly *R. discolor*) and French broom (*Genista monspessulana*) will be eliminated or controlled per the Invasive Plants Avoidance, Minimization, and Mitigation Measures section (see Section 2.3.6.4).

- **Implementation Schedule**—Permanent enhanced erosion control seeding will be hydroseeded after the last soil-disturbing activities at a location are complete, or prior to end of construction. Revegetation will be implemented during the first full planting season (November to March) to prevent impacts to erosion control seeding germination and establishment, and after the first seasonal rains have saturated soils beyond the first several inches.
- **Monitoring of Enhanced Erosion Control**—Enhanced erosion control seeding would be monitored for two years, starting approximately one year after hydroseeding and preferably during the blooming season. There would be two monitoring success criteria: 70% relative cover<sup>1</sup> (except rock faces), and presence of at least 30% native species that were included in the seed mix. If the success criteria are not met, a review will be conducted by a qualified botanist, plant ecologist, or similarly qualified staff to determine potential reason(s) for failure to meet the success criteria and to develop and implement remedial measures as needed (remedial measures may not be needed if native recruitment adequately ameliorates poor planting success). Potential remedial measures may include additional native seed collection and re-seeding the project location.
- **Revegetation Monitoring**—Revegetated areas (i.e., Ruby 2 and likely Patrick Creek Narrows Location 2) will be annually census monitored. Survival will be assessed approximately one year after planting and for two subsequent years to assess the survival of installed plants (three years total). The monitoring success criterion will be that greater than 70% of plants installed at the end of the monitoring period will have survived. If survival falls below 70%, a review will be conducted by a qualified botanist, plant ecologist, or similarly qualified staff to determine potential reason(s) for failure to meet the success criterion and to develop and implement remedial measures as needed. Potential remedial measures may include re-planting, if native plant recruitment has not adequately ameliorated poor planting success.
- **Watering**—Container plants will be deep-watered immediately after planting (i.e., soils will be saturated beyond the first several inches) and mulched. Subsequent watering of the container plants via a water truck filled from commercial water sources will be conducted as directed by the botanist, plant ecologist, biologist, revegetation specialist, landscape architect, or similarly qualified staff. Watering will occur during any extensive dry period during the first month after planting, and approximately weekly during the first two years following planting (May through September). Plants are anticipated to be established after the second year of watering, so watering is not anticipated to be needed after the second year of watering.

---

<sup>1</sup> Relative cover is the proportional contribution of native species cover compared to undisturbed vegetation cover observed in adjacent areas with similar habitat.



## Appendix S List of Technical Studies

---



# Appendix S List of Technical Studies

---

## Human Environment

- Community Impact Assessment and addendum (Trott 2010)
- Historic Property Survey Report, Including Archaeological Survey Report (ICF International 2010a and 2010b)
- Resources Evaluated Relative to the Requirements of Section 4(f) (Appendix B of this EIR/EA)
- Visual Impact Assessment and addendum (ICF International 2010)

## Physical Environment

- Air Quality Study Report (ICF International 2010)
- Noise Study Report and addendum (ICF International 2010)
- Traffic Analysis Report (Fehr & Peers 2010)
- Water Quality Report (California Department of Transportation 2010)

## Floodplains/Drainage

- Draft Drainage Report for Ruby 1 (California Department of Transportation 2007a)
- Draft Drainage Report for Ruby 2 (California Department of Transportation 2008b)

## Geotechnical Reports

- Preliminary Geotechnical Report for Ruby 2 (California Department of Transportation 2008)
- Preliminary Geotechnical Report for Patrick Creek Narrows Locations 1 to 3 (California Department of Transportation 2009a)
- Structure Preliminary Geotechnical Report and Preliminary Seismic Report for Patrick Creek Narrows Location 2 (California Department of Transportation 2009b)
- Advanced Planning Study Transmittal for Patrick Creek Narrows Locations 1 to 3 (California Department of Transportation 2009c)
- Preliminary Geotechnical Report for The Narrows (California Department of Transportation 2009d)
- Preliminary Geotechnical Report for Washington Curve (California Department of Transportation 2009e)

### **ADL, NOA, and LCP Site Investigations**

- ADL Site Investigation Report for Ruby 1 (Geocon Consultants, Inc. 2008a)
- Transmittal Memorandum of an ADL Site Investigation Report for Ruby 1 (Werner 2008a)
- ADL Site Investigation Report for Ruby 2 (Geocon Consultants, Inc. 2008b)
- NOA Site Investigation Report for Patrick Creek Narrows Location 1 (Geocon Consultants, Inc. 2008c)
- Transmittal Memorandum of NOA Site Investigation Report for Patrick Creek Narrows Location 1 (Werner 2008c)
- Asbestos and Lead-Containing Paint Survey Report for Patrick Creek Narrows Location 2 (Geocon Consultants, Inc. 2009)
- Revised NOA Disposal Requirements for Patrick Creek Narrows Location 1 (Werner 2009a)
- ADL and NOA Site Investigation Report for Washington Curve (Geocon Consultants 2009b)

### **Initial Site Assessments**

- ISA for Ruby 1 (Werner 2007a)
- ISA and Transmittal Memorandum of an ADL Site Investigation Report for Ruby 2 (Werner 2008b)
- ISA for Patrick Creek Narrows Locations 1 to 3 (Werner 2007b)
- ISA for The Narrows (Werner 2005)
- ISA for The Narrows—Follow-Up Memorandum (Werner 2009b)
- ISA for Washington Curve (Werner 2008d)
- ISA for Washington Curve—revised (Werner 2009c)

### **Biological Environment**

- Natural Environment Study (California Department of Transportation 2010), including the following attachments:
  - Memorandum regarding Results of Bat Surveys (ICF International 2009)
  - Cryptogamic Survey Report (ICF International 2010)
  - Delineation of Wetlands and Other Waters for Ruby 1, Ruby 2, and The Narrows (ICF International 2010)
  - Delineation of Wetlands and Other Waters for Patrick Creek Narrows locations and Washington Curve (California Department of Transportation 2010)
  - Noise Impacts on Fish and Birds (ICF International 2010)

- Special-Status Plants Survey Report (ICF International 2010)
- Tree Survey Report (ICF International 2010)

