Attachment 2

Caltrans On-Site Restoration and Monitoring Proposal for the Whole Enchilada Curve Improvement Project

Trinity County, State Route 299
PM 0.40/0.85
EA: 02-2E350
EFIS: 02-0000-0211

December 2012

Prepared by:

Brian Humphrey Date: 12-19-12

Brian Humphrey
Associate Environmental Planner, Coordinator/Biologist
Office of Environmental Management R-1
Caltrans District 2 North Region

Table of Contents

Summary.....1
Project Location and Description.....1
Environmental Setting.....1
Project Impacts.....2
Other Waters of the U.S.....2
Riparian.....2
On-Site Restoration.....3
Proposed Restoration of Potential Waters of the U.S.....3
Proposed Riparian Revegetation.....3
Implementation.....4
Plant Material.....4
Monitoring Methods and Schedule.....4
Success Criteria.....4
Contingency Measures.....4

List of Figures

Figure 1. U.S.G.S. Map with Drainages

Figure 2. Riparian Impacts at PM 0.50

Figure 3. Planing Areas at PM 0.50

Figure 4. Planting Area at PM 0.74

List of Tables

Table 1. Total Impacts and Proposed Restoration

Table 2. Waters of the U.S. Impacts

Table 3. Riparian Impacts

Table 4. Linear Feet of Re-Vegetation

Table 5. Summary of Areas to be planted

SUMMARY

This restoration plan has been prepared to compensate potential impacts to riparian habitat and jurisdictional waters of the United States (U.S.) as a result of the Whole Enchilada Curve Improvement project, located on State Route (SR) 299 between post mile 0.40 and 0.85. The proposed culvert replacement and placement of rock slope protection (RSP) at PM 0.50 is anticipated to permanently impact 71.6 linear feet of jurisdictional waters of the U.S. and remove approximately 2,494 ft² of vegetation considered to provide riparian function. Riparian vegetation anticipated to be removed consists of white alder (*Alnus rhombifolia*) and big leaf maple (*Acer macrophylum*). Douglas fir (*Pseudotsuga menziesii*), Pacific madrone (*Arbutus menziesii*), tan oak (*Lithocarpus densiflorus*), and California black oak (*Quercus kelloggii*) will also be removed, which are not considered riparian vegetation, but provide riparian function.

In an attempt to off-set both impacts to jurisdictional waters of the U.S. and riparian vegetation, Caltrans is proposing to replant a total of 89 linear feet of stream bank at PM 0.50 and 0.74. Approximately 3,128 ft² of native vegetation will be planted on-site at PM 0.50 and 0.74 to function as riparian habitat. White alders will be planted along the drainage at PM 0.50, while a combination of native species will be planted further upslope at PM 0.50 and 0.74. Planted upslope vegetation may consist of big leaf maples, Douglas firs, Pacific madrone, and California black oaks. The proposed re-vegetation efforts are anticipated to offset potential impacts to riparian and other waters of the U.S. (Table 1).

Table 1. Total Impacts and Proposed Restoration

	Other Waters of the U.S.	Riparian ft² (acre)
Impacts	71.6 linear feet	2,494 ft² (0.057 acre)
Proposed Restoration	89 linear feet * Culvert Treatments	3,128 ft² (0.072 acre)

* Proposed inlet and outlet treatments reduce erosion and minimize sediment from entering the Trinity River.

PROJECT LOCATION AND DESCRIPTION

The California Department of Transportation (Caltrans) and Federal Highway Administration (FHWA) are proposing to realign a section of SR 299 from PM 0.40 to 0.85, located west of the community of Salyer, in Trinity County. The proposed project will improve this section of highway by increasing the radius of the curves, improving the super-elevation (cross-slope) transitions of the roadway and providing 4' paved shoulders throughout the project limits. Three earth retaining structures (retaining walls) will be constructed to provide the necessary width for the required radius of curves. Five existing cross-culverts (PM 0.41, 0.50, 0.67, 0.74, and 0.83) are located within the project limits, while only three (PM 0.50, 0.67, 0.83) will require modification. Drainage work at PM 0.50 is proposed within jurisdictional waters of the U.S. This location the culvert will be replaced and extended approximately 44.3 feet upstream. In addition, RSP will also be placed at the inlet and outlet of the culvert.

ENVIRONMENTAL SETTING

This section of highway is located adjacent to the Trinity River, approximately 0.5 mile upstream of the confluence with the South Fork Trinity River. Two unnamed tributaries cross under SR 299 within the project limits at PM 0.50 and 0.74. Based on the Salyer 7.5 minute U.S.G.S.

quadrangle, the tributary at PM 0.74 is depicted as a perennial stream, while the un-named tributary at PM 0.50 does not appear on the map at all (Figure 1). The topography adjacent to the roadway is very steep with dense and mature vegetation. Due to the steepness of slopes and maturity of vegetation, the drainages are well shaded. Habitats within the project limits are most closely characterized as a mixture of "Douglas-fir" and "montane hardwood" habitats as described by the California Wildlife Habitat Relationship System. The overstory consists primarily of Douglas fir, Pacific madrone, big leaf maple, California black oak, tanoak, and canyon live oak (*Quercus chrysolepis*). Dominant understory throughout the project limits consists of Himalayan blackberry (*Rubus discolor*) and poison oak (*Toxicodendron disversilobum*).

PROJECT IMPACTS

Other Waters of the U.S.

The existing 6' x 6' concrete box culvert at PM 0.50 will be replaced with a 48" diameter plastic pipe culvert and extended 44.3' upstream, resulting in approximately 44.3' of permanent impacts to waters of the U.S. The placement of RSP will permanently impact 15.3' at the proposed inlet and approximately 12.0' at the culvert outlet. The proposed project is anticipated to permanently impact a total of 71.6' of waters of the U.S. (see Table 2).

Table 2. Waters of the U.S. Impacts

	Upstream		Downstream	Total
	Culvert	RSP	RSP	
Length (feet)	44.3 ft.	15.3 ft.	12.0 ft.	**71.6 ft.**

Riparian

The overstory vegetation adjacent to the drainage at PM 0.50 includes riparian species such as white alder and big leaf maple, as well as species not considered riparian vegetation, such as Douglas fir, Pacific madrone, tan oak, and California black oak. For the purpose of determining impacts to riparian vegetation, overstory vegetation adjacent to the drainage was considered riparian, since the adjacent vegetation does provide some form of riparian function (canopy cover, invertebrates, bank stabilization, and large woody debris).

Riparian vegetation will be impacted at PM 0.50 as a result of the proposed culvert replacement. The placement of the new culvert and RSP at the inlet will impact approximately 2,424 ft.² of riparian vegetation, including Douglas fir, Pacific madrone, big leaf maple, tanoak, and white alder, ranging in size from 2" to 23" diameter at breast height (dbh) (Figure 2). The placement of RSP at the outlet will impact approximately 70 ft.² of riparian vegetation, located outside the channel, including big leaf maple and California black oak, ranging in size from 2.5" to 8" dbh, which were considered riparian even though they were located outside the channel. Proposed construction activities will impact approximately 2,494 ft.² of riparian vegetation (see Table 3).

Table 3. Riparian Impacts

	Area	
	Square feet	**acre**
Upstream	2,424	0.0557
Downstream	70	0.0016
Total	**2,494**	**0.0573**

ON-SITE RESTORATION

Proposed Restoration of Potential Waters of the U.S.

Following construction, approximately 89' of stream channel will be planted with riparian species at PM 0.50 and 0.74 (Table 4). The proposed drainage work and placement of RSP at the culvert inlet and outlet will improve water quality within the Trinity River by reducing erosion and minimizing sediment from entering the Trinity River.

Table 4. Linear Feet of Re-vegetation

Post Mile	Linear Feet of Plantings
0.50 inlet	27 ft
0.50 outlet	29 ft
0.74 outlet	33 ft
Total	**89 ft**

Proposed Riparian Revegetation

Caltrans is proposing to replace/enhance approximately 3,128 ft² (0.072 acre) of riparian habitat on-site following construction at two locations (PM 0.50 and 0.74). These locations were chosen based on the amount of flows within the drainages, anticipated tree removal, and areas void of riparian vegetation. The drainage at PM 0.50 was selected, since riparian vegetation was being removed at this location and there were areas where the existing riparian vegetation could be enhanced. In addition, upland species will be planted upslope of the existing culvert outlet at PM 0.74, which will enhance the overall riparian canopy of the perennial stream. A Caltrans biologist will be responsible for the implementation and/or supervision of plantings.

PM 0.50 (inlet)

Approximately 1,633 ft² of riparian vegetation will be planted upslope of the proposed culvert inlet and RSP. White alders will be planted along both banks of the drainage upstream of the proposed culvert inlet for approximately 27', while big leaf maples, Douglas firs, and/or other native species will be planted further upslope.

PM 0.50 (outlet)

Approximately 822 ft² of stream bank will be planted downstream of the proposed culvert outlet and around the proposed RSP. White alders or big leaf maples will be planted along both banks of the drainage downstream of the culvert outlet for approximately 29', while California black oaks, big leaf maples, and/or other native species will be planted further upslope.

PM 0.74

Approximately 673 ft² of upslope habitat will be planted with big leaf maples, Pacific madrone, California black oaks, and/or other native species found on-site. The planting area is located

around the proposed downdrain and downslope of the proposed retaining wall structure, which is located on the east bank of the outlet.

Table 5. Summary of Areas to be Planted

Post Mile	Planting Area
0.50 inlet	1,633 ft^2
0.50 outlet	822 ft^2
0.74 outlet	673 ft^2
Total	**3,128 ft^2**

Implementation Schedule: Revegetation plantings are anticipated to take place following construction during the fall/winter of 2014. Revegetation work will be implemented either by Caltrans Biologists or contracted agency. Oversight will be provided by Caltrans if an agency is contracted to provide the implementation.

Plant Material: Plant material will be purchased from a local nursery. White alder cuttings and California black oak acorns may be collected and planted as well.

Monitoring Methods and Schedule: The planted areas will be visually inspected by the re-vegetation specialist/project biologist for a 3-5 year period. Monitoring will take into account variable precipitation and weather conditions and their effects on vegetation establishment and growth. Monitoring surveys will also record any evidence of erosion problems, as well as human and wildlife disturbances. Monitoring of each site will start the season immediately following planting.

Success Criteria: If all tree species planted achieve a minimum of 60 percent survival rate, monitoring may discontinue after 3 years. If the 60 percent survival rate has not been achieved by year 3, two more years of monitoring will be required.

Contingency Measures: If a performance criterion is not met for all or any portion of the mitigation project in any year, additional effort will be implemented to meet the criterion stated above. The reason for not meeting the criterion will be evaluated and corrected. If significant measures are needed, the planting strategy will be re-evaluated, including looking at soil conditions, hydrology, site preparation, planting techniques and materials. Caltrans will also coordinate with the permitting agencies to determine appropriate remedial actions. If significant remediation measures are needed, the maintenance and monitoring obligations will continue until met.

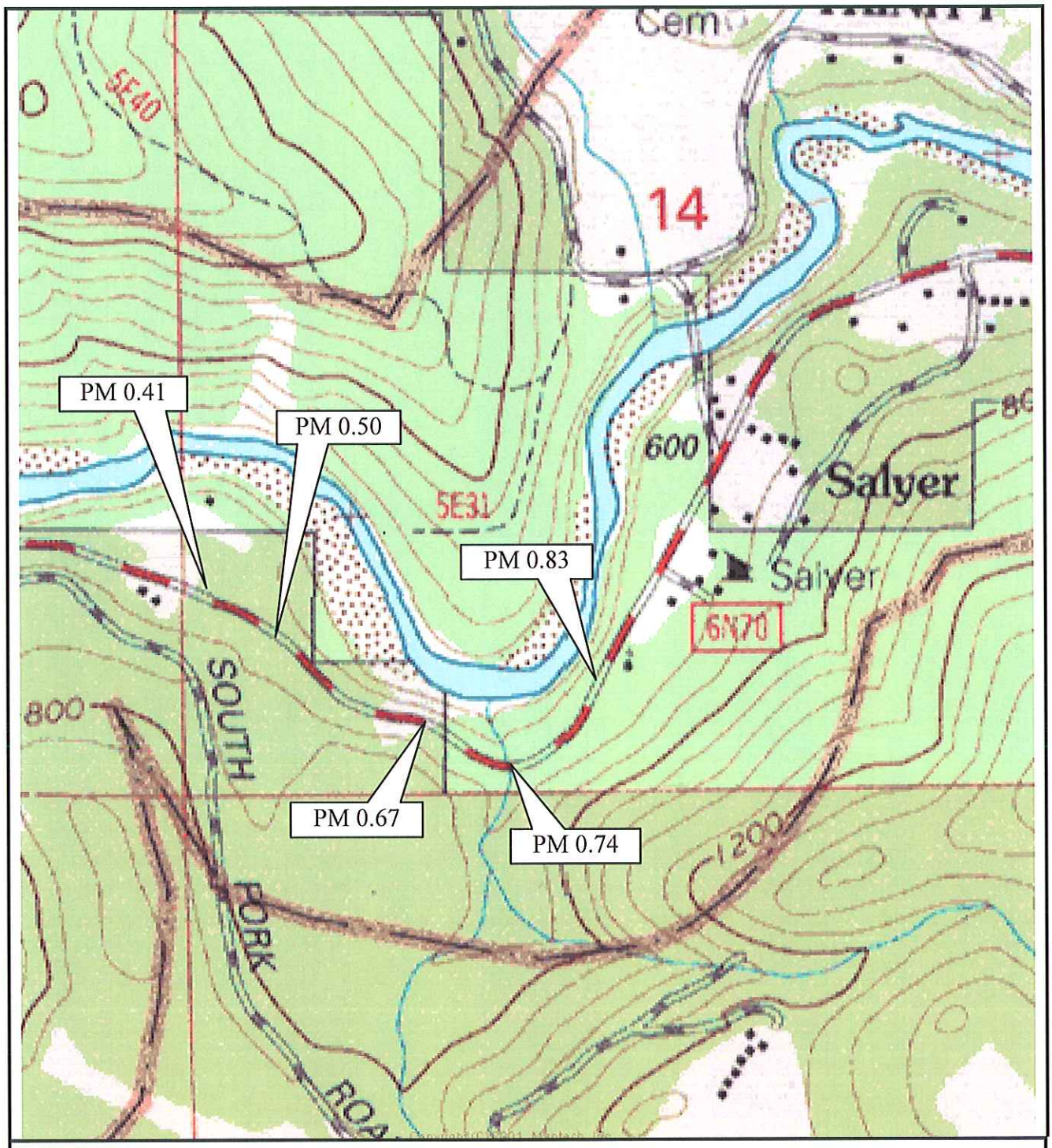


Figure 1.
U.S.G.S. Map with Drainage Locations

Caltrans	State of California Department of Transportation	
	TRI-299 – PM 0.40/0.85 EA 02-2E350	Base Map: Salyer 7.5 minute U.S.G.S. quadrangles

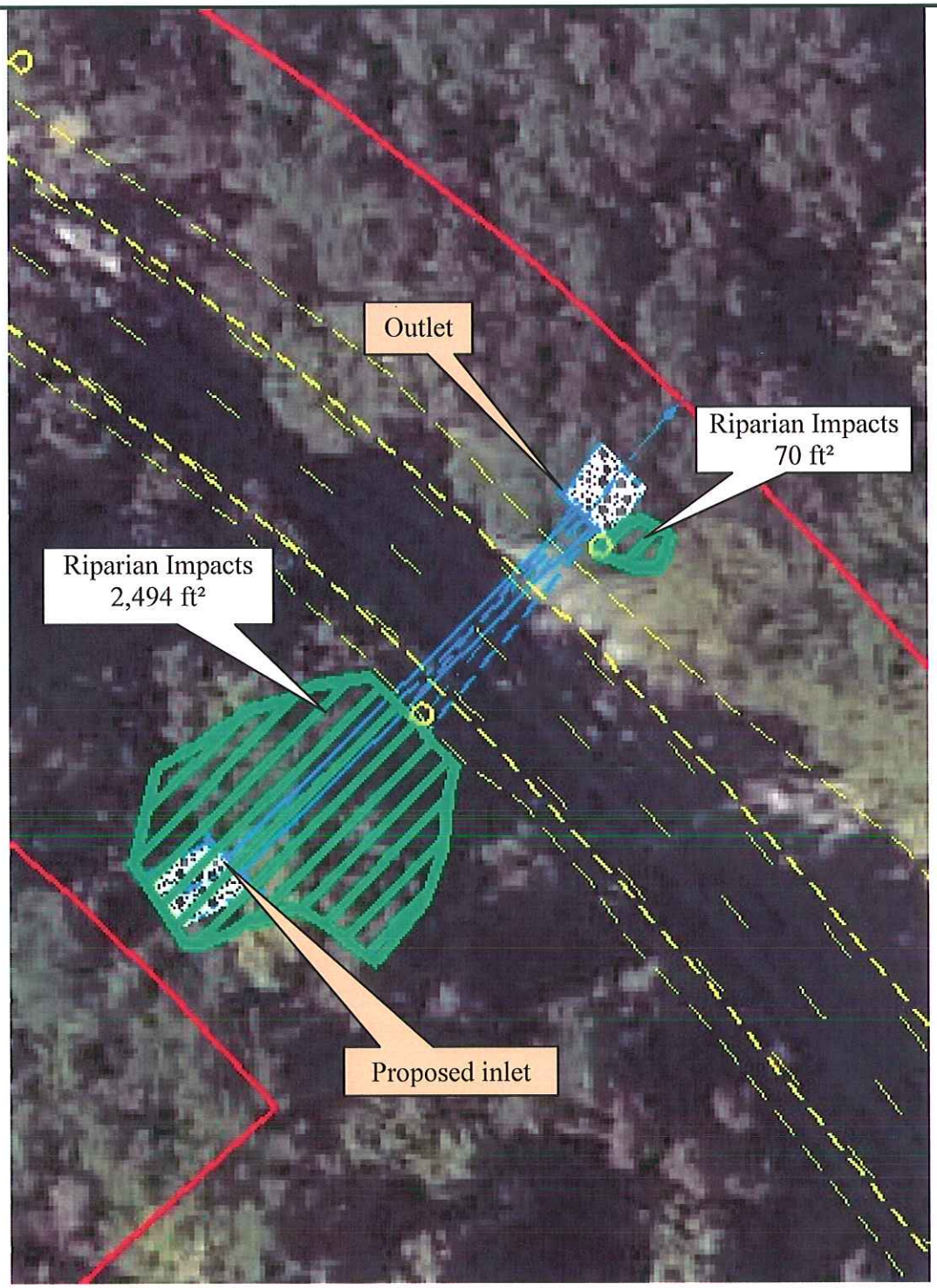
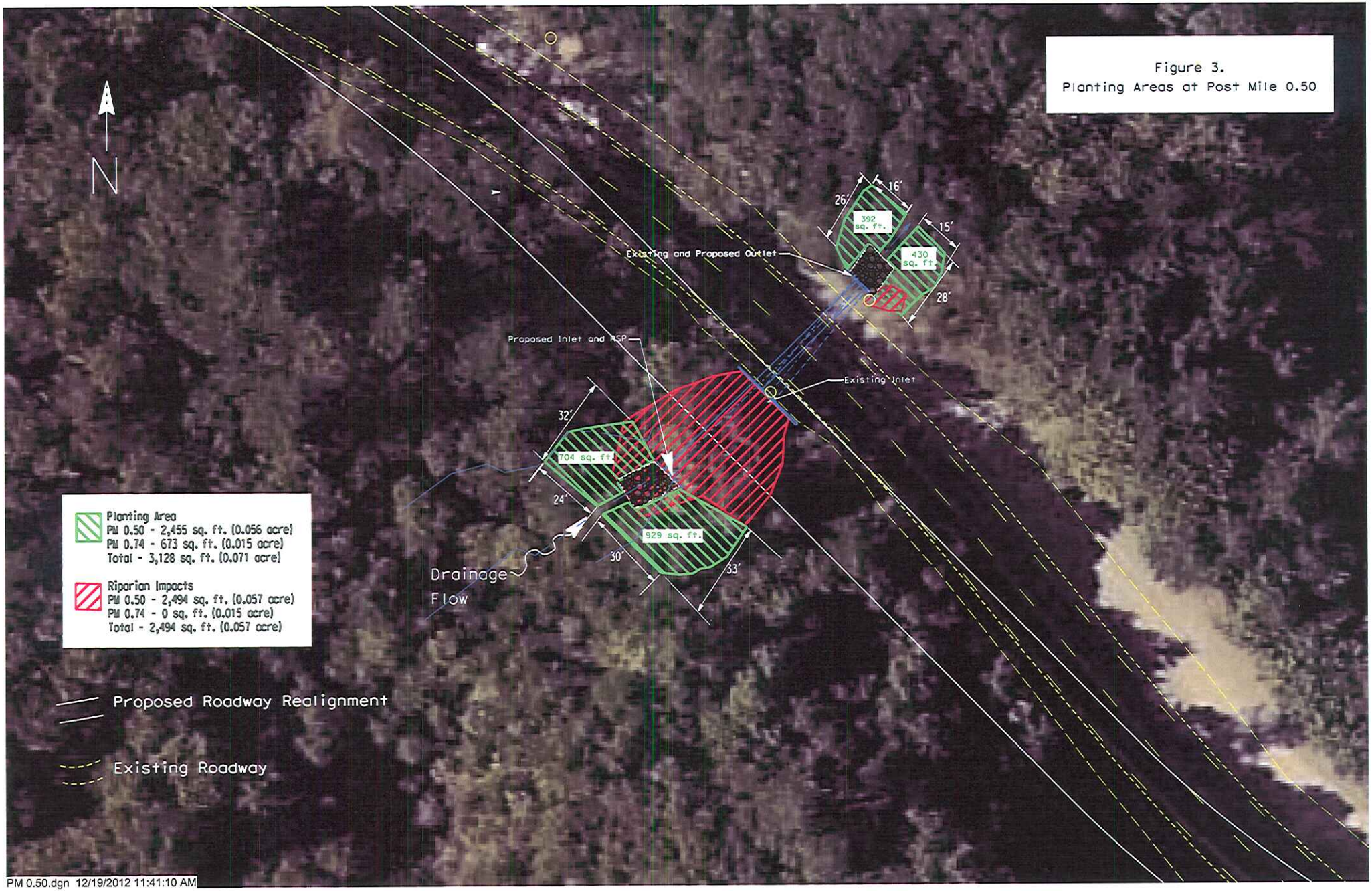


Figure 2.
Riparian Impacts at Post Mile 0.50

Caltrans	State of California Department of Transportation	Whole Enchilada Curve 02-TRI-299 PM 0.40/0.85 EA 02-2C950


N
Figure 3.
Planting Areas at Post Mile 0.50
Existing and Proposed Outlet
26'
16'
392 sq. ft.
15'
430 sq. ft.
28'
Proposed Inlet and MSP
Existing Inlet
32'
704 sq. ft.
24'
929 sq. ft.
30'
33'
Drainage Flow
Planting Area
PM 0.50 - 2,455 sq. ft. (0.056 acre)
PM 0.74 - 673 sq. ft. (0.015 acre)
Total - 3,128 sq. ft. (0.071 acre)
Riparian Impacts
PM 0.50 - 2,494 sq. ft. (0.057 acre)
PM 0.74 - 0 sq. ft. (0.015 acre)
Total - 2,494 sq. ft. (0.057 acre)
Proposed Roadway Realignment
Existing Roadway
PM 0.50.dgn 12/19/2012 11:41:10 AM

PM 0.74.dgn 12/19/2012 10:43:27 AM